E. V. BUSKO

AUTHENTIC VIDEO IN LEARNING ENGLISH FOR MEDICAL SPECIALTIES

Minsk BSMU 2021

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ
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КАФЕДРА ИНОСТРАННЫХ ЯЗЫКОВ

Е. В. Бусько

АУТЕНТИЧНОЕ ВИДЕО В ОБУЧЕНИИ АНГЛИЙСКОМУ ЯЗЫКУ ДЛЯ МЕДИЦИНСКИХ СПЕЦИАЛЬНОСТЕЙ

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Учебно-методическое пособие

Минск БГМУ 2021

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На английском языке

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ПРЕДИСЛОВИЕ

Основной задачей издания является формирование у студентов-медиков умения использовать английский язык как средство профессионального общения. Учебно-методическое пособие предусматривает развитие у обучающихся навыков аудирования, монологической и диалогической устной речи на основе аутентичного материала и разработанной к нему системы упражнений.

Тематика видеоматериала соответствует требованиям программы и отражает содержание профессиональной подготовки студента-медика. Учебно-методическое пособие состоит из 7 блоков: «Лечебные учреждения. Персонал больниц», «Инфекционные заболевания», «Внутренние органы», «Заболевания дыхательных путей», «Заболевания сердечно-сосудистой системы», «Заболевания пищеварительного тракта», «Заболевания печени и желчевыводящих путей», каждый из которых содержит по 3–5 оригинальных специализированных видеофильма. Для каждого видеофильма разработана система упражнений на формирование фонетических и лексических навыков, на развитие навыков и умений аудирования и говорения. В конце каждого блока обучающимся предлагаются задания для самоконтроля, которые снабжены ключами, что позволяет студентам объективно оценивать достигнутые результаты и обеспечивает обратную связь.

В приложении (Appendix) предлагаются скрипты к фильмам.

Иллюстративный материал, содержащийся в учебно-методическом пособии, и обозримое построение уроков призваны обеспечивать наглядность и преемственность в овладении материалом, а также способствовать развитию интереса и повышению мотивации учащихся. В ряде случаев изображения играют роль графического стимула устной профориентированной монологической речи студентов.

Учебно-методическое пособие может быть использовано для работы как под руководством преподавателя, так и для самостоятельной работы.

Unit 1. HOSPITALS. HOSPITAL STAFF

SKAGIT VALLEY HOSPITAL

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

Skagit Valley Hospital	['skædʒɪt 'vælɪ 'hɔspɪt(ə)l]
Shawna Laursen	['ʃɔːnə 'laːs(ə)n]
triage	['triːɑːʒ]
to assess	[ə'ses]
urgent	['ɜːdʒ(ə)nt]
to verify	['verɪfaɪ]
to appreciate	[ə'priːʃɪeɪt]
unpredictable	[ˌʌnprɪ'dɪktəbl]
allergy	['ælədʒɪ]
life-threatening	[laɪf 'θret(ə)nɪŋ]
Mount Vernon	[maunt 'vəːnən]
Arlington	['ɑːlɪŋtən]

b) Study the meaning of the words.

triage .....['triːɑːʒ] .....установление очерёдности медицинской помощи
to provide.....[prə'vaɪd] .....обеспечивать
brief .....[briːf].....краткий
first come, first served basis .....обслуживание в порядке очереди, без предварительной записи
peak hours.....[piːk auəz] .....период наибольшей загрузки
acuity .....[ə'kjuːətɪ] .....острый характер (болезни)
pending .....['pendɪŋ] .....зд. в ожидании
unpredictable .....[ˌʌnprɪ'dɪktəbl] .....непредсказуемый
to hook up.....[h'ʊk].....подключать

c) Guess the meaning of the words according to the definition.

trust.....firm belief in the reliability, truth, or ability of someone or something
vital signs.....clinical measurements, specifically pulse rate, temperature, respiration rate, and blood pressure, that indicate the state of a patient's essential body functions
to appreciate .....to be grateful for something
front desk.....the reception desk in a large organization
to verify .....to make sure that something is true, accurate, or justified
lobby.....a room providing a space out of which one or more other rooms or corridors lead, typically one near the entrance of a public building
call light.....a light or other visible object serving as a signal, warning
hearing-impaired .....partially or completely deaf
location .....the place where something is situated

COMPREHENSION CHECK

II. Watch the video. Say what it presents.

1) A part of a conference.
2) A hospital presentation.
3) A scientific report.

III. Decide what the main idea of the episode is.

1) To educate medical students.
2) To teach general practitioners to deal with patients.
3) To give information to the patients about their staying at hospital.

IV. Watch the video for the second time. Agree or disagree with the following.

1) A doctor on duty takes a brief history, assesses symptoms, and checks vital signs to determine the severity of the patient's condition.
2) A process called "triage" means that patients are not seen on a first come, first served basis.
3) Patients should understand there are no medical conditions to be treated urgently.
4) Skagit Valley Hospital staff sees on average about 100 patients each day.
5) An unexpected number of patients arriving by ambulance cannot influence wait times.
6) There is no need to check your name and birth date before any lab tests or procedures are initiated.
7) If you do not require admission, you will be given a treatment plan which may include medications, activity restrictions and recommended follow-up care.
8) As emergency departments are busy places your family members or guests should stay with you in the room.

V. Complete the following sentences. Use the hints from the box.

1) The team of doctors, nurses and other health care professionals are specially trained …
2) Patients who have urgent medical conditions or injuries …
3) If your condition worsens while you're waiting to be seen, …
4) Waits at the hospital may be due to an increase in the number of very ill patients and …
5) If you do not require admission to the hospital, …
6) The nurse or technician will give you a "call light" which you can use …
7) Patients should inform their providers about their regular medications and …
8) Translation and Interpreter Services are provided for those who …

a) inform the registering clerk immediately.
b) to communicate with your nurse.
c) to provide you with high quality emergency care.
d) the provider will talk with you about your diagnosis and give you a treatment plan.
e) any allergies they may have.
f) pending test results.
g) are seen faster than patients with less urgent conditions.
h) may be hearing-impaired or don't speak English.

SPEAKING TASK

VI. Answer the questions.

1) Who provides patients with high quality emergency care?
2) What does a process “triage” include?
3) What patients are seen first?
4) Does the hospital stuff try to evaluate patients with lesser acuity illnesses in a shorter way time as possible? Why?
5) What factors may influence wait times?
6) What is the average time for test results?
7) What does a treatment plan include?
8) Who should you speak with if you have questions?
9) What is there in every room?
10) What are the working hours of all urgent care locations?

VII. Work in pairs.

1) Make up a dialogue between a patient with a broken leg and a registering clerk (speak about the process of hospitalization, the service provided by the hospital).
2) Make up a dialogue between the mother of a child with a mild burn and a health care provider (speak about wait time, different tests, visiting hours).
3) Make up a dialogue between a patient who is choosing a hospital and the Medical Director at Skagit Valley Hospital Emergency Department (speak about the process of hospitalization, the service provided, different tests, visiting hours).

GENERAL ANESTHESIA

PRE-VIEWING TASK

I. Vocabulary practice.
Pay attention to the pronunciation and meaning of the words.

anesthesia	[ˌænɪs'θiːzɪə]	анестезия, обезболивание
an extensive procedure	[ɪk'stensɪv prə'siːʤə]	обширная процедура
the IV	[ˌaɪ 'viː]	капельница
cannula	['kanjʊlə]	канюля, катетер
a blood pressure cuff	['blʌdˌpreʃə kʌf]	манжета для измерения кровяного давления
heart rate	['hɑːt reɪt]	частота сердцебиения
a sticky pad	['stɪkɪ pæd]	липкая мягкая прокладка
a clip	[klɪp]	клипса
a device	[dɪ'vaɪs]	устройство, приспособление
oxygen	['ɔksɪʤən]	кислород
a windpipe	['wɪn(d)paɪp]	трахея

brain	[breɪn]	головной мозг
to absorb	[əb'zɔːb]	всасывать, впитывать
to awaken	[ə'weɪk(ə)n]	просыпаться
disoriented	[dɪs'ɔːrɪəntɪd]	дезориентированный
light-headed	[ˌlaɪt'hedɪd]	испытывающий головокружение

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) доставлять жидкость и лекарства
2) кровоток
3) показания кровяного давления
4) уровень кислорода в организме
5) жизненные показатели
6) вдыхать ингаляционный анестетик
7) посредством внутривенной инъекции
8) смесь кислорода и анестезирующих газов
9) трубка, вставленная в дыхательное горло
10) отменить анестезию
11) послеоперационная палата
12) обезболивающее
13) чувствовать головокружение и легкую дезориентацию
14) быть стабильным

III. Complete the following sentences. Use the hints from the box.

1) General anesthesia is given … .
2) Before general anesthesia is given, … .
3) A blood pressure cuff is placed on your arm … .
4) Sticky pads are placed on your chest … .
5) A clip is put on your finger … .
6) The anesthesia specialist … before, during and after your procedure.
7) A patient … by either breathing anesthetic gases through a mask or through IV injection.
8) A patient … either through a mask or through a special tube inserted through his mouth and into his windpipe.
9) After the operation the anesthesia specialist … and you will awaken quickly.
10) After the operation a patient … .

a) monitors your vital signs
b) an IV line is placed in a vein in your arm using a small tube, called a cannula
c) receives general anesthesia
d) to put you to sleep and keep you free from pain
e) gives you medications to reverse the anesthesia
f) to check your heart rate
g) to check your blood pressure readings
h) to check your body's oxygen levels
i) receives a mixture of oxygen and anesthetic gases
j) is closely monitored and given pain medication as needed

SPEAKING TASK

IV. Make a summary of the video. Use the plan.

1) General anesthesia: when it is used.
2) Before the procedure.
3) How anesthesia works.
4) After the procedure.

THE OPERATING ROOM

PRE-VIEWING TASK

I. Vocabulary practice.
Pay attention to the pronunciation and meaning of the words.

anxiety	[æŋ(g)'zaɪətɪ]	беспокойство, тревога, страх
pre-op holding area	[priː 'ɔp 'eərɪə]	предоперационная зона
verification	[ˌverɪfɪ'keɪʃ(ə)n]	подтверждение правильности
anesthesiologist	[ˌænəsθiːzɪ'ɔlədʒɪst]	анестезиолог
safety belt	['seɪftɪˌbelt]	предохранительный пояс
thigh	[θaɪ]	бедро
no wiggle room	[wɪgl]	нет места для маневров
a flurry of activity	['flʌrɪ]	бурная деятельность
oxygen level	['ɔksɪdʒən]	уровень кислорода
allergy	['ælədʒɪ]	аллергия
anesthetic	[ˌænɪs'θetɪk]	обезболивающее средство
vitals	['vaɪt(ə)lz]	жизненно важные показатели

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) операционная
2) хирургическая команда
3) катить на каталке
4) мера безопасности
5) стерильные компоненты
6) быть подключенным к мониторам
7) частота сердцебиения
8) перечень контрольных вопросов безопасной хирургии
9) история болезни
10) анестезиологическая бригада
11) антисептический раствор

12) снизить риск заражения
13) стерильные салфетки; простыни
14) стерильная повязка
15) послеоперационная палата
16) сестринский уход
17) хирургическое отделение

III. Agree or disagree with the following.

1) Your surgeon will first meet you in the pre-op holding area and will ask you a number of questions for patient verification.
2) Your anesthesiologist will talk to you before the operation.
3) A safety belt is placed across the patient's thighs so that he does not move during the operation.
4) When you first arrive to the operating room, there will be a few people working around you: a nurse and a surgeon.
5) The patient is hooked up to monitors.
6) After the prep, the patient is left uncovered so that the surgeon can operate comfortably.
7) All in all, it takes about 1 hour from when the patient enters the operating room until the surgeon is ready to start the procedure.
8) When the surgery is finished, the patient is taken to the recovery room.
9) As soon as the patient wakes up from the surgery in the recovery room, he is discharged.
10) The patient is always the most important person in the operating room.

SPEAKING TASK

IV. Answer the questions.

1) What questions is the patient asked for verification in the pre-op holding area?
2) How does the patient get into the operating room?
3) What does a member of the nursing team do in the operating room?
4) How many people prepare the patient for the surgery?
5) What is the safe surgery checklist?
6) What questions does the safe surgery checklist include?
7) What is a prep of the surgical area?
8) What do monitors control?
9) Who takes care of the patient when he wakes up from the surgery?
10) How is the patient monitored in the recovery room?

V. Speak on the following.

1) In the pre-op holding area.
2) The duties of the surgical team.
3) The prep of the patient.
4) The postoperative care.

LAPAROSCOPIC APPENDECTOMY

PRE-VIEWING TASK

I. Vocabulary practice.
Pay attention to the pronunciation and meaning of the words.

laparoscopic	[læpərə'skɒpɪk]	лапароскопический
appendectomy	[ˌæpən'dektəmɪ]	удаление аппендикса, аппендэктомия
appendicitis	[əˌpendɪ'saɪtɪs]	аппендицит
distension	[dɪ'stenʃ(ə)n]	расширение, удлинение
keyhole	['kiːhəul]	малоинвазивный
puncture	['pʌŋkʧə]	прокол
intravenous line	[ˌɪntrə'viːnəs]	внутривенный катетер, капельница
catheter	['kæθɪtə]	катетер
bladder	['blædə]	мочевой пузырь
trocar	['trəukɑː]	троакар
navel	['neɪv(ə)l]	пупок
umbilicus	[ʌm'bɪlɪkəs]	пупок
carbon dioxide	['kɑːb(ə)n daɪ'ɔksaɪd]	углекислый газ
to grasp	[grɑːsp]	захватывать
specimen bag	['spesəmɪn bæg]	мешок для образцов
to instill	[ɪn'stɪl]	вводить малыми дозами
staple	['steɪpl]	скоба

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) повышенное количество лейкоцитов
2) опасная для жизни перфорация или разрыв
3) в экстренном порядке
4) лапароскопические методы
5) крошечные малоинвазивные разрезы
6) более короткий период восстановления
7) дыхательная трубка
8) отводить мочу
9) отверстие (2)
10) пупочное отверстие
11) вставить лапароскоп
12) опухший аппендикс
13) удалить любые следы инфекции
14) области кровотечения или другие повреждения
15) закрыть швами или скобами
16) обезболивающее

III. Make sure you know what the following words and word combinations mean. Match them to their definitions.

▪ a catheter	▪ a breathing tube	
▪ a trocar	▪ appendicitis	▪ a laparoscope
▪ appendix	▪ an intravenous line	

1) a serious medical condition in which the appendix becomes inflamed and painful;
2) a flexible tube inserted through a narrow opening into a body cavity, particularly the bladder, for removing fluid;
3) a small, short plastic catheter that is placed through the skin into a vein, usually in the hand, elbow, or foot, but occasionally in the head to give a person medicine or fluids;
4) a fiber-optic instrument inserted through the abdominal wall to view the organs in the abdomen or permit small surgery;
5) a surgical instrument with a three-sided cutting point enclosed in a tube, used for withdrawing fluid from a body cavity;
6) a device passing through the mouth or nose into the airway to keep air flowing into the lungs;
7) a tube-shaped sac attached to and opening into the lower end of the large intestine.

IV. Choose the correct answer (answers).

1. Appendectomy is performed
   A) to see whether your body is fighting an infection.
   B) to examine the abdomen for inflammation.
   C) as an emergency operation.
   D) to remove the appendix when an infection has made it inflamed and swollen.
2. What are the symptoms of appendicitis?
   A) Loss of appetite, abdominal tenderness.
   B) Abdominal pain, fever, vomiting.
   C) Pain or burning sensation while urinating.
   D) Appendicitis usually has no symptoms.
3. Appendicitis is a medical emergency.
   A) True. B) False.
4. During a laparoscopic appendectomy, a surgeon
   A) makes one incision in the lower right side of your abdomen.
   B) inserts a thin needle into the suspicious area.
   C) uses a laser beam to remove the appendix.
   D) accesses the appendix through a few small incisions in your abdomen.
5. Laparoscopic appendectomy is performed under
   A) local anesthesia.
   B) regional anesthesia.
   C) general anesthesia.
   D) epidural anesthesia.
6. Carbon dioxide is pumped through the port
   A) to inflate the stomach so the organs in the abdomen can be seen easily.
   B) to drain the contents of the stomach.
   C) to detect changes or abnormalities in the large intestine.
   D) to relieve pain.

7. Put the sentences in the correct order to describe a laparoscopic appendectomy procedure.

A) A lighted camera, called a laparoscope, is inserted through one of the incisions.

B) Carbon dioxide is pumped through the umbilical port to puff up the abdomen.

C) The surgeon instills sterile fluid to remove any remaining infectious material.

D) The surgical instruments are removed, which allows the carbon dioxide gas to escape; the incisions are closed with sutures or staples.

E) A surgeon makes small incisions in the abdomen with a trocar.

F) The appendix is identified, positioned and removed.

SPEAKING TASK

V. Answer the questions.

1) What is appendicitis?
2) What are the signs and symptoms of appendicitis?
3) How is appendicitis treated?
4) What are the possible complications of appendicitis?
5) What is appendectomy?
6) How is a laparoscopic appendectomy performed?
7) What anesthesia is used during the operation?
8) What does a surgeon do after the appendix has been safely removed before closing the keyhole incisions?
9) How are the keyhole incisions closed?
10) How is the patient monitored in the recovery area?

VI. Speak on the following.

1) Appendicitis: signs and symptoms, complications, treatment.
2) Laparoscopic appendectomy: preparing for the surgery.
3) Laparoscopic appendectomy: the surgery.
4) The postoperative care and discharge.

HOW TO PERFORM CPR

PRE-VIEWING TASK

I. Vocabulary practice.
Pay attention to the pronunciation of the words.

CPR (cardiopulmonary resuscitation)	[ˌsiːpiːˈɑː][kɑːdɪəˈpʌlmənərɪ rɪˌsʌsɪˈteɪʃ(ə)n]	СЛР (сердечно-лёгочная реанимация)
safety hazard	['seɪftɪ 'hæzəd]	угроза безопасности
chemical spill	['kemɪk(ə)l spɪl]	утечка химических веществ
electrical wires	[ɪˈlektrɪkl 'waɪəz]	электропроводка
to tap	[tæp]	похлопать, постучать
bystander	['baɪˌstændə]	свидетель, очевидец

AED (automatic external defibrillator)	[ˌɔːtə'mætɪk ɪk'stɜːn(ə)l ˌdiːˈfɪbrɪleɪtə]	автоматический внешний дефибриллятор
to gasp	[gɑːsp]	дышать с трудом
gurgling	['gɜːglɪŋ]	бульканье
rescue breathing	['reskjuː 'briːðɪŋ]	искусственное дыхание методом «рот в рот»
to tilt	[tɪlt]	наклонять, откидывать
sternum	['stɜːnəm]	грудина
breastbone	['brestbəun]	грудная кость; грудина

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) проводить реанимацию
2) оценить обстановку
3) проверить человека на реакцию
4) потрясти пострадавшего за плечо
5) звать на помощь
6) номер экстренного реагирования
7) иметь автоматические внешние дефибрилляторы в наличии
8) просканировать тело пострадавшего в одну и в другую сторону
9) агональное дыхание
10) пульсация сонной артерии
11) поднять подбородок пострадавшего
12) зажать нос
13) односторонний клапан для защиты рта
14) снять одежду
15) переплести пальцы
16) цикл СЛР из 30 сжатий и 2 вдохов

III. Choose the correct answer (answers).

1. What does “CPR” stand for?
   A) Cardiac-Pulse and Respiration.
   B) Cardiac Pain Resuscitation.
   C) Chest-Press Resuscitation.
   D) Cardiopulmonary Resuscitation.

2. You are the 1st rescuer to arrive at the side of a victim. The very 1st step you take is
   A) to attach the AED pads.
   B) to tap the victim’s shoulder for responsiveness.
   C) to make sure the scene is safe.
   D) to check for breathing.

3. The proper way to determine unresponsiveness of the victim is
   A) to pinch his earlobe.
   B) to pour cold water on him.
   C) to use smelling salts rubbed in the nose.
   D) to tap the victim and shout: “Are you OK?”

4. How long should you check for breathing while performing CPR?
   A) Do not check for breathing, continue chest compressions.
   B) 2 seconds.
   C) 5 seconds.
   D) No longer than 10 seconds.

5. You find an adult who is unresponsive and not breathing. The scene is safe. What is your next step?
   A) To start CPR.
   B) To use AEDs (automatic external defibrillators).
   C) To shout for help and ask someone to call 9-1-1 and get an AED if available.
   D) None of the above.

6. In order to assess for a pulse in an adult victim, you should assess
   A) the femoral pulse for at least 5 seconds but no more than 10 seconds.
   B) the carotid pulse for 10–12 seconds.
   C) the carotid pulse for at least 5 seconds but no more than 10 seconds.
   D) the radial pulse for 10–12 seconds.

7. When administering chest compressions
   A) position your hands on the sternum.
   B) give 2 breaths after 30 compressions.
   C) apply the "2 hands, 2 inches" rule.
   D) All of the above.

8. After performing 30 chest compressions on an adult victim, the next step is to
   A) check for a pulse.
   B) give 2 rescue breaths.
   C) activate the emergency response system.
   D) continue with compressions at 30/min for 5 cycles.

9. When performing CPR, what is the ratio of chest compressions to breaths?
   A) 15 compressions to 2 breaths.
   B) 2 compressions to 30 breaths.
   C) 13 compressions to 1 breath.
   D) 30 compressions to 2 breaths.

10. What's the ultimate purpose of CPR?
   A) To stop a heart attack.
   B) To dislodge food or beverage from the airway.
   C) To keep a person alive until they can receive advanced medical aid.
   D) To minimize injury and future disability.

SPEAKING TASK

IV. Answer the questions.

1) If you find a collapsed victim, what is the first thing you should do?
2) How should you open the airway in an unconscious adult victim?
3) What is the maximum time you should spend checking for normal breathing?
4) If a victim is not breathing normally, what is the first thing you should do?

5) What is the correct ratio of chest compressions to rescue breaths?
6) What speed of chest compressions should you aim for?
7) Where do you place your hands for CPR compressions?
8) How deep should chest compressions be for an adult victim?
9) What is a one-way mouth guard used for?
10) What is a portable device that can detect problems in heart rhythm and apply a brief electroshock to try to correct an abnormal rhythm?

V. Describe CPR Steps. Use the plan.

SELF-ASSESSMENT MODULE 1

I. Give the English equivalents.

1) жизненные показатели
2) хирургическая команда
3) послеоперационная палата
4) капельница
5) сердечно-лёгочная реанимация
6) удаление аппендикса, аппендэктомия
7) операционная
8) искусственное дыхание методом «рот в рот»
9) быть подключенным к мониторам
10) вставить лапароскоп
11) оценить симптомы заболевания
12) крошечные малоинвазивные разрезы
13) опасная для жизни перфорация
14) уровень кислорода в организме

(14 marks)

II. Choose the correct answer (answers).

1. What information is included in a surgical safety checklist?
   A) Your name and birth date.
   B) What surgery you are having.
   C) Any allergies you may have.
   D) When you last ate and drank.
   E) Your health history.
   F) None of the above.

2. A blood pressure cuff is placed on your arm
   A) to check your body's oxygen levels.
   B) to check your blood pressure readings.
   C) to check your heart rate.
   D) to put you to sleep and keep you free from pain.

3. After the operation a patient
   A) receives a mixture of oxygen and anesthetic gases.
   B) is closely monitored and given pain medication as needed.
   C) receives general anesthesia.
   D) is given some medication to help him relax.

4. During the operation sterile drapes
   A) prevent infections.
   B) help keep a patient warm.
   C) fix the patient.
   D) help a patient to relax and reduce anxiety.

5. What is the first Emergency Action Step for Adult CPR?
   A) To assist the victim by providing a warm blanket.
   B) To act quickly and assist the victim.
   C) To assess the scene.
   D) To assess the victim.

6. The only treatment for appendicitis is
   A) clinical trials.
   B) exploratory surgery.
   C) appendectomy.
   D) reconstructive surgery.

7. Laparoscopic appendectomy is performed under
   A) local anesthesia.
   B) regional anesthesia.
   C) general anesthesia.
   D) epidural anesthesia.

8. A pen-shaped instrument with a sharp point at one end, typically used inside a hollow tube, known as a cannula, to create an opening into the body through which the sleeve may be introduced, to provide an access port during surgery is called
   A) a scalpel. B) a catheter. C) a trocar. D) a laparoscope.

9) If the victim is unresponsive, you should
   A) start CPR before dialing 9-1-1.
   B) stay back and await professional assistance.
   C) wait to see if the victim becomes responsive.
   D) dial 9-1-1 before starting CPR.

10) What is the rate for chest compressions per minute for any age?
   A) 100 compressions per minute.
   B) 60 compressions per minute.
   C) 30 compressions per minute.
   D) As many as you can manage.

(10 marks)

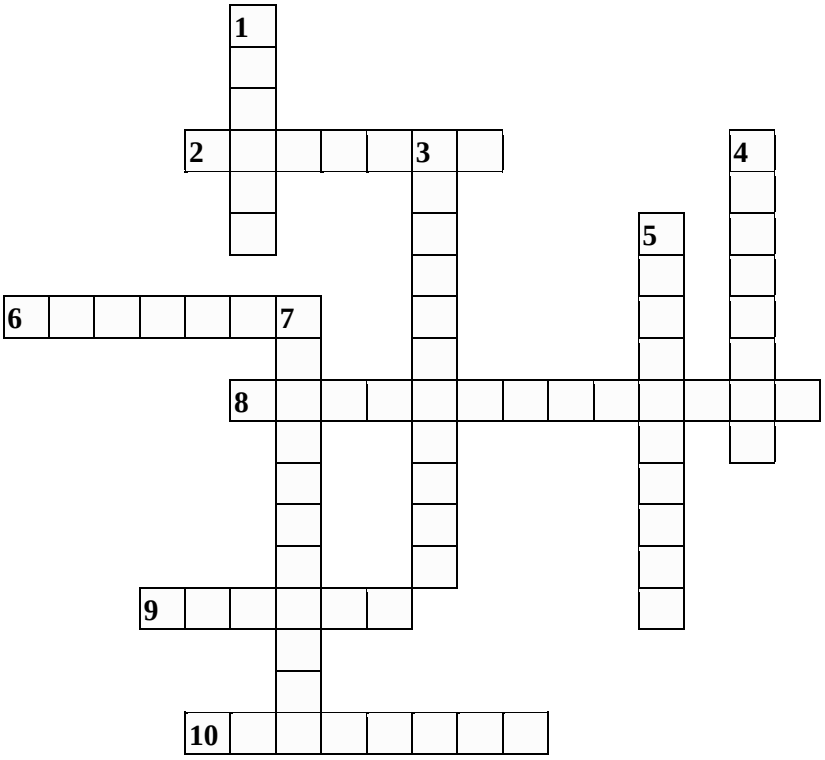
III. Solve the crossword puzzle below.

Across

2. minimally invasive
6. a thin tube inserted into a vein or body cavity to administer medication, drain off fluid, or insert a surgical instrument
8. the action or process of reviving someone from unconsciousness or apparent death
9. a person harmed, injured, or killed as a result of a crime, accident, or other event or action
10. a flexible tube inserted through a narrow opening into a body cavity for removing fluid

Down

1. requiring immediate action or attention
3. a fiber-optic instrument inserted through the abdominal wall to view the organs in the abdomen or permit small-scale surgery
4. a surgical cut made in skin or flesh
5. a state of controlled, temporary loss of sensation or awareness that is induced for medical purposes
7. a doctor who specializes in giving anesthetics to patients



(10 marks)

TOTAL: 34 marks

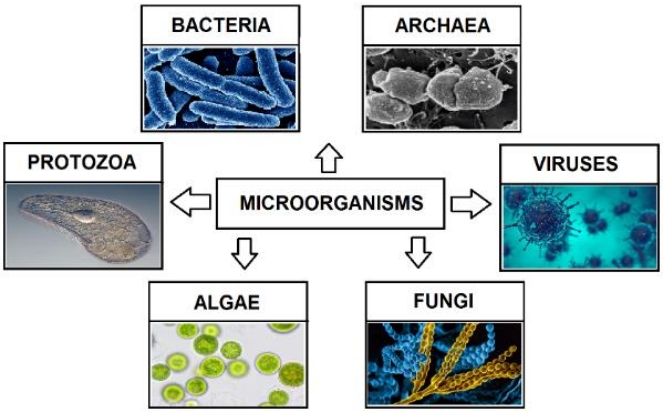
Unit 2. INFECTIOUS DISEASES

IS IT COMMUNICABLE OR NON-COMMUNICABLE?

PRE-VIEWING TASK

I. Look at the title of the film.

What do you expect to see in this video? What issues are likely to be discussed? What do you know about the ways of transmission of infectious diseases?



II. Vocabulary practice.

a) Pay attention to the pronunciation of the words.

protozoan	[ˌprəutə'zəuən]	простейшее животное
fungi	['fʌŋgaɪ,-giː,'fʌndʒaɪ,-dʒiː]	грибы
amoebic dysentery	[ə'miːbɪk 'dɪsəntərɪ]	амёбная дизентерия
toxoplasmosis	[ˌtɒksəʊplaz'məʊsɪs]	токсоплазмоз
trichomoniasis	[ˌtrɪkəʊmə'naɪəsɪs]	трихомониаз
trichinosis	[ˌtrɪkə'nəʊsɪs]	трихинеллёз
schistosome	['ʃɪstəʊˌsəʊm]	шистосома (род трематод)
schistosomiasis	[ˌʃɪstəʊsə'maɪəsɪs]	шистосомоз, бильгарциоз (общее название гельминтозов)

b) Study the meaning of the words.

susceptible	[sə'septəbl]	чувствительный, восприимчивый
contagious	kən'teɪdʒəs]	заразный, инфекционный, контагиозный
giardiasis	[ˌdʒɪɑː'daɪəsɪs]	лямблиоз
ringworm	['rɪŋwɜːm]	стригущий лишай
jock itch	[dʒɔk ɪʧ]	окаймленная экзема
thrush	[θrʌʃ]	молочница, кандидозный стоматит
hookworm	['hukwɜːm]	анкилостома (глист)
guinea worm	['gɪnɪˌwɜːm]	дракункулёз

c) Guess the meaning of the words according to the definition.

communicable .....capable of being passed on to other people, infectious
to hijack .....to seize, to capture, to occupy
to ward off the attack.....to repulse, to repel, to beat off
to contract a disease.....to catch a disease
to burrow through.....to penetrate (through)
to emerge .....to move out of or away from smth and become visible
to quarantine smb .....to isolate smb

COMPREHENSION CHECK

III. Watch the video and complete the sentences.

1. We have watched
   a) a part of a feature film.
   b) a scientific popular film.
   c) a lecture on infectious diseases.
   d) a video taken at a scientific conference.
2. The video is intended for
   a) general practitioners.
   b) educating medical students.
   c) scientists who carry on research work on communicable diseases.
   d) non-specialists who suffer infectious diseases and have to deal with them.
3. What infectious diseases were mentioned in the video?

IV. Watch the video again and fill in the chart.

Types of pathogens and parasites	Ways of spreading	Treatment

V. Match the following words and word combinations to their definitions.

• pathogens	• viruses	• pandemics
• parasites	• fungi	• endemic diseases
• protozoans	• bacteria	• communicable diseases
	• outbreak	

1) small infective agents that typically consist of a nucleic acid molecule in a protein coat, and are able to multiply only within the living cells of a host;
2) a sudden occurrence of something unpleasant, such as war or disease;
3) organisms that live in or on another organism (its host) and benefit by deriving nutrients at the host's expense;
4) a group of unicellular or multicellular spore-producing organisms feeding on organic matter, including molds, yeast [jiːst] (дрожжи), mushrooms;
5) diseases regularly found among particular people or in a certain area;
6) diseases that can be transmitted from one sufferer to another; contagious or infectious;
7) organisms which can cause disease in a person, animal, or plant;
8) very small organisms; their cells do not have a nucleus, and most have no organelles with membranes around them;
9) single-celled, non-photosynthetic protists, such as the ciliates [ˈsɪlɪeɪts] (инфузории), amoebae [ə'miːbiː] and flagellates ['flædʒəleɪts] (жгутиковые);
10) diseases prevalent over a whole country or the world.

VI. Agree or disagree with the following.

1) Non-communicable diseases spread from one person or organism to another, typically by direct contact.
2) Chickenpox, measles and the common cold are caused by bacteria.
3) Amoebic dysentery, toxoplasmosis, trichomoniasis and giardiasis are protozoan infections.

4) Most fungi do not cause disease.
5) Parasitic worms cause diseases such as athlete's foot, thrush, ringworm.
6) Rash, nausea, diarrhea and weight loss are the symptoms of some infectious diseases caused by parasitic worms.
7) A person may catch some infectious diseases if he walks in contaminated soil.
8) An epidemic may refer to communicable diseases only.
9) Epidemiologists keep infected individuals in quarantine to study the consequences of the treatment.
10) AIDS is an example of an endemic which is common to a specific area or population.

SPEAKING TASK

VII. Answer the questions.

1) What is a communicable disease?
2) What are contagious diseases caused by?
3) How do pathogens and parasites spread from one person to another?
4) What types of pathogens do you remember?
5) Why is it very important to prevent the spread of communicable diseases through a population?
6) How are specialists who study the patterns, causes and effects of infectious diseases called?
7) What examples of pandemic diseases do you know?
8) What do epidemiologists do to prevent the spread of communicable diseases?

VIII. Give a summary of the film using the following expressions.

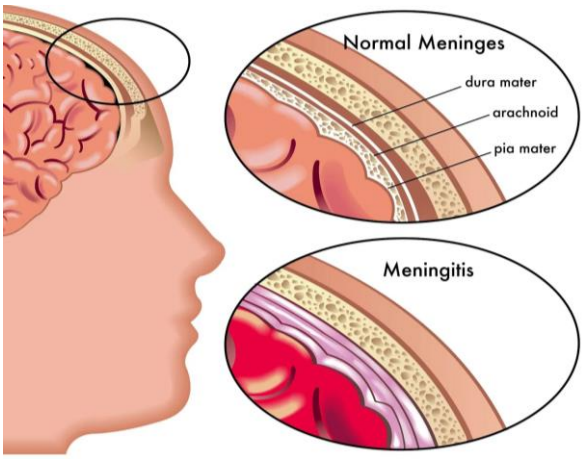
The video deals with …	Then …	As a conclusion …
According to the video …	Afterwards …	In the end …
In the first part …	Moreover …	Finally …
At the beginning …	In addition to that …	
In the introduction …	Next …	

VIRAL MENINGITIS

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

viral	['vaɪər(ə)l]
meningitis	[ˌmenɪn'dʒaɪtɪs]
meninges	[mɪ'nɪndʒiːz]
cerebrospinal	[ˌsɛrɪbrə(ʊ)'spaɪnəl]
enterovirus	['ɛntərəʊˌvaɪrəs]
herpes virus	['hɜːpiːz 'vaɪ(ə)rəs]
irritability	[ˌɪrɪtə'bɪlətɪ]
bacterial	[bæk'tɪərɪəl]
acetaminophen	[əˌsiːtə'mɪnəfɛn]
antiviral	[ˌæntɪ'vaɪərəl]
acyclovir	[eɪ'saɪkləʊˌvɪə]



b) Study the meaning of the words.

meninges.....мягкие мозговые оболочки
pia mater.....[ˌpʌɪə ˈmeɪtə, ˌpiːə ˈmɑːtə].....сосудистая мозговая оболочка
arachnoid mater.....[ə'ræknɔɪd ˈmɑːtə] .....паутинная оболочка
dura mater.....[ˌdjuərə ˈmɑːtə] .....твёрдая мозговая оболочка
ticks .....клещи
sneezing.....чихание
bloodstream .....кровоток
irritability.....раздражимость; возбудимость
stiff neck.....ригидность затылочных мышц

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) вирусный менингит
2) бактериальный менингит
3) защищают головной и спинной мозг
4) спинномозговая жидкость
5) энтеровирус
6) вирус паротита и кори
7) вирусы герпеса
8) питающиеся кровью насекомые
9) через укус зараженного насекомого
10) фекальное загрязнение
11) через чихание или кашель
12) попадать в кровоток
13) клетки мозговых оболочек
14) раздражительность и проблемы с пробуждением
15) ригидность затылочных мышц и чувствительность к свету
16) тошнота и рвота
17) нестероидные противовоспалительные препараты
18) антивирусный препарат

III. Choose the correct answer (answers).

1. Meningitis refers to inflammation of the brain.
   A) True. B) False.

2. Functions of the meninges include
   A) production of neurotransmitters.
   B) support for the brain and spinal cord and protection from external shock.
   C) transmission of signals from the peripheral nervous system.
   D) protection from external shock.

3. Meningitis is usually a non-contagious disease.
   A) True. B) False.

4. The infection in viral meningitis is transmitted through
   A) body fluids.
   B) person-to-person contact.
   C) feces.
   D) insect bites.

5. Classic symptoms of meningitis usually include
   A) fever, headache, stiff neck.
   B) fever, fatigue, and cough.
   C) body aches, nausea, and vomiting.
   D) seizures, vision loss, and paralysis.

6. Who is most at risk of getting viral meningitis?
   A) Babies.
   B) Elderly people.
   C) Adolescents.
   D) Adults.

7. What medicines can fight viral meningitis?
   A) Antibiotics.
   B) Anti-inflammatory medicines.
   C) Antiviral drugs.
   D) Anti-fungal drugs.
   E) None of the above.

8. *Viral meningitis is usually more serious than bacterial meningitis.
   A) True. B) False.

9. *Viral meningitis is also called “aseptic meningitis”
   A) to indicate no bacteria are involved.
   B) because it is frequently a nosocomial (внутрибольничная) infection.
   C) because it is vaccine preventable.
   D) to distinguish it from encephalitis.
   E) since it is treatable with antiviral medications.

SPEAKING TASK

IV. Answer the questions.

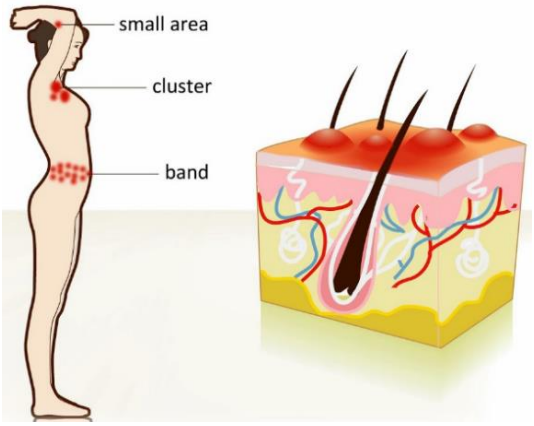
1) What is meningitis?
2) What are the meninges?
3) What are the three layers of the meninges?
4) How is the colorless liquid that fills and surrounds the brain and the spinal cord called?
5) What causes meningitis?
6) What is the role of enteroviruses in the etiology of viral meningitis?
7) What are the main symptoms?
8) What is the pathogenesis of viral meningitis?
9) How is meningitis treated?
10)* How can viral meningitis be prevented?

V. Speak about viral meningitis. The following may help you.

- commonly in children younger than
- mostly caused by
- associated with other viruses such as
- the clinical manifestations include
- the treatment is symptomatic and consists of

SHINGLES

PRE-VIEWING TASK



I. Vocabulary practice.

Pay attention to the pronunciation of the words.

shingles	['ʃɪŋglz]	опоясывающий лишай
varicella-zoster virus	[ˌværɪ'selə 'zɔstə]	вирус ветряной оспы
numbness	['nʌmnəs]	онемение, нечувствительность
tingling	['tɪŋglɪŋ]	жжение, зуд
blister	['blɪstə]	волдырь, водяной пузырь
patch	[pætʃ]	участок, место
bump	[bʌmp]	нарост; шишка
to scab over	[skæb]	покрываться корками
postherpetic	[ˌpəusthɪˈpetɪk]	постгерпетический
neuralgia	[njuə'rældʒə]	невралгия
vaccine	['væksi:n]	вакцина
acyclovir	[eɪˈsaɪklə(ʊ)ˌvɪə]	ацикловир
calamine lotion	[ˈkaləmaɪn 'ləuʃ(ə)n]	каламиновый лосьон
oatmeal bath	['əutmi:l bɑ:θ]	овсяная ванна
gabapentin	[ˌgæbə 'pentɪn]	габапентин (лекарственное средство)

II. Match the words to their definitions.

a) immune system	**d)** tingling	**f)** rash	**i)** acyclovir
b) blister	**e)** shingles	**g)** chickenpox	**j)** neuralgia
c) numbness		**h)** vaccine	

1) an infectious disease causing a mild fever and a rash of itchy inflamed pimples which turn to blisters and then loose scabs; it is caused by the herpes zoster virus and mainly affects children;
2) a very severe pain along the whole length of a nerve caused when the nerve is damaged or not working properly;

3) a viral disease characterized by a painful skin rash with blisters in a localized area; typically the rash occurs in a single, wide stripe either on the left or right side of the body or face;
4) the organs and processes of the body that provide resistance to infection and toxins;
5) a loss of sensation or feeling in a part of your body;
6) a feeling as if a lot of sharp points are being put quickly and lightly into your body;
7) an area of redness and spots on a person's skin, appearing especially as a result of illness;
8) a painful swelling on the skin, often filled with a watery liquid;
9) a substance containing a harmless form of the germs that cause a particular disease; it is given to people, usually by injection, to prevent them getting that disease;
10) an antiviral drug used chiefly in the treatment of herpes and AIDS.

COMPREHENSION CHECK

III. Watch the video and choose the correct answer (answers).

1. Shingles is a painful rash caused by the same virus that causes chickenpox.
   A) True. B) False.

2. After causing chickenpox, the varicella-zoster virus can remain in the body for years before it causes shingles. Where in the body does the virus stay?
   A) In heart cells.
   B) In nerve cells.
   C) In lung cells.
   D) In skin cells.
   E) None of the above.

3. A rash that starts on one side of the body is a sign of shingles. Which of these is also a symptom of the disease?
   A) Burning skin.
   B) Tingling skin or itching.
   C) Numbness of the skin.
   D) All of the above.

4. How long does the outbreak of shingles last?
   A) 1 week. B) 2 weeks. C) 3 weeks. D) 5 weeks.

5. Who is most likely to get shingles?
   A) Anyone who had chickenpox is at risk for shingles.
   B) Anyone with a weakened immune system.
   C) Young children.
   D) Elderly people.

6. Which of these is a possible complication of shingles?
   A) Vision problems.
   B) Hearing problems.
   C) Pneumonia.
   D) Neurologic problems.
   E) All of the above.

7. What is the treatment for shingles?
   A) Antiviral medications.
   B) Antiherpetic medications.
   C) Antizoster medications.
   D) Antivaricella medications.
   E) None of the above.

8. Which of these viral skin conditions best represents shingles?

A)  B) 

9. Vaccination is the only way to reduce your risk of shingles and postherpetic neuralgia.
   A) True. B) False.

10. Shingles is the secondary infection of the varicella-zoster virus. What is the primary infection?
   A) Smallpox. B) Chickenpox. C) Measles. D) Herpes simplex.

SPEAKING TASK

IV. Speak about shingles. Use the plan.

1) Overview.
2) Symptoms.
3) Causes and risk factors.
4) Complications.
5) Prevention and treatment.

HIV AND AIDS

PRE-VIEWING TASK

I. Vocabulary practice.

a) Pay attention to the pronunciation of the words.

immunodeficiency	[ˌɪmjʊnə dɪ'fɪʃ(ə)nsɪ]	иммунодефицит
AIDS	[eɪdz]	СПИД
lymphocyte	['lɪmfəsaɪt]	лимфоцит
target	['tɑːgɪt]	мишень
meningitis	[ˌmenɪn'ʤaɪtɪs]	менингит
encephalitis	[ˌensefə'laɪtɪs]	энцефалит
pneumonia	[njuː'məunɪə]	воспаление лёгких, пневмония
tuberculosis	[t(j)uːˌbɜːkjə'ləusɪs]	туберкулёз
diarrhea	[ˌdaɪə'rɪə]	понос, диарея
Kaposi’s sarcoma	[kə'pəʊsɪz sɑː'kəumə]	саркома Капоши

transcriptase	[tranˈskrɪpteɪz]	транскриптаза, РНК-зависимая ДНК-полимераза
protease	['prəʊteɪz]	протеаза
integrase	['ɪntɪgreɪz]	интеграза
vaginal	[və'ʤaɪn(ə)l]	вагинальный

b) Study the meaning of the words.

Human Immunodeficiency Virus, HIV .... вирус иммунодефицита человека, ВИЧ
Acquired Immunodeficiency Syndrome .. синдром приобретенного иммунного дефицита
foreign invaders ..... чужеродные организмы
body defenses ..... защитные силы организма
helper T lymphocytes ..... Т-хелперы (Т-лимфоциты, главной функцией которых является усиление адаптивного иммунного ответа)
to release chemicals ..... высвобождать химические вещества
to create markers ..... создавать маркеры
virus particles ..... вирусные частицы
opportunistic infection ..... инфекция, вызываемая условно-патогенными организмами
spinal cord ..... спинной мозг
non-Hodgkin lymphoma ..... неходжкинская лимфома
cancer ..... рак
injection needles ..... иглы для инъекций
fusion inhibitors ..... ингибиторы синтеза
reverse transcriptase inhibitors ..... ингибиторы обратной транскриптазы
protease inhibitors ..... ингибиторы протеазы
to contract HIV ..... заразиться ВИЧ

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) поразить иммунную систему
2) бороться с обычными инфекциями
3) синдром приобретенного иммунного дефицита
4) вторгающиеся бактерии
5) идентифицировать один и тот же чужеродный организм
6) пометить как мишени для иммунной системы
7) потерять свою способность защищать организм
8) текущая инфекция
9) распространенные условно-патогенные инфекции, связанные со СПИДом
10) инфекционные паразиты
11) через зараженные жидкости организма
12) незащищенный секс
13) во время ваших родов
14) во время кормления грудью
15) антиретровирусная терапия
16) предотвращать создание, скопление и распространение новых вирусов

17) избежать заражения или распространения ВИЧ-инфекции
18) ВИЧ-статус
19) инъекционные наркотики
20) небезопасное сексуальное поведение

III. Choose the correct answer (answers).

1. HIV is
   A) a virus that attacks the immune system.
   B) a sexually transmitted virus.
   C) a bacterium that causes AIDS.
   D) highly contagious to people who have not been vaccinated against it.

2. What is AIDS?
   A) A fungal infection.
   B) A rare blood disease caused by HIV.
   C) A group of diseases caused by HIV.
   D) The final stage of HIV.

3. What are helper T cells?
   A) Helper T cells are a type of white blood cells.
   B) Helper T cells scan cells for abnormalities.
   C) Helper T cells coordinate immune responses.
   D) All of the above.

4. HIV attacks a certain kind of cells in the immune system:
   A) red blood cells.
   B) white blood cells called T cells.
   C) platelets.
   D) epithelial cells.

5. Opportunistic infections are more frequent and more severe in people with HIV.
   A) True. B) False.

6. How does HIV become AIDS?
   A) HIV attacks the T cells.
   B) HIV makes multiple copies of itself.
   C) HIV destroys cells in the body.
   D) All of the above

7. Which is not considered a common method of transmission for HIV?
   A) Blood.
   B) Genital secretions.
   C) Breast milk.
   D) Sweat.

8. Drug abusers are at risk for HIV infection
   A) only when they inject drugs.
   B) because drugs can affect the way people make decisions.
   C) when they share drug injection equipment.
   D) All of the above.

9. The name of the treatment regimen commonly used to treat HIV/AIDS is
   A) selective serotonin [ˌsɛrəˈtəʊnɪn] reuptake inhibitors.
   B) highly active antiretroviral therapy.
   C) antibiotics.
   D) corticosteroids.

10. How does HIV treatment work?
   A) It acts as a painkiller.
   B) It destroys all HIV in the body.
   C) It reduces the amount of HIV in the body and increases the immune system.
   D) It lengthens but not improves your life.

SPEAKING TASK

IV. Speak about HIV and AIDS. Use the plan.

1) Overview.
2) Common AIDS-related opportunistic infections.
3) Transmission.
4) Prevention and treatment.

SELF-ASSESSMENT MODULE 2

I. Give the English equivalents.

1) инфекционные или заразные заболевания
2) вирус герпеса
3) вирусный менингит
4) опоясывающий лишай
5) вирус иммунодефицита человека
6) вирус ветряной оспы
7) инфекция, вызываемая условно-патогенными организмами
8) синдром приобретенного иммунного дефицита
9) антиретровирусная терапия
10) мягкие мозговые оболочки
11) постгерпетическая невралгия
12) жжение, зуд
13) текущая инфекция
14) изолировать с помощью введения карантина

(14 marks)

II. Choose the correct answer (answers).

1. What is the difference between a communicable disease and a non-communicable disease?
   A) A communicable disease can be passed from person to person, a non-communicable disease cannot.
   B) A communicable disease cannot be passed from person to person, while a non-communicable disease can be.
   C) Both types of diseases can be passed from person to person, but communicable diseases require direct contact with bodily fluids.
   D) There is no difference because both still result in disease.

2. “Infectious” and “contagious” mean the same thing.
A) True. B) False.

3. Which of the following is NOT contagious?
A) Diabetes.
B) The common cold.
C) Viral meningitis.
D) HIV.

4. HIV and AIDS are the same thing.
A) True. B) False.

5. How is HIV transmitted?
A) You catch it from toilet seats.
B) When infected bodily fluids enter the bloodstream of another person.
C) Through touching and kissing.
D) Through sharing needles, unprotected sexual intercourse, an open sore.

6. Which of the following diseases are caused by viruses?
A) HIV/AIDS and toxoplasmosis.
B) Measles and chickenpox.
C) Viral meningitis and schistosomiasis.
D) Shingles and HIV.

7. The branch of medicine which deals with the incidence, distribution, and possible control of diseases and other factors relating to health is
A) pathology.
B) biology.
C) anatomy.
D) epidemiology.

8. To protect yourself from most communicable diseases you should wash your hands
A) after changing diapers.
B) before eating.
C) after using the bathroom.
D) All of the above.

9. Diseases that are always present in a community, usually at a low, more or less constant, frequency are classified as having an/a _____ pattern.
A) epidemic.
B) episodic.
C) endemic.
D) pandemic.

10. Which of these diseases are pandemic diseases?
A) Shingles.
B) Influenza.
C) HIV and AIDS.
D) Malaria.

(10 marks)

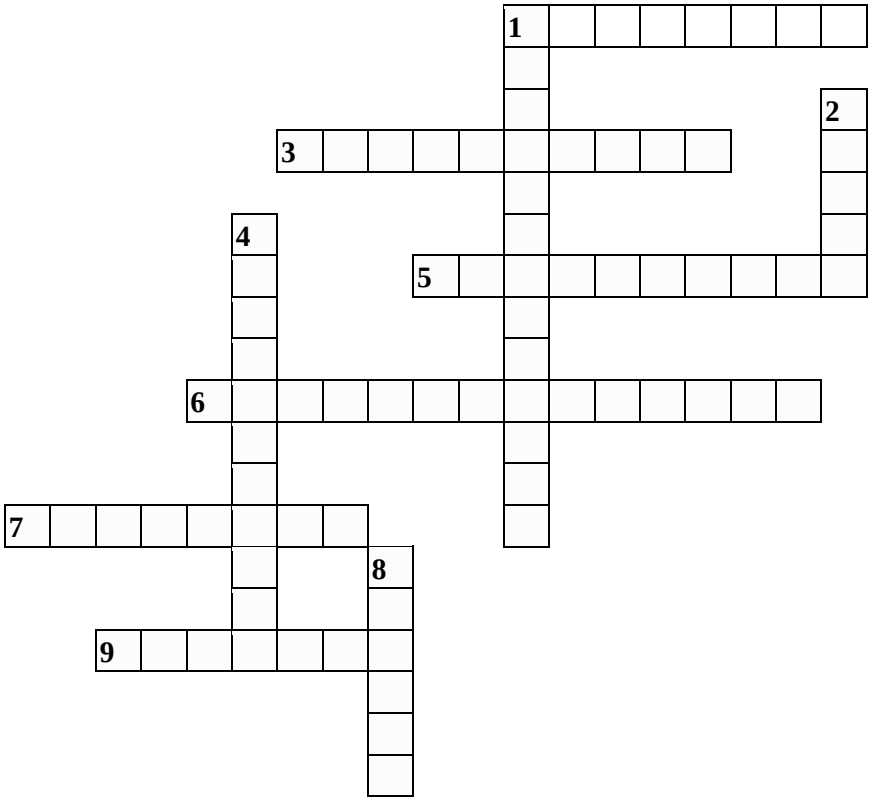
III. Solve the crossword puzzle below.

Across

1. a slight prickling or stinging sensation
3. a form of small leucocyte (white blood cell) with a single round nucleus, occurring especially in the lymphatic system
5. infection of the intestine with a flagellate protozoan, which causes diarrhea and other symptoms
6. an infection caused by parasitic trichomonads, chiefly affecting the urinary tract, vagina, or digestive system
7. an organism which lives in or on another organism (its host) and benefits by deriving nutrients at the other's expense
9. a small bubble on the skin filled with serum and caused by friction, burning, or other damage

Down

1. a disease caused by toxoplasmas, transmitted chiefly through undercooked meat, soil, or in cat feces
2. an infective agent that typically consists of a nucleic acid molecule in a protein coat, is too small to be seen by light microscopy, and is able to multiply only within the living cells of a host
4. any of a group of RNA viruses (including those causing polio and hepatitis A) which typically occur in the gastrointestinal tract, sometimes spreading to the central nervous system or other parts of the body
8. infection of the mouth and throat by a yeast-like fungus, causing whitish patches



(10 marks)

TOTAL: 34 marks

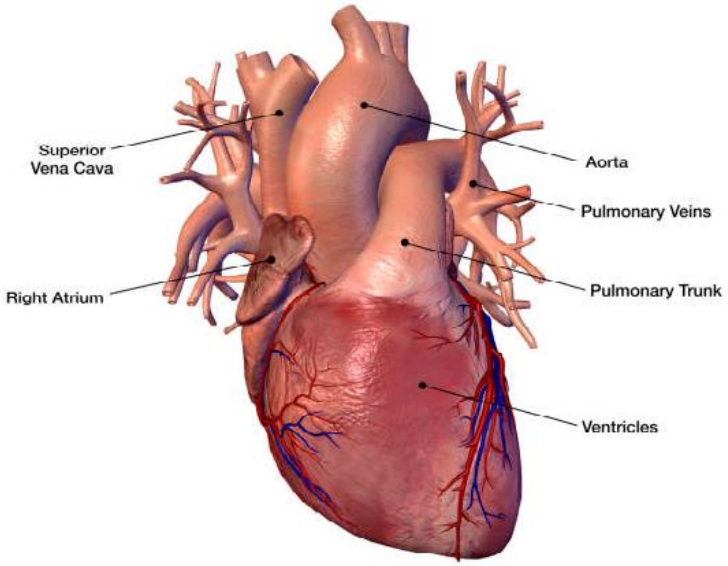
Unit 3. THE INNER ORGANS OF THE HUMAN BODY

THE HUMAN CIRCULATORY SYSTEM

PRE-VIEWING TASK

I. Vocabulary practice. Pay attention to the pronunciation of the words.

oxygen	['ɔksɪʤən]
arteries	['ɑːtərɪz]
veins	[veɪnz]
capillaries	[kə'pɪlərɪz]
atrium	['eɪtrɪəm]
ventricle	['ventrɪkl]
valves	[vælvz]
chambers	['ʧeɪmbəz]
tricuspid	[traɪ'kʌspɪd]
aortic	[eɪ'ɔːtɪk]
pulmonic	[pʌl'mɔnɪk]
vena cava	[ˌviːnə 'keɪvə]



COMPREHENSION CHECK

II. Watch the video and guess the word according to the definition.

1) The narrow tubes through which blood flows.
2) A part of the heart that pumps blood to the arteries.
3) The thin tubes in your body through which your blood flows towards your heart.
4) Tiny blood vessels that form a network between the arterioles and venules.
5) Each of the two upper cavities of the heart from which blood is passed to the ventricles.
6) A vein carrying oxygenated blood from the lungs to the left atrium of the heart.
7) A large vein carrying deoxygenated blood into the heart.
8) The tubes in your body that carry blood from your heart to the rest of your body.

III. Complete the sentences with the words which are given below.

	beats	the pulmonary artery		pulmonic
arteries		tricuspid	capillaries	
	mitral	the right atrium		veins
blood vessels		aortic	pump	fist

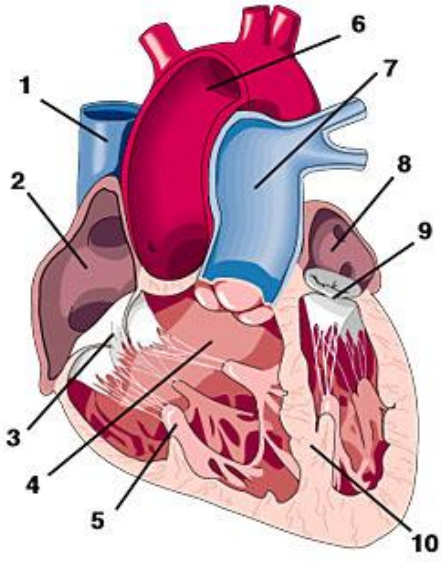
1) The human heart … about 100,000 times every day.
2) Blood transports food, water and oxygen through various channels called …
3) Blood vessels involve …, …, …
4) The heart is the … which is composed of a muscle.
5) Your heart is no bigger than your …
6) There are four valves in the heart: …, …, … and …
7) The deoxygenated blood from different parts of body enters …
8) … carries the deoxygenated blood to the lungs for oxygenation.

IV. Complete the following sentences. Use the hints from the box.

1) Food, water and oxygen are essential …
2) The heart pumps blood throughout the body …
3) The human heart has four chambers: …
4) The human heart has four valves …
5) Pulmonary veins carry oxygenated blood …
6) When the left ventricle contracts, …
7) The arteries carry oxygenated blood …
8) The veins carry deoxygenated blood …

a) beating approximately 72 times per minute of our lives.
b) from the lungs to the left atrium of the heart.
c) tricuspid, mitral, aortic, pulmonic.
d) for the existence of human life.
e) to the heart.
f) the right atrium, the left atrium, the right ventricle and the left ventricle.
g) to the different parts of the body.
h) the blood is pumped into the aorta.

V.* Human Heart Anatomy Quiz. Label the parts of the human heart.



SPEAKING TASK

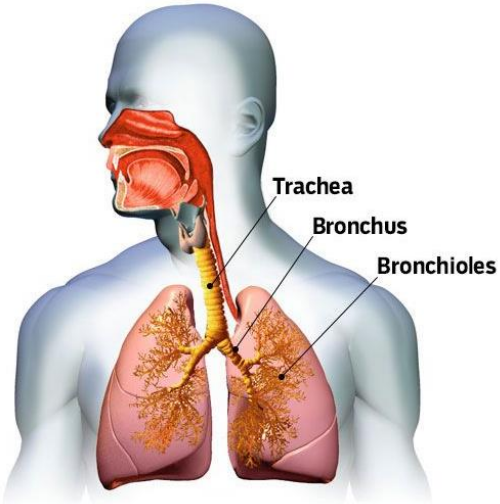
VI. Use the picture from Ex. V and speak about the structure and work of the human heart.

THE RESPIRATORY SYSTEM

PRE-VIEWING TASK

I. Vocabulary practice. Pay attention to the pronunciation of the words.

thorax	['θɔːræks]
diaphragm	['daɪəfræm]
pleural	['pluərəl]
trachea	[trə'kiːə]
cartilage	['kɑːtɪlɪʤ]
pharynx	['færɪŋks]
bronchi – bronchus	['brɔŋkaɪ] ['brɔŋkəs]
bronchiole	['brɔŋkɪəul]
alveoli – alveolus	[ˌælvɪ'əulaɪ] [ˌælvɪæ'əuləs]
carbon dioxide	['kɑːb(ə)n daɪ'ɔksaɪd]
molecule	['mɔlɪkjuːl]
oxygen	['ɔksɪʤən]
nostril	['nɔstrəl]



COMPREHENSION CHECK

II. Watch the video and guess the words according to the definitions.

1) The part of the body of a human being between the neck and the abdomen, including the cavity enclosed by the ribs, breastbone, and dorsal vertebrae, and containing the chief organs of circulation and respiration.
2) The bony frame formed by the ribs around the chest.
3) A muscle between your lungs and your stomach.
4) A large membranous tube reinforced by rings of cartilage, extending from the larynx to the bronchial tubes and conveying air to and from the lungs; the windpipe.
5) The membrane-lined cavity behind the nose and mouth, connecting them to the esophagus.
6) The process or act of breathing in, taking air and sometimes other substances into your lungs.
7) Two external openings of the nasal cavity in vertebrates that admit air to the lungs.
8) An expiration of air from the lungs.

III. Choose the correct answer.

1. Which of the following protects the lungs?
   A) Diaphragm.
   B) Alveoli.
   C) Trachea.
   D) Rib cage.

2. The left lung is divided into three lobes: superior, middle and inferior.
   A) True. B) False.

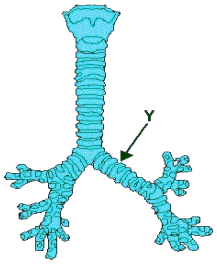
3. Gas exchange in the lungs of humans takes place between the walls of the
   A) trachea.
   B) bronchioles.
   C) alveoli.
   D) bronchi.

4. What happens to your lungs when you breathe in?
   A) They manufacture glucose.
   B) They push up the diaphragm.
   C) They expand.
   D) They absorb carbon dioxide.

5. What type of blood vessels surrounds the alveoli?
   A) Capillaries.
   B) Veins.
   C) Nerve endings.
   D) Arteries.

6. When humans exhale, air goes from the bronchus into the
   A) alveoli.
   B) trachea.
   C) bronchioles.
   D) nostrils.

7. The part of the respiratory system labelled Y in the diagram is the
   A) windpipe.
   B) alveolus.
   C) bronchiole.
   D) bronchus.



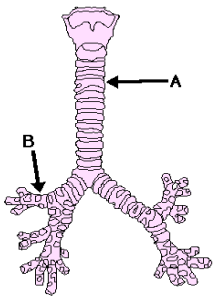
8. Structures in the trachea that prevent its collapse or overexpansion as pressures change in the respiratory system are the
   A) irregular circular bones.
   B) S-shaped tracheal bones.
   C) C-shaped tracheal cartilages.
   D) O-ringed tracheal cartilages.

9. The name of the tiny sacs in the lungs where gas exchange takes place is
   A) alveoli.
   B) bronchioles.
   C) bronchi.
   D) intercostals muscles.

10. The bronchi are connected to the alveoli via
   A) capillaries.
   B) bronchioles.
   C) air sacs.
   D) the trachea.

11. Name the parts labelled in the diagram.

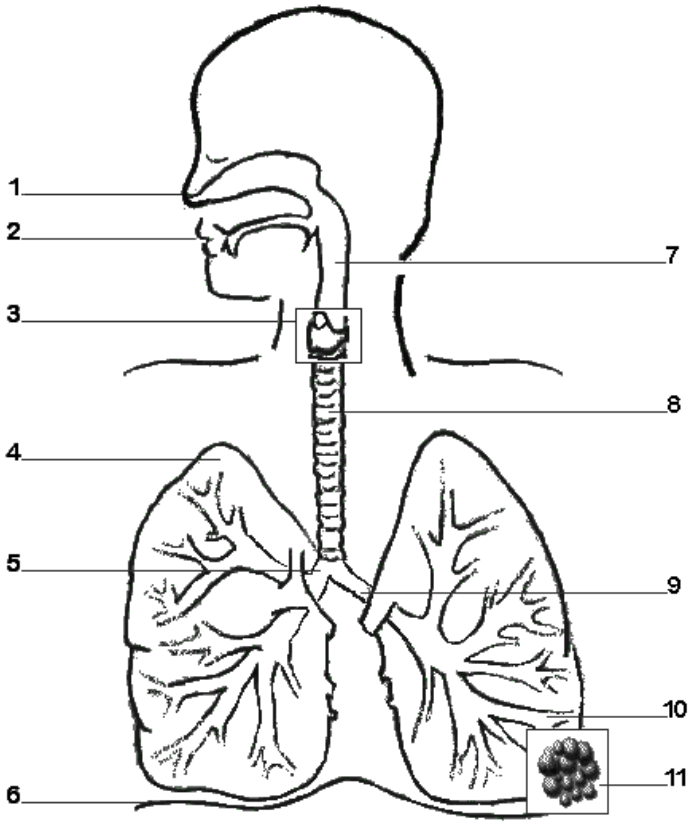
A) A = alveolus, B = bronchiole.
B) A = bronchiole, B = trachea.
C) A = trachea, B = bronchus.
D) A = trachea, B = bronchiole.



12. Which of the following describes a correct order of structures in the respiratory passageways?

A) Pharynx, trachea, larynx, bronchi, bronchioles.
B) Larynx, pharynx, trachea, bronchioles, bronchi.
C) Trachea, pharynx, larynx, bronchi, bronchioles.
D) Pharynx, larynx, trachea, bronchi, bronchioles.

IV.* Respiratory System Quiz. Label the parts of the respiratory system.



SPEAKING TASK

V. Use the picture from Ex. IV and speak about the structure of the lungs.

THE DIGESTIVE SYSTEM

PRE-VIEWING TASK

I. Vocabulary practice. Pay attention to the pronunciation of the words.

digestive	[daɪ'ʤestɪv]
esophagus	[iː'sɔfəgəs]
sphincter	['sfɪŋ(k)tə]
stomach	['stʌmək]
small bowel	['bauəl]
intestine	[ɪn'testɪn]
pancreas	['pæŋkrɪəs]
gallbladder	['gɔːlˌblædə]
duodenum	[ˌdjuːəu'diːnəm]
jejunum	[ʤɪ'ʤuːnəm]
ileum	['ɪlɪəm]
liver	['lɪvə]
colon	['kəulən]
rectum	['rektəm]
anus	['eɪnəs]

II. Make sure you know what the following words and word combinations mean. Match the words to the definitions.

1) esophagus 2) pancreas 3) gallbladder 4) jejunum 5) liver 6) rectum 7) colon 8) duodenum	**a**) the part of the small intestine between the duodenum and ileum **b**) it neutralizes harmful substances in the blood, secretes bile for the digestion of fats, synthesizes plasma proteins, and stores glycogen and some minerals and vitamins **c**) a hollow tube connecting the stomach to the jejunum **d**) a muscular tube that connects the pharynx (throat) to the stomach **e**) the final section of the large intestine, terminating at the anus **f**) a small pear-shaped organ beneath the liver, in which bile is stored after secretion by the liver and before release into the intestine **g**) a large gland behind the stomach which secretes digestive enzymes into the duodenum **h**) the main part of the large intestine, which absorbs water and electrolytes from food that has remained undigested

COMPREHENSION CHECK

III. Choose the correct answer.

1. Where does the digestive process begin?
   A) In the stomach.
   B) In the esophagus.
   C) In the mouth.
   D) In the pharynx.

2. What is the main role of the liver?
   A) To produce digestive enzymes.
   B) To turn water into minerals for absorption.
   C) To assist the stomach with digestion.
   D) To remove harmful substances from the blood.

3. The portions of the small intestines in anatomical order would be
   A) ileum, jejunum, duodenum.
   B) duodenum, ileum, jejunum.
   C) jejunum, ileum, duodenum.
   D) duodenum, jejunum, ileum.

4. List in order the structures food would pass through before exiting the body.
   A) Pharynx – Stomach – Large intestine – Small Intestine.
   B) Stomach – Jejunum – Large intestine – Anus.
   C) Duodenum – Stomach – Large intestine – Anus.
   D) Rectum – Anus – Large intestine – Small intestine.

5. When they reach the stomach, what do food particles combine with?
   A) Gastric juices. C) Bile.
   B) Mucus. D) Enzymes.

6. Where is bile made?
   A) In the liver. C) In the duodenum.
   B) In the stomach. D) In the gallbladder.

7. The pancreas, liver, and gallbladder help digestion in these ways, respectively
   A) making enzymes; making bile and processing nutrients; and storing bile.
   B) making enzymes; digesting carbohydrates; and eliminating waste.
   C) producing hormones; producing enzymes; and storing bile.
   D) making acids; making bile; and storing enzymes.

8. The organ in which food is mixed with acid and enzymes is the
   A) pancreas. C) liver.
   B) stomach. D) duodenum.

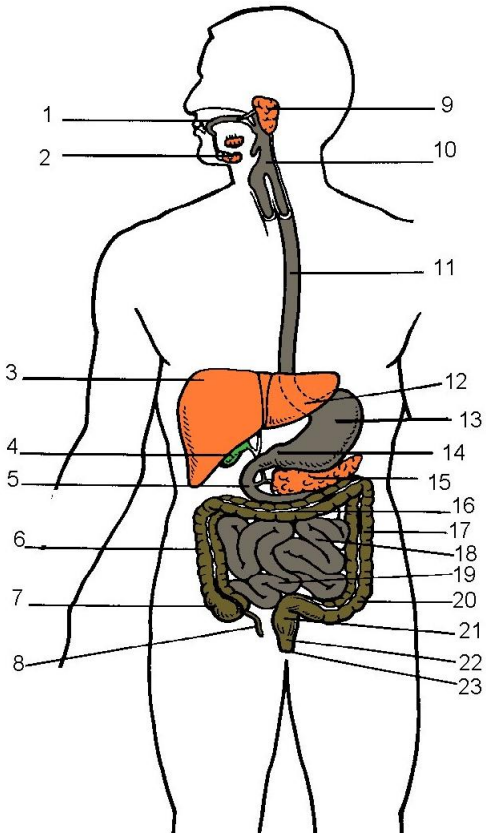
9. The first segment of the small intestine is the
   A) jejunum. C) duodenum.
   B) ileum. D) colon.

10. The pancreatic duct transports secretions from the pancreas to the
   A) stomach. C) liver.
   B) duodenum. D) colon.

11. The final portion of the small intestine is the
   A) ileum. C) jejunum.
   B) duodenum. D) colon.

12. Where is solid waste stored in preparation for elimination?
   A) In the anus.
   B) In the small intestine.
   C) In the bladder.
   D) In the rectum.

IV.* Digestive System Quiz. Label the parts of the digestive system.



SPEAKING TASK

V. Use the picture from Ex. IV and speak about the digestive system.

SELF-ASSESSMENT MODULE 3

I. Give the English equivalents.

1) грудная клетка
2) кислород и углекислый газ
3) артерии, вены и капилляры
4) пищеварительная система
5) ноздри
6) альвеолярные камеры
7) предсердия и желудочки
8) тонкая кишка
9) трехстворчатый клапан
10) двенадцатиперстная кишка, тощая кишка и подвздошная кишка
11) мышечная диафрагма
12) полая вена
13) прямая кишка и задний проход
14) поджелудочная железа и желчный пузырь

(14 marks)

II. Choose the correct answer.

1. What is the correct path through the circulatory system which describes the passage of blood originating in the left leg?

A) Vena cava → left atrium → right atrium → lungs → left ventricle → right ventricle → aorta.

B) Vena cava → right atrium → left atrium → lungs → right ventricle → left ventricle → aorta.

C) Vena cava → left atrium → left ventricle → lungs → right atrium → right ventricle → aorta.

D) Vena cava → right atrium → right ventricle → lungs → left atrium → left ventricle → aorta.

2. What vessels carry deoxygenated blood away from the heart?

A) Pulmonary arteries only.
B) Coronary arteries only.
C) Neither coronary arteries nor pulmonary arteries.
D) Both coronary arteries and pulmonary arteries.

3. This chamber of the heart RECEIVES blood returning from the body.

A) The right atrium. C) The right ventricle.
B) The left atrium. D) The left ventricle.

4. Which of the following statements about the human respiratory system is false?

A) When we breathe in, air travels from the pharynx to the trachea.
B) The bronchioles branch into bronchi.
C) Alveolar ducts connect to alveolar sacs.
D) Gas exchange between the lungs and blood takes place in the alveoli.

5. The respiratory system _____.

A) provides body tissues with oxygen.
B) provides body tissues with oxygen and carbon dioxide.
C) establishes how many breaths are taken per minute.
D) provides the body with carbon dioxide.

6) Which is the order of airflow during inhalation?

A) Nasal cavity, trachea, larynx, bronchi, bronchioles, alveoli.
B) Nasal cavity, larynx, trachea, bronchi, bronchioles, alveoli.
C) Nasal cavity, larynx, trachea, bronchioles, bronchi, alveoli.
D) Nasal cavity, trachea, larynx, bronchioles, bronchi, alveoli.

7. What makes the enzymes that break down carbohydrates?

A) The duodenum. C) The liver.
B) The gallbladder. D) The pancreas.

8. The _____ connects the pharynx to the stomach.

A) sigmoid colon. C) ileum.
B) nasal cavity. D) esophagus.

9. Which of the following organs consists of the cecum, colon, and rectum?

A) Small intestine.
B) Large intestine.

10. Which of the following sends different juices to the small intestine to help digest food and allow the body to absorb nutrients?

A) The pancreas. C) The gallbladder.
B) The liver. D) All of the above.

(10 marks)

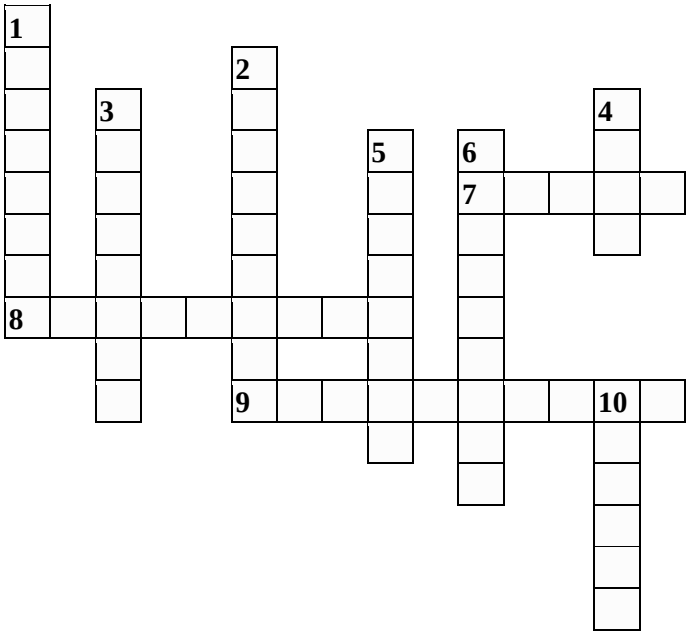
III. Solve the crossword puzzle below.

Across

7. the third portion of the small intestine, between the jejunum and the caecum
8. a circular muscle surrounding and serving to guard or close an opening or tube, such as the anus or the openings of the stomach
9. an expiration of air from the lungs

Down

1. any of the many tiny air sacs of the lungs which allow for rapid gaseous exchange
2. a part of the heart that pumps blood to the arteries
3. a passage or airway in the respiratory tract that conducts air into the lungs
4. the opening at the end of the alimentary canal through which solid waste matter leaves the body
5. a large gland behind the stomach which secretes digestive enzymes into the duodenum
6. a muscle between your lungs and your stomach used in respiration
10. a colorless gas that exists in large quantities in the air



(10 marks)

TOTAL: 34 marks

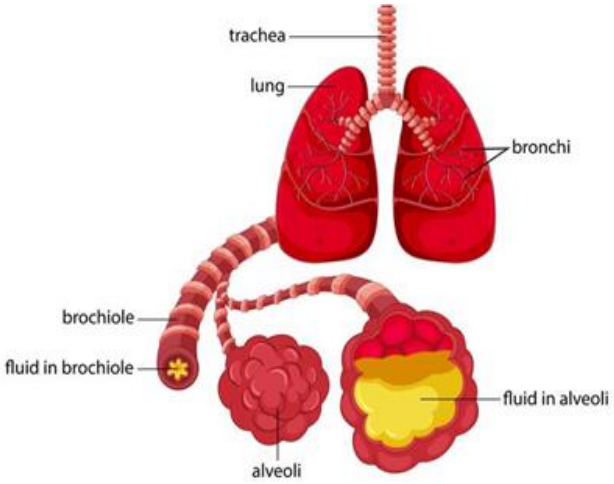
Unit 4. THE DISEASES OF THE RESPIRATORY TRACT

PNEUMONIA

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

pneumonia	[njuːˈməʊnɪə]
trachea	[trəˈkiːə]
bronchi	[ˈbrɔŋkaɪ]
bronchiole	[ˈbrɔŋkɪəul]
alveoli	[ˌælvɪˈəulaɪ]
capillary	[kəˈpɪl(ə)rɪ]
carbon dioxide	[ˈkɑːb(ə)n daɪˈɔksaɪd]
oxygen	[ˈɔksɪʤən]
to exhale	[ɪksˈheɪl]
fungi	[ˈfʌŋgaɪ]
fatigue	[fəˈtiːg]
abscess	[ˈæbsəs]



b) Study the meaning of the words.

flexible and springy ..... эластичный и упругий
to inflate / to deflate..... надувать (воздухом) / выпускать (воздух)
cilia ..... реснички
germs ..... микробы
to overwhelm the immune cells ..... подавлять иммунные клетки
bacteremia .....[ˌbæktəˈriːmɪə]..... присутствие микробов в крови
empyema .....[ˌɛmpaɪˈiːmə]..... скопление гноя в полости, эмпиема

COMPREHENSION CHECK

II. Watch the video and give the Russian equivalents.

1) the trachea or windpipe
2) tiny sacs called alveoli
3) to breathe in/to inhale
4) to breathe out/to exhale
5) hair like cilia
6) the mucus that lines the trachea
7) to expel germs by coughing
8) difficulty breathing
9) fever and chills
10) muscle pain and fatigue
11) respiratory failure
12) a collection of fluid and pus

III. Choose the correct answer (answers).

1. Pneumonia is an infection of the lungs caused by
   A) bacteria.
   B) viruses.
   C) fungi.
   D) All of the above.

2. What are the symptoms of pneumonia?
A) Cough, fever, and chills.
B) Rash, painful joints, and itching skin.
C) Jaundice, muscle pain and fatigue.
D) Difficulty breathing, chest pain, confusion.
E) Fatigue, headache, muscle pain.

3. Acute inflammation of the bronchioles and alveoli is called
A) pulmonary tuberculosis.
B) acute respiratory failure.
C) pneumonia.
D) lung abscess.

4. Pneumonia can be a life-threatening infection.
A) True. B) False.

5. People with reduced immunity tend to suffer from a more severe form of pneumonia.
A) True. B) False.

6. The various complications of pneumonia are
A) pulmonary embolism.
B) bacteremia.
C) lung abscess.
D) acute respiratory failure.
E) emphysema.
F) empyema.

7. Bacteremia is
A) the presence of bacteria in the bloodstream.
B) the collection of pus in a cavity in the body, especially in the pleural cavity.
C) a pus-filled cavity that is caused by an infection.
D) a condition in which your blood doesn't have enough oxygen or has too much carbon dioxide.

8. What are the ways for therapeutic management of pneumonia?
A) Antifungal drugs.
B) Antibiotics or antiviral drugs.
C) Sedatives.
D) Antihistamines.
E) Ibuprofen [ˌaɪbjuːˈprəʊf(ə)n].
F) Bronchodilators.
G) Lots of liquid.

9. A common sign of pneumonia is having trouble breathing.
A) True. B) False.

10. People with pneumonia always need to be treated in the hospital.
A) True. B) False.

SPEAKING TASK

IV. Watch the video for the second time and complete the table.

DISEASE (brief description)	CAUSES	SYMPTOMS	COMPLICATIONS	TREATMENT

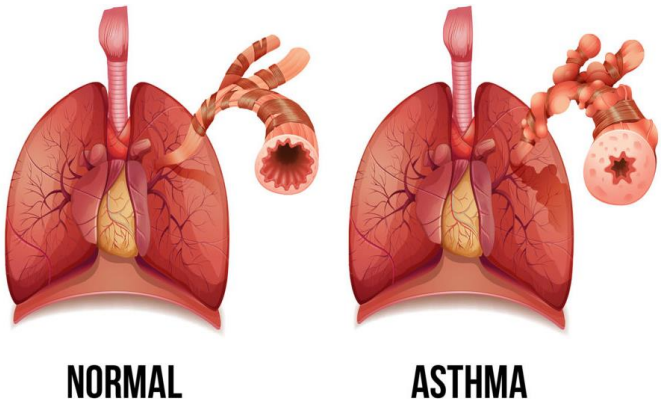
V. Use the table from Ex. IV and speak about pneumonia.

ASTHMA

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

asthma	['æsθmə]
trachea	[trə'kiːə]
bronchi	['brɔŋkaɪ]
bronchiole	['brɔŋkɪəul]
alveoli	[ˌælvɪ'əulaɪ]
allergen	['ælədʒən]
mold	[məuld]
cockroach	['kɔkrəuʧ]
wheeze	[wiːz]
bronchospasm	['brɔŋkəu 'spæzm]
mucus	['mjuːkəs]
bronchodilator	[ˌbrɒŋkə(ʊ)daɪˈleɪtə]



b) Study the meaning of the words.

irritant .....раздражитель
swollen airways .....опухшие дыхательные пути
to overreact .....слишком остро реагировать
trigger .....пусковой механизм, триггер
pollen .....пыльца
mold.....плесень
pet dander .....перхоть домашних животных
dust mites.....клещевой аллерген домашней пыли
cockroach droppings .....тараканий помет
shellfish .....моллюск
chest tightness.....стеснение в груди
airways tighten .....дыхательные пути сжимаются
constriction of the muscles.....сужение мышц
rescue medication.....средство экстренной терапии;
препарат для купирования симптомов

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) сузить дыхательные пути
2) вдыхать и выдыхать
3) бронхи и бронхиолы
4) кислород и углекислый газ
5) без раздражителей
6) вещества, вызывающие аллергию
7) воспаленные и опухшие дыхательные пути
8) приступ астмы
9) наружные раздражители
10) пищевой аллерген
11) одышка
12) кашель и хрипы
13) выделять густую слизь
14) препарат короткого действия / препарат длительного действия
15) менее чувствительны к триггерам

III. Choose the correct answer (answers).

1. Asthma is

A) a localized, irreversible dilation of part of the bronchial tree due to the destruction of the muscle and elastic tissue.

B) a persistent cough that produces sputum and mucus for at least 3 months of the year, two years in succession.

C) a chronic inflammatory disorder of the airways associated with episodes of wheezing, breathlessness, chest tightness and coughing.

D) collapse and closure of alveoli resulting in reduced or absent gas exchange affecting all the lungs.

2. What are the symptoms of asthma?

A) Tightness in the chest.
B) Wheezing.
C) Sneezing.
D) Shortness of breath.
E) All of the above.

3. Which answer best describes common outdoor asthma triggers?

A) Changes in weather and temperature.
B) Pollen.
C) Air pollution.
D) All of the above.

4. What is the cure for asthma?

A) There is no cure.
B) It depends on the patient.

5. What are the two categories of pharmacological agents used in the treatment of asthma?
   A) Anti-inflammatory drugs and glucocorticoids.
   B) Bronchodilators and anti-inflammatory drugs.
   C) B2 adrenoreceptor antagonists and bronchodilators.
   D) Inhaled medications and oral medications.

6. What causes an asthma attack?
   A) Allergens or the flu.
   B) Smoke, cold weather.
   C) Exercise, stress.
   D) All of the above

7. Asthma has different causes or triggers in different people.
   A) True. B) False.

8. Asthma causes the airways to
   A) constrict.
   B) become inflamed.
   C) become lined with a large amount of mucus.
   D) relax.

9. Quick relief medications and long-term medications are the two kinds of treatment available for asthma treatment.
   A) True. B) False.

10) Quick-relief or rescue medications for asthma, such as bronchodilators, may be taken on a daily basis to control frequent symptoms.
   A) True. B) False.

SPEAKING TASK

IV. Work in pairs.

1) Make up a dialogue between a patient with asthma and a healthcare professional (discuss how to improve both the patient's asthma control and his quality of life).

2) Make up a dialogue between a patient just diagnosed with asthma and a doctor (discuss triggers and symptoms, the ways to alleviate the condition).

3) Make up a dialogue between a professor and a student (speak about pathophysiology of asthma).

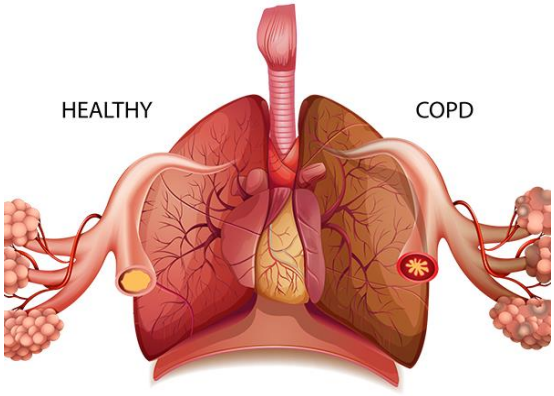
UNDERSTANDING COPD

PRE-VIEWING TASK

I. Vocabulary practice.

a) Pay attention to the pronunciation of the words.

chronic	['krɔnɪk]
pulmonary	['pʌlmən(ə)rɪ]
bronchitis	[brɔŋ'kaɪtɪs]
emphysema	[ˌemfɪ'si:mə]
mucus	['mju:kəs]
fatigue	[fə'ti:g]
windpipe	['wɪn(d)paɪp]
rehabilitation	[ˌri:həˌbɪlɪ'teɪʃ(ə)n]



b) Study the meaning of the words.

severe limitation of airflow ..... сильное ограничение воздушного потока
long-term exposure..... длительное воздействие
alpha-1 antitrypsin deficiency ..... дефицит альфа-1 антитрипсина
an ongoing cough ..... постоянный кашель
air sacs ..... воздушные мешочки
flexible..... гибкий
to deflate ..... сдуваться, выпускать воздух
to clog the airways..... засорять, забивать дыхательные пути
to get floppy..... становиться гибкими
quitting smoking..... отказ от курения
to maintain a positive outlook ..... сохранять позитивное восприятие жизни

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) хроническая обструктивная болезнь легких
2) воздействие раздражителей
3) пассивное курение
4) дым (пары́) на рабочем месте
5) редкое генетическое заболевание
6) стерторозное дыхание, хрипы
7) стеснение в груди
8) потеря веса и мышечной массы
9) терять свои эластичные качества
10) из-за курения
11) вырабатывать слизь
12) замедлить прогрессирование болезни
13) медицинский работник
14) легочная реабилитация

III. Define the sentences as True or False according to the video.

1) There are two main diseases that cause COPD.
2) Once you have COPD, you will never feel better.
3) COPD is more common in young age.
4) Most patients with COPD have a history of cigarette smoking.
5) It is possible to have both asthma and COPD.
6) Shortness of breath, rapid, shallow breathing, coughing and fever are the symptoms of COPD.
7) Medical treatments for COPD can include pulmonary rehabilitation, medications, oxygen therapy.
8) Genetics is the most important risk factor for COPD.
9) A patient with mild COPD experiences breathlessness at rest.
10) Influenza and pneumonia cause COPD.

IV. Choose and name the causes of COPD.

- dust
- cold weather
- secondhand smoke
- workplace fumes
- parasites
- medications
- pollen
- dust mites
- exercise
- the common cold
- mold
- air pollution
- cigarette smoking
- alpha-1 antitrypsin deficiency
- stress
- fungi
- food
- wood burning smoke

SPEAKING TASK

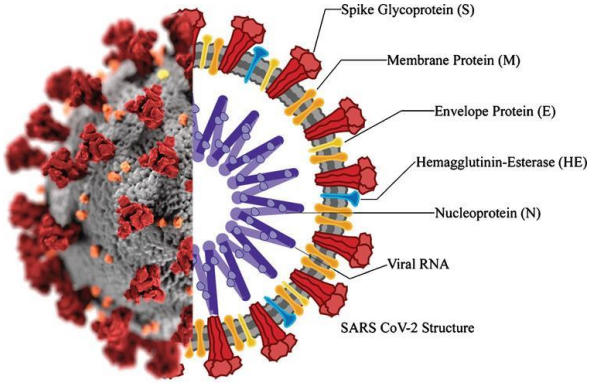
V. Speak on the following.

1) COPD: definition.
2) Causes and risk factors.
3) Symptoms and complications of COPD.
4) Prevention and treatment.

COVID-19

PRE-VIEWING TASK

I. Vocabulary practice.
Pay attention to the pronunciation and meaning of the words.



coronavirus	[kə'rəʊnəˌvaɪrəs]	коронавирус
SARS (severe acute respiratory syndrome)	[sɑːz]	тяжёлый острый респираторный синдром
MERS CoV (Middle East respiratory syndrome coronavirus)	[mɜːz]	коронавирус ближневосточного респираторного синдрома

spike	[spaɪk]	шип
RNA	[ɑːrɛn'eɪ]	рибонуклеиновая кислота
gene	[ʤiːn]	ген
to fuse	[fjuːz]	объединяться, сливаться
to enclose	[ɪn'kləuz]	заключать, помещать
sac	[sæk]	мешок
ribosome	['raɪbə(ʊ)səʊm]	рибосома
diabetes	[ˌdaɪə'biːtiːz]	диабет
obesity	[ə(u)'biːsɪtɪ]	ожирение
corticosteroid	[ˌkɔːtɪkəʊ'stɪərɔɪd]	кортикостероид

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) новое коронавирусное заболевание
2) нести информацию
3) соединяться/ сцепляться с рецептором
4) освободить свои гены
5) втянуть вирус внутрь
6) вирусные s-белки
7) боли в теле
8) заложенный нос и потеря обоняния
9) легкое заболевание
10) не проявлять никаких симптомов
11) проблемы с дыханием
12) иметь основные заболевания
13) ослабленная иммунная система
14) хроническое заболевание легких или астма

III. Choose the correct answer (answers).

1. Which virus causes the disease COVID-19?
   A) SARS-CoV-2.
   B) SARS (Severe Acute Respiratory Syndrome).
   C) MERS (Middle East Respiratory Syndrome).
   D) Adenovirus.

2. How is Coronavirus transmitted?
   A) Through droplets that come from your mouth and nose when you cough or breathe out.
   B) In sexual fluids, including semen, vaginal fluids or anal mucous.
   C) By drinking unclean water.
   D) All of the above.

3. Inside your body the S protein of the virus locks to a receptor on the surface of one of your cells. It may cause the virus
   A) to be injected into the host cell’s cytoplasm.
   B) to inject only its genome into the cell, leaving the rest of the virus on the surface.
   C) to initiate the puncture of the membrane or fusion with the host cell.
   D) to fuse with the cell surface then release its genes into the cell, or the cell may pull the virus inside by enclosing it in a sac.

4. The virus replicates by inserting its RNA into a human cell's own replication machinery. It makes multiple copies of itself, and these burst out of the cell, causing the infection to spread. What does RNA stand for?

A) Reproducing nucleic agent.
B) Ribonucleic acid.
C) Respiratory nucleonic acid.
D) Reproducing nucleic acid.

5. Who does the coronavirus disease (COVID-19) affect?

A) Older people.
B) Younger people.
C) Everyone.
D) Only those with chronic diseases.

6. What are the common symptoms associated with COVID-19?

A) Fever or chills.
B) Shortness of breath.
C) Cough.
D) Loss of smell, taste or both.
E) All of the above.

7. Who is at a higher risk of developing complications from COVID-19?

A) The elderly above 65 years.
B) People with uncontrolled diabetes.
C) People with other pre-existing diseases.
D) All of the above.

8. Can you always tell if someone has COVID-19?

A) No — not everyone with COVID-19 has symptoms.
B) Yes — it will be obvious, a person with COVID-19 coughs a lot.
C) Yes — you can tell just by where a person comes from, their race and ethnicity.
D) No — only a specialist can determine a person with COVID-19.

9. Once infected with the coronavirus disease, it can take 2 to 14 days to show symptoms.

A) True. B) False.

10. What are the methods to prevent COVID-19?

A) Physical distancing 1 meter.
B) Physical distancing 2 meters.
C) Physical distancing 6 feet.
D) None of the above.

SPEAKING TASK

IV. Discuss the following questions.

1) What is COVID-19?
2) What viruses belong to the coronavirus family?
3) How does COVID-19 spread?
4) Why are these viruses called coronaviruses?
5) How does the virus get into human cells?
6) Which organ in the body does this coronavirus primarily attack?

7) What are the symptoms of COVID-19?
8) Are some people more at risk than others?
9) Must all people ill with COVID-19 be hospitalized?
10) What is social distancing?
11) What are the best ways to protect yourself from catching the coronavirus disease (COVID-19)?

V. Speak on the following.

1) Overview of COVID-19.
2) Symptoms.
3) The risk of severe disease.
4) Prevention.

SELF-ASSESSMENT MODULE 4

I. Give the English equivalents.

1) вдыхать и выдыхать (2)
2) бронхи и бронхиолы
3) хроническая обструктивная болезнь легких
4) хрипы (дыхание с присвистом) и стеснение в груди
5) тяжёлый острый респираторный синдром
6) заложенный нос и потеря обоняния
7) затрудненное дыхание
8) дыхательная недостаточность
9) вещества, вызывающие аллергию
10) пассивное курение
11) иметь основные заболевания
12) ослабленная иммунная система
13) реснички
14) воспаленные и опухшие дыхательные пути

(14 marks)

II. Fill in the gaps. Use the words from the box. There is one extra word.

• COPD	• triggers	• respiratory failure	• bronchitis
• bronchodilators	• influenza	• emphysema	• asthma
• COVID-19	• pneumonia	• HIV or AIDS	

1) … is a lung disease that inflames and narrows your airways.
2) Two diseases that could result in COPD are chronic bronchitis and …
3) Common symptoms of … include fever, cough, fatigue, shortness of breath, and loss of smell and taste.
4) A variety of organisms, including bacteria, viruses and fungi, can cause …
5) Smoking is the main cause of … and is thought to be responsible for around 9 in every 10 cases.
6) During an asthma attack you may need to use short-acting rescue medications, called …
7) Although respiratory infections such as … and pneumonia do not cause COPD, they can make people with COPD very sick.

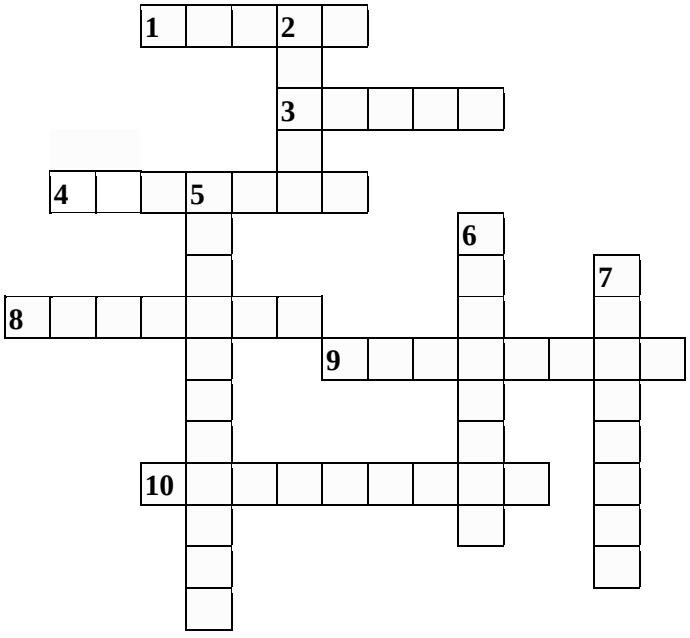
8) Some known … of asthma attacks include allergies, food and food additives, mold, pet dander, dust mites, medications, weather, smoke, exercise.
9) … occurs when your breathing becomes so difficult that you need a machine called a ventilator to help you breathe.
10) In COVID-19 high-risk groups include people with a weakened immune system including those on certain medications, people in cancer treatment and those with …

(10 marks)

III. Solve the crossword puzzle below.

Across
1. the microscopic bacteria, viruses, fungi, and protozoa that can cause disease
3. hair-like structures that extend from the cell body into the fluid surrounding the cell
4. a swollen area within body tissue, containing an accumulation of pus
8. tiny air sacs in the lungs where the exchange of oxygen and carbon dioxide takes place
9. a whistling sound made while you breathe
10. minute particles consisting of RNA and associated proteins that function to synthesize proteins

Down
2. a sticky, gelatinous material that lines your lungs, throat, mouth, nose, and sinuses
5. any of a group of RNA viruses that cause a variety of diseases in humans and other animals
6. a harmless substance capable of triggering a response that starts in the immune system and results in an allergic reaction
7. the air passage from the throat to the lungs



(10 marks)

TOTAL: 34 marks

Unit 5. THE DISEASES OF THE CARDIOVASCULAR SYSTEM

HIGH BLOOD PRESSURE

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

hypertension	[ˌhaɪpə'ten(t)ʃ(ə)n]
flexibility	[ˌfleksɪ'bɪlətɪ]
viscosity	[vɪs'kɔsətɪ]
sphygmomanometer	[ˌsfɪgməʊmə'nɒmɪtə]
systolic pressure	[sɪs'tɔlɪk 'preʃə]
diastolic pressure	[ˌdaɪæs'tɔlɪk 'preʃə]
aneurysm	['anjʊrɪz(ə)m]
cholesterol	[kə'lest(ə)rɔl]
calcium	['kælsɪəm]
plaque	[plɑːk]
diuretic	[ˌdaɪjuə'retɪk]
enzyme	['enzaɪm]
angiotensin	[ˌandʒɪə(ʊ)'tɛnsɪn]
vasodilators	[ˌveɪzədaɪ'leɪtəz]

b) Study the meaning of the words.

cardiac output	минутный сердечный выброс
blood volume	объем циркулирующей крови
resistance	устойчивость, резистентность
to contribute (to)	способствовать
flexibility	эластичность, гибкость, упругость
to raise	поднимать, повышать, увеличивать
viscosity	вязкость
blood pressure cuff	манжетка для измерения кровяного давления
to burst	лопаться; разрываться
tears	разрывы
a plaque	бляшка
clots	сгустки
a stroke	внезапный приступ; «удар»
highly processed foods	подвергнутая интенсивной обработке пища
beta blockers	бета блокаторы
ACE (angiotensin-converting enzyme) Inhibitor	ингибитор ангиотензин-превращающего фермента

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) обеспечить ткани кислородом
2) давление на стенки артерий
3) минутный сердечный выброс увеличивается
4) способствовать устойчивости
5) гибкость стенки артерии
6) снизить кровяное давление
7) повреждение артерий
8) снижение кровотока
9) ограничить потребление
10) сила сердечных сокращений

III. While watching the video, complete the sentences. In your exercise-books put down the numbers from 1 to 10 and write down the missing words.

Arteries are the blood 1) _____ that carry blood away from your 2) _____ to supply your tissues with 3) _____ and nutrients. In your heart two 4) _____, called ventricles, contract with each 5) _____ to push blood to your lungs and through your 6) _____ to your body. As blood flows through them three main factors affect the pressure on your artery walls. The first is cardiac output, or the amount of blood your 7) _____ push out of your heart each minute. Your 8) _____ goes up as cardiac output increases. The second factor affecting your blood pressure is 9) _____, or the total 10) _____ of blood in your body.

IV. Define the sentences as True or False according to the video.

1) Factors affecting the pressure on the artery walls are blood volume, resistance and cardiac output.
2) Systolic pressure is pressure on the arteries when your heart relaxes between beats.
3) If your blood is thicker, your blood pressure goes down.
4) Your blood pressure should normally be less than 120 millimeters of mercury for diastolic pressure, and less than 80 millimeters of mercury for systolic pressure.
5) An aneurysm is an excessive localized enlargement of an artery caused by a weakening of the artery wall.
6) Regular exercises and reducing sodium in your diet can decrease blood pressure.
7) High blood pressure is not associated with kidney disease.
8) Water retention in the body does not influence your blood pressure.

V. Give the names of the drugs which are described below.

1) These drugs reduce your blood pressure by relaxing your blood vessels, which increases their diameter. Name at least one type.	1)
2) These drugs help rid your body of salt (sodium) and water.	2)
3) These drugs reduce the workload on your heart by decreasing both the rate of your heartbeat and the strength of your heart contractions.	3)

SPEAKING TASK

VI. Discuss the following questions.

1) What is hypertension?
2) How is the amount of blood your ventricles push out of your heart each minute called?
3) What happens to blood volume when blood pressure goes up?
4) What is a sphygmomanometer?
5) What is the difference between systolic pressure and diastolic pressure?
6) What damage to the artery walls can high blood pressure cause?
7) Does artery damage lead to any health problems? What are they?
8) What are the risk factors of high blood pressure?
9) What way of life should you keep to not to develop high blood pressure?
10) What medications may your doctor recommend?

VII. Make a summary of this video. Use the plan.

1) High blood pressure: overview.
2) Blood pressure measurement.
3) Complications of high blood pressure.
4) Prevention and treatment.

ACUTE CORONARY SYNDROME AND HEART ATTACK

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

coronary	['kɔ:rə(ə)rɪ]
blockage	['blɔkɪʤ]
aorta	[eɪ'ɔ:tə]
atherosclerosis	[ˌæθərəusklə'rəusɪs]
plaque	[plɑ:k]
spasm	['spæz(ə)m]
dissection	[dɪ'sekʃ(ə)n]
myocardial infarction	[ˌmaɪəʊ'kɑ:dɪəl ɪn'fɑ:kʃ(ə)n]
thrombolytics	[ˌθrɒmbə'lɪtɪks]
angioplasty	['ændʒi:'ə(u)plæstɪ]
catheter	['kæθɪtə]
bypass graft	['baɪpɑ:s grɑ:ft]

b) Study the meaning of the words.

coronary artery dissection ..... расслоение коронарной артерии
trigger ..... пусковой механизм
tightening of a coronary artery ..... сжатие коронарной артерии
unstable angina ..... нестабильная стенокардия
dizziness ..... головокружение
clot-buster drugs ..... препараты для удаления сгустков крови

balloon-tipped catheter ..... катетер(-баллон) Фогарти (для удаления тромбов)
mesh-like device ..... сетчатое устройство
bypass graft ..... обходной сосудистый шунт

COMPREHENSION CHECK

II. Watch the video and guess the word according to the definition.

1) a hollow muscular organ that pumps the blood around your body;
2) a part of the heart that pumps blood to the arteries;
3) the main artery through which blood leaves your heart before it flows through the rest of your body;
4) a build-up of a fatty substance;
5) a disease of the arteries characterized by the deposition of plaques of fatty material on their inner walls;
6) a gelatinous [ʤɪ'lætɪnəs] or semisolid mass of coagulated blood;
7) a serious medical emergency in which the supply of blood to the heart is suddenly blocked, usually by a blood clot;
8) a severe pain in the chest and left arm, caused by heart disease;
9) a tube that your doctor inserts into a blocked passageway, such as a blood vessel, to keep it open.

III. Give the English equivalents.

1) закупорка кровотока
2) насыщенная кислородом кровь
3) обеспечивать кислородом и питательными веществами
4) снижение кровотока
5) спазм коронарной артерии
6) инфаркт миокарда
7) чувство жжения
8) нестабильная стенокардия
9) коронарная ангиопластика
10) препараты, разжижающие кровь

IV. Say which drugs and surgical procedures produce the following action according to the video.

• nitroglycerin and morphine	• beta blockers	• thrombolytics
• a coronary artery bypass graft	• blood-thinner drugs	• coronary angioplasty

1) a procedure used to widen blocked or narrowed coronary arteries
2) medications taken orally or intravenously (through a vein) to prevent a blood clot
3) drugs used to relax your coronary arteries and relieve the pain of angina
4) drugs that are used to dissolve blood clots
5) a surgery to replace blocked arteries with healthy blood vessels
6) drugs used to slow down your heart and reduce its need for oxygen

SPEAKING TASK

V. Speak about Acute Coronary Syndrome and Heart Attack. Use the plan.

1) Causes.
2) Symptoms.
3) Treatment.

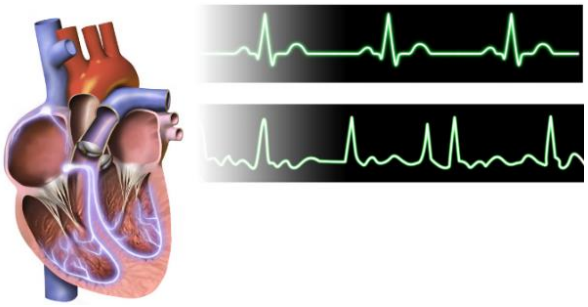
CARDIAC ARRHYTHMIA

PRE-VIEWING TASK

I. Vocabulary practice.

a) Pay attention to the pronunciation of the words.

rhythm	['rɪðm]
sinoatrial	[ˌsaɪnəʊ'eɪtrɪəl]
arrhythmia	[ə'rɪðmɪə]
fibrillation	[ˌfɪbrɪ'leɪʃ(ə)n]
tachycardia	[ˌtækɪ'kɑːdɪə]
bradycardia	[ˌbradɪ'kɑːdɪə]
to fibrillate	['faɪbrɪleɪt, 'fɪb-]
to quiver	['kwɪvə]
anti-arrhythmic	['æntɪə'rɪðmik]
catheter ablation	['kæθɪtə ə'bleɪʃ(ə)n]
pacemaker	['peɪsˌmeɪkə]
defibrillator	[diː'fɪbrɪleɪtə]



b) Study the meaning of the words.

the cardiac conduction system..... проводящая система сердца
the sinoatrial or SA node..... синусно-предсердный узел
to twitch rapidly and randomly ..... подергиваться быстро и беспорядочно
supraventricular tachycardia ..... наджелудочковая тахикардия
in atrial flutter..... при трепетании предсердий
to quiver instead of beating..... дрожать вместо того, чтобы биться
catheter ablation ..... катетерная аблация
a thin wire..... тонкая проволока

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) в состоянии покоя
2) частота сердечных сокращений и ритм
3) богатая кислородом кровь
4) электрические импульсы
5) фибрилляция предсердий
6) фокальная предсердная тахикардия
7) фибрилляция желудочков
8) путь следования электрических импульсов
9) антиаритмические препараты и бета-блокаторы
10) кардиостимулятор или дефибриллятор
11) имплантируемые устройства
12) для коррекции темпа или ритма сердца

III. Choose the correct answer (answers).

1. A normal heart beats _____ times per minute.
   A) 50 to 60 C) 100 to 150
   B) 60 to 100 D) 150 to 200

2. Electricity in your heart tells it when to beat.
   A) True. B) False.

3. Tachycardia is defined as
   A) an arrhythmia with a rate greater than 150 beats per min.
   B) an arrhythmia with a rate greater than 100 beats per min.
   C) any rhythm disorder with a heart rate less than 60 beats per min.
   D) an organized rhythm without a pulse.

4. Bradycardia is defined as
   A) any rhythm disorder with a heart rate less than 40 beats per minute.
   B) any rhythm disorder with a heart rate less than 60 beats per minute.
   C) an irregular heartbeat rhythm.
   D) any rhythm disorder with a heart rate more than 100 beats per minute.

5. Supraventricular tachycardia arises
   A) outside of the heart, usually in the aorta.
   B) in the left ventricle.
   C) in the right ventricle.
   D) in the atria.

6. A type of arrhythmia that originates in the upper chambers of the heart and causes the heart to beat abnormally fast but with a regular rhythm is called
   A) ventricular fibrillation.
   B) atrial fibrillation.
   C) bradycardia.
   D) atrial tachycardia.

7. Atrial fibrillation is a(n)
   A) sudden pause in heartbeat.
   B) abnormal rhythm of the heart.
   C) medical term for heart attack.
   D) medical term for stroke.

8) During an arrhythmia, the heart can beat
   A) too fast. C) with an irregular rhythm.
   B) too slowly. D) about 60 to 100 times per minute.

9. Ventricular fibrillation and ventricular tachycardia
   A) are life-threatening cardiac arrhythmias.
   B) are not a problem.
   C) put someone at risk for blood clots.
   D) convert back to normal on their own.

10. Are there any treatments for arrhythmia?
   A) Yes. B) No.

SPEAKING TASK

IV. Answer the questions.

1) What is a normal heartbeat?
2) What controls the heart rate and rhythm?
3) Where does each heartbeat start?
4) What is an arrhythmia?
5) What causes arrhythmia?
6) What are the types of arrhythmias?
7) What is the most common type of arrhythmia?
8) May tachycardia happen in the ventricles?
9) How serious is ventricular fibrillation?
10) What happens if the SA node is not functioning properly?
11) What does the treatment for arrhythmia include?
12) What happens if arrhythmia is left untreated?

V. Speak on the following using the key words.

1) Cardiac conduction system (*a normal heart rate, rhythm, oxygen-rich blood, the cardiac conduction system, electrical impulses, the sinoatrial node*).
2) Types of arrhythmias (*abnormal rhythm, the atria or ventricles, to beat per minute*).
3) Atrial arrhythmia (*random impulses, supraventricular, focal atrial tachycardia, atrial flutter*).
4) Ventricular arrhythmia (*rapid and regular contractions, ventricular fibrillation, to quiver instead of beating*).
5) Bradycardia (*problems with the SA node, the slow heartbeat*).
6) Treatment for arrhythmia (*a heart-healthy diet, anti-arrhythmic drugs, a pacemaker or defibrillator*).

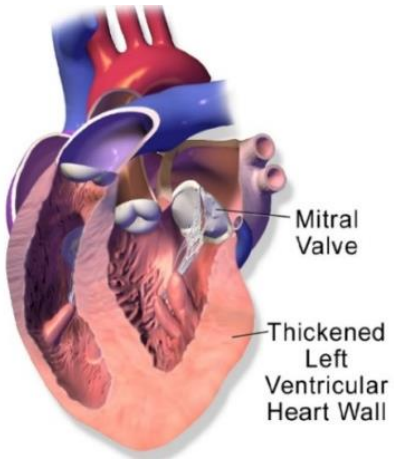
HYPERTROPHIC CARDIOMYOPATHY (HCM)

PRE-VIEWING TASK

I. Vocabulary practice.

a) Pay attention to the pronunciation of the words.

hypertrophic	[ˌhaɪpə'trɒfɪk]
cardiomyopathy	[ˌkɑːdɪəʊmaɪ'ɒpəθɪ]
tricuspid	[traɪ'kʌspɪd]
mitral	['maɪtr(ə)l]
aortic	[eɪ'ɔːtɪk]
obstructive	[əb'strʌktɪv]
to bulge	[bʌldʒ]
gradient	['greɪdɪənt]
lightheadedness	[ˌlaɪt'hedɪdnəs]



b) Study the meaning of the words.

scar tissue ..... рубцовая ткань
to become stiffer..... стать жестче
non-obstructive or obstructive..... необструктивная и обструктивная
to bulge into..... выпячиваться в
the outflow tract..... путь оттока
to push toward ..... толкать навстречу
backflow of blood..... обратный приток крови
lightheadedness ..... головокружение
health care provider..... медицинский работник

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) аномальный ген
2) правое предсердие и желудочек
3) перегородка
4) четыре клапана
5) перекачивать насыщенную кислородом кровь
6) кислород и питательные вещества
7) клетки сердечной мышцы
8) утолщенные стенки
9) сильнее сокращаться
10) блокировать кровоток
11) сузить путь оттока
12) учащенное сердцебиение или обморок

III. Choose the correct word to fill in the blanks. In your exercise-books put down the numbers from 1 to 7 and write down the missing words.

Hypertrophic cardiomyopathy is a/an 1) _____ where the walls of your heart thicken often caused by an abnormal gene. Your heart has four 2) _____. They are the right and left 3) _____, the right and left ventricles. A muscular wall called the 4) _____ divides the two sides of your heart. Your heart pumps blood in one direction through four 5) _____: tricuspid, pulmonary, mitral and aortic. The job of your heart 6) _____ is to pump oxygenated blood throughout your body. This provides your body with the 7) _____ and nutrients it needs.

1	A	term	B	condition	C	ailment
2	A	valves	B	arteries	C	chambers
3	A	arteries	B	atria	C	atrium
4	A	septum	B	pericardium	C	endocardium
5	A	valves	B	arteries	C	chambers
6	A	right ventricle	B	left ventricle	C	right atrium
7	A	oxygen	B	carbon dioxide	C	metabolic wastes

SPEAKING TASK

IV. Answer the questions.

1) What does hypertrophic cardiomyopathy usually affect?
2) Why does thickening of the walls happen?
3) What may form between the muscle cells?
4) Does the heart stay about the same size?
5) What happens to the left ventricle as a result?
6) What are two common types of HCM?
7) What is the difference between non-obstructive or obstructive hypertrophic cardiomyopathy?
8) What are the symptoms of hypertrophic cardiomyopathy?

V. Speak on the following.

1) Structure of the heart.
2) Hypertrophic cardiomyopathy: overview.
3) Obstructive and non-obstructive HCM.

SELF-ASSESSMENT MODULE 5

I. Give the English equivalents.

1) острый коронарный синдром
2) гипертрофическая кардиомиопатия
3) высокое кровяное давление
4) фибрилляция предсердий
5) объем циркулирующей крови
6) сердечная аритмия
7) расслоение коронарной артерии
8) сердечный приступ
9) проводящая система сердца
10) сердечный выброс
11) нестабильная стенокардия
12) тромб
13) фибрилляция желудочков
14) манжетка для измерения кровяного давления

(14 marks)

II. Match the words to their definitions.

• heart attack	• hypertension	• arrhythmia
• tachycardia	• angina	• pacemaker
• aneurysm	• diastolic pressure	• angioplasty
• hypertrophic cardiomyopathy	• atherosclerosis	• systolic pressure

1) a procedure used to widen blocked or narrowed coronary arteries;
2) the death of a segment of heart muscle caused by a loss of blood supply;
3) a problem with the rate or rhythm of your heartbeat;
4) a disease of the arteries characterized by the deposition of fatty material on their inner walls;
5) the pressure of the blood in the arteries when the heart pumps;

6) a severe pain in the chest and left arm, caused by heart disease;
7) a condition that makes your heart beat more than 100 times per minute;
8) the pressure on the artery wall when your heart relaxes between beats;
9) a long-term medical condition in which the blood pressure in the arteries is persistently elevated;
10) the enlargement of an artery caused by weakness in the arterial wall;
11) a condition in which a portion of the heart becomes thickened without an obvious cause;
12) a small device that is placed in the chest or abdomen to help control abnormal heart rhythms.

(12 marks)

III. Choose the correct answer (answers).

1. A yellow, fatty deposit in an artery is called
   A) a stent. C) a plaque.
   B) a blood clot. D) a coronary artery spasm.

2. What is considered "high blood pressure"?
   A) 90/70 mm Hg. C) 140/90 mm Hg.
   B) 100/80 mm Hg. D) 160/100 mm Hg.

3. What can happen if blood flow in an artery is blocked or greatly restricted?
   A) Cardiac arrhythmia.
   B) Stroke.
   C) Heart attack.
   D) Hypertrophic cardiomyopathy.

4. What is a myocardial infarction?
   A) Heart failure. C) Cardiac arrest.
   B) Heart attack. D) All of the above.

5. The medical term for the chest pain is
   A) angina.
   B) There is no medical term for the chest pain.
   C) fibrillation.
   D) arrhythmia.

6. Risks for heart disease include
   A) high blood pressure and high cholesterol.
   B) smoking.
   C) lack of exercise.
   D) All of the above.

7. Types of arrhythmias include
   A) fibrillation. C) cardiomyopathy.
   B) tachycardia. D) bradycardia.

8. What can you do to control high blood pressure?
   A) Get to and stay at a healthy weight.
   B) Exercise regularly.
   C) Take the blood pressure medicines prescribed by your doctor.
   D) All of the above.

9. Hypertrophic cardiomyopathy is a condition in which

A) the heartbeat is irregular, too fast, or too slow.

B) the walls of the heart thicken often caused by an abnormal gene.

C) blood flow to the heart is reduced, preventing the heart muscle from receiving enough oxygen.

D) the heart inner lining is inflamed.

10. The surgical procedures recommended in acute coronary syndrome are

A) insertion of a pacemaker or an implantable cardioverter defibrillator (ICD).

B) a coronary artery bypass graft.

C) catheter ablation.

D) coronary angioplasty and stent implantation.

(10 marks)

IV. Complete the table and be ready to speak about the diseases of the cardiovascular system.

DISEASE	SYMPTOMS	TREATMENT
1) acute coronary syndrome	– shortness of breath – *(5 symptoms)* – – – –	– oxygen therapy – nitroglycerin and morphine – *(4 options of treatment)* – – –
2) hypertension	– severe headaches – nosebleed – fatigue or confusion – vision problems – chest pain – difficulty breathing – irregular heartbeat – pounding in your chest, neck, or ears	– diuretics – *(4–5 options of treatment)* – – – –
3) cardiac arrhythmia	– fatigue or weakness – dizziness – shortness of breath – anxiety – chest pain – *(3 symptoms)* – –	– anti-arrhythmic drugs – *(3–4 options of treatment)* – – –
4) hypertrophic cardiomyopathy	– tiredness – *(3–4 symptoms)* – – –	– beta blockers – calcium channel blockers – heart rhythm drugs – blood thinners – surgeries or other procedures

(22 marks)

TOTAL: 58 marks

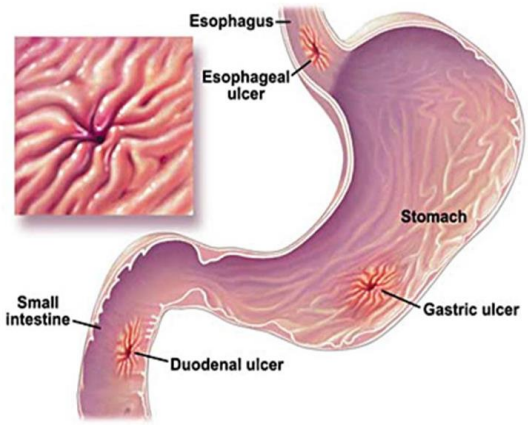
Unit 6. THE DISEASES OF THE ALIMENTARY TRACT

PEPTIC ULCER

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

esophageal	[iːsɔfə'ʤɪəl]
gastric	['gæstrɪk]
duodenal	[ˌdjuːəu'diːn(ə)l]
acidic	[ə'sɪdɪk]
Helicobacter pylori	[ˌhelɪkəu'bæktəpaɪˌlɔːraɪ]
aspirin	['æsp(ə)rɪn]
ibuprofen	[ˌaɪbjuː'prəufən]
sucralfate	['s(j)uːkr(ə)lˌfeɪt]
bismuth subsalicylate	['bɪzməθ səbsəˈlɪsɪlət]
vagotomy	[veɪ'gɒtəmɪ]
antrectomy	[an'trɛktəmɪ]
pyloroplasty	[paɪ'lɔːrəplastɪ]
vagus	['veɪgəs]
antrum	['æntrəm]
pylorus	[paɪ'lɔːrəs]
endoscopy	[ən'dɒskəpɪ]



b) Study the meaning of the words.

sore ..... рана, язва
in the lining of the esophagus..... в слизистой оболочке пищевода
for subsequent absorption..... для последующего всасывания
to lodge in the mucous layer ..... поселиться в слизистом слое
a proton pump inhibitor..... ингибитор протонового насоса
a histamine type 2 receptor antagonist ..... антагонист рецепторов гистамина типа 2
to perforate the wall of the stomach ..... прободать стенку желудка
vagus nerve..... блуждающий нерв

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) язва желудка
2) язва двенадцатиперстной кишки
3) язва пищевода
4) пищеварительный сок
5) желудочная кислота
6) защитный слизистый слой
7) бактерии поселяются в слизистом слое
8) нестероидные противовоспалительные препараты
9) уменьшить производство кислоты

10) ваготомия (пересечение блуждающего нерва или его ветвей)
11) удаление привратниковой части желудка
12) секретировать, высвобождать кислоту
13) избегать употребления алкоголя и сигарет
14) выполнить эндоскопию

III. Choose the correct answer (answers).

1. An ulcer in the small intestine is referred to as
   A) a gastric ulcer.
   B) an esophageal ulcer.
   C) a duodenal ulcer.
   D) ulcerative colitis.

2. What is the common cause of developing peptic ulcers?
   A) Smoking.
   B) Obesity.
   C) Alcohol.
   D) Helicobacter pylori infection.

3. What are the possible complications of an untreated or incompletely treated peptic ulcer?
   A) Perforation with internal bleeding.
   B) Infection.
   C) Scar formation leading to gastric outlet obstruction syndrome.
   D) Atrophic gastritis.

4. Ulcerations typically occur in regions bathed with acid/pepsin such as
   A) jejunum.
   B) cecum.
   C) duodenum.
   D) All of the above.

5. What is best used for detecting small and healing ulcers?
   A) Endoscopy.
   B) Barium radiography.
   C) Abdominal CT.
   D) None of the above.

6. A patient has developed a duodenal ulcer. As future doctors, you know which of the following plays a role in peptic ulcer formation. Select ALL that apply.
   A) Spicy foods.
   B) Helicobacter pylori.
   C) Non-steroidal anti-inflammatory drugs.
   D) Nervous overstrain.

7) Select all the medications a physician may order to treat a H. pylori infection that causes a peptic ulcer?
   A) Antacid.
   B) Proton pump inhibitors.
   C) Anticholinergics [ˌantɪˌkəʊlɪˈnəːdʒɪk].
   D) H2 blockers.
   E) Bismuth Subsalicylates.

8. Surgical treatment of an ulcer is required in case of heavy bleeding that cannot be managed with medical treatment and in case of a perforated ulcer.

A) True. B) False.

9. A follow up endoscopy is done after the treatment course for Helicobacter pylori infection.

A) True. B) False.

10. How to prevent formation of recurrent peptic ulcers?

A) To get treatment for H. pylori infection if present.
B) To limit alcohol and quit smoking.
C) To seek medical advice on use of NSAID's.
D) All of the above.

IV. Match the surgical procedures to their definitions.

1) antrectomy	a) a surgical operation in which one or more branches of the vagus nerve are cut, typically to reduce the rate of gastric secretion
2) vagotomy	b) a surgery to widen the opening in the lower part of the stomach (pylorus) so that stomach contents can empty into the small intestine (duodenum)
3) pyloroplasty	c) a procedure in which the distal third of the stomach (the gastric or pyloric antrum) is excised

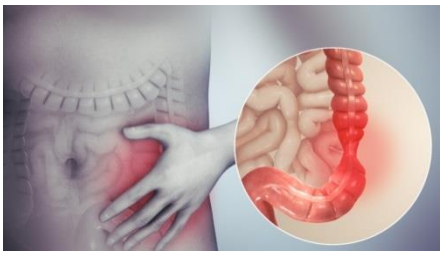
SPEAKING TASK

V. Speak on the following.

1) A peptic ulcer disease overview.
2) The causes of peptic ulcers.
3) Drugs prescribed to treat peptic ulcers.
4) The surgical treatment for ulcers.
5) Complications and prevention of a peptic ulcer disease.

IRRITABLE BOWEL SYNDROME

PRE-VIEWING TASK



I. Vocabulary practice.
Pay attention to the pronunciation of the words.

cecum	['siːkəm]	слепая кишка
ascending colon	[ə'sendɪŋ 'kəulən]	восходящая ободочная кишка
transverse colon	[trænz'vɜːs 'kəulən]	поперечная ободочная кишка
descending colon	[dɪ'sendɪŋ 'kəulən]	нисходящая ободочная кишка
sigmoid colon	['sɪgmɔɪd 'kəulən]	сигмовидная ободочная кишка
anal canal	['eɪn(ə)l kə'næl]	анальный канал
peristalsis	[ˌperɪ'stælsɪs]	перистальтика
bowel	['bauəl]	кишка

to absorb	[əb'zɔːb]	поглощать, впитывать, всасывать
diarrhea	[ˌdaɪə'rɪə]	диарея
bloating	['bləutɪŋ]	вздутие, метеоризм
cramping	[kræmpɪŋ]	спазм
softer bulkier stool	['sɔftə 'bʌlkɪə stuːl]	более мягкий объёмный стул
antispasmodic	[ˌæntɪspæz'mədɪk]	спазмолитическое средство
antidepressant	[ˌæntɪdɪ'pres(ə)nt]]	антидепрессант

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) ритмично сокращаться
2) содержимое кишечника
3) всасывать воду и питательные вещества
4) отходы
5) выводиться через анальное отверстие
6) дефекация
7) водянистый стул
8) затвердевший стул
9) запор
10) быть более чувствительным к стрессу
11) вздутие живота и спазмы
12) изменение диетических привычек
13) управление стрессовыми ситуациями
14) гипнотерапия и йога

III. Choose the correct answer (answers).

1. Which of the following represents the correct sequence regarding the movement of waste through the large intestine?
   A) Cecum, ascending colon, transverse colon, descending colon, sigmoid colon.
   B) Ascending colon, descending colon, cecum, transverse colon, sigmoid colon.
   C) Sigmoid colon, descending colon, transverse colon, ascending colon, cecum.
   D) Cecum, descending colon, transverse colon, ascending colon, sigmoid colon.

2. What is the function of the large intestine?
   A) To produce digestive enzymes.
   B) To hold a supply of bile.
   C) To absorb water.
   D) To digest food.

3. Where is waste stored before it is ready to leave the body?
   A) In the rectum.
   B) In the sigmoid colon.
   C) In the anus.
   D) In the colon.

4. What is irritable bowel syndrome or IBS?
   A) The inflammation of the digestive tract, which can lead to abdominal pain, severe diarrhea, fatigue, weight loss and malnutrition.
   B) A common disorder that affects the large intestine.
   C) Another term for celiac disease.
   D) Another term for stomach flu.

5. What are the symptoms of IBS?
   A) Diarrhea. B) Gas. C) Stomach pain or cramps. D) All of the above.

6. There are different types of IBS.
   A) True. B) False.

7. Stress and anxiety could worsen the symptoms of irritable bowel syndrome.
A) True. B) False.

8. People with IBS should avoid foods such as
A) dairy products. B) alcohol. C) vegetables. D) fried foods.

9. What is the treatment for IBS?
A) Medicines and probiotics.
B) Changes in diet.
C) Mental health therapy and fiber.
D) All of the above.

10. Antibiotics are very effective in the treatment of irritable bowel syndrome.
A) True. B) False.

IV. Fill in the gaps. Use the words from the box. There is one extra word.

• antidepressants	• antiviral medications	• antispasmodic drugs
• yoga	• hypnotherapy	• anti-constipation drugs
	• sedatives	

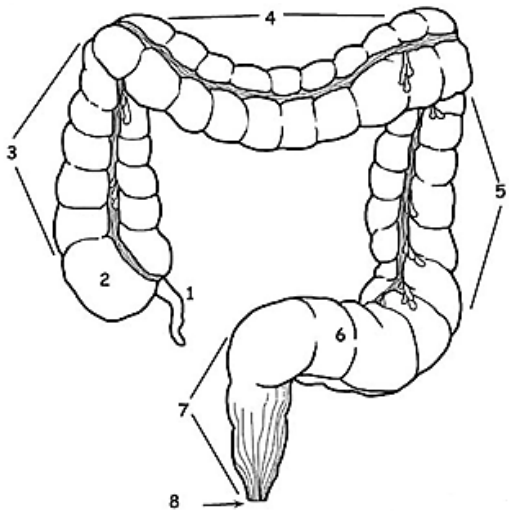
1) _____ can help change the way the unconscious mind responds to physical symptoms.
2) _____ can help regulate your bowel movements.
3) _____ can help with depression and anxiety disorders.
4) _____ can reduce abdominal cramping and pain by relaxing the muscles in the intestines.
5) _____ can help find the balance and create a more efficient metabolism; reduce or relieve symptoms.
6) _____ can relieve anxiety and elevate your mood.

SPEAKING TASK

V. Speak about irritable bowel syndrome. Use the plan.

1) Overview.
2) IBS symptoms.
3) Treatment and care.

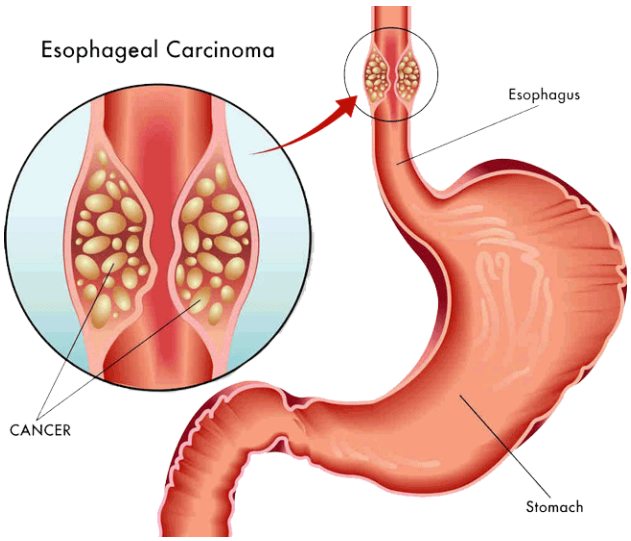
VI.* Large Intestine Quiz. Label the parts of the large intestine.



ESOPHAGEAL CANCER

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.



esophageal	[ɪsɔfə'dʒɪəl]
esophagus	[iː'sɔfəgəs]
squamous	['skweɪməs]
gastroesophageal	[ˌgæstrəuɪsɔfə'dʒɪəl]
reflux	['riːflʌks]
adenocarcinoma	[ˌadɪnəʊkɑːsɪ'nəʊmə]
tumor	['t(j)uːmə]
chemotherapy	[ˌkiːməu'θerəpɪ]
lymph node	[lɪmf noʊd]

b) Study the meaning of the words.

squamous cells..... чешуйчатые, плоские клетки
gastroesophageal reflux..... гастроэзофагеальный рефлюкс
goblet cells..... бокаловидные клетки
Barrett's esophagus ..... пищевод Барретта
squamous cell carcinoma ..... плоскоклеточный рак
a lump ..... припухлость; вздутие, шишка
to be attached to each other ..... быть присоединённым друг к другу
advanced tumors..... запущенные опухоли
to shrink..... уменьшать
external beam radiation therapy ..... наружная лучевая терапия

COMPREHENSION CHECK

II. Watch the video. Give the English equivalents.

1) мышечная трубка
2) плоские тонкие клетки
3) обратное забрасывание или рефлюкс кислоты
4) гландулоциты, железистые клетки
5) неконтролируемо расти
6) иметь проблемы с глотанием
7) иметь трудности с приемом пищи
8) на ранних стадиях
9) удалить часть пищевода
10) близлежащие лимфатические узлы
11) замедлить рост раковых клеток
12) отказ от курения и отказ от алкоголя

III. Define the sentences as True or False according to the video.

1) The flat thin cells lining the esophagus are called goblet cells.
2) GERD is a backflow of stomach acid into the esophagus.
3) GERD is a potentially serious complication of Barrett's esophagus.
4) Barrett's esophagus is a condition in which there is an abnormal change in the mucosal cells lining the lower portion of the esophagus.

5) There is one type of esophageal cancer.
6) Alcohol and tobacco use are not common risk factors for developing esophageal cancer.
7) Early-stage esophageal cancer usually causes no signs or symptoms.
8) Esophageal cancer is always fatal.
9) Surgery is better in the early stages when the tumor is small.
10) Radiation therapy is a drug treatment that uses powerful chemicals to kill fast-growing cells in the body.

SPEAKING TASK

IV. Discuss the following questions.

1) What are the most commonly found cells in the inner esophagus called?
2) Which type of cancer is GERD closely linked to?
3) What is esophageal cancer?
4) What are the main types of esophageal cancer?
5) What do you call a cancer that originates from the gland cells, which are usually NOT found in the inner esophagus?
6) What are the most common risk factors for esophageal cancer?
7) What are the symptoms of esophageal cancer?
8) How is esophageal cancer treated?
9) What things can you do to lower the risk of developing esophageal cancer?

V. Speak on the following.

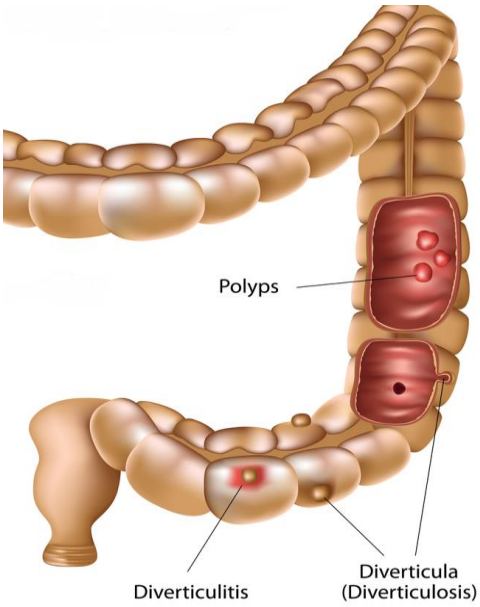
1) Esophageal cancer: overview.
2) Types of esophageal cancer.
3) Risk factors.
4) Symptoms.
5) Treatment options.

DIVERTICULAR DISEASE

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

diverticular	[ˌdaɪvə'tɪkjʊlə]
cecum	['siːkəm]
anal canal	['eɪn(ə)l kə'næl]
mucosa	[mjuː'kəʊsə]
submucosa	[ˌsʌbmjuː'kəʊsə]
serosa	[sɪ'rəʊsə]
vasa recta	[ˌveɪsə'rektə]
diverticulosis	[ˌdaɪvətɪkjʊ'ləʊsɪs]
diverticulum (pl. diverticula)	[ˌdaɪvə'tɪkjʊləm]
diverticulitis	[ˌdaɪvətɪkjʊ'laɪtɪs]
abscess	['æbsəs]



b) Study the meaning of the words.

pouch ..... мешок, дивертикул
vasa recta ..... прямые сосуды
diverticulum..... мешковидное выпячивание стенки трубчатого или полого органа
diverticulosis ..... дивертикулез (наличие нескольких дивертикулов в кишке)
diverticulitis..... воспаление и/или инфекция дивертикула
frequent straining with bowel movements ..... частое напряжение при дефекации
to herniate through..... выпячиваться через
the formation of a perforation ..... образование перфорации
stoma ..... стома; отверстие анастомоза
to soften and add bulk to stools..... смягчить и увеличить объем стула

COMPREHENSION CHECK

II. Watch the video. Give the English equivalents.

1) восходящая ободочная кишка
2) поперечная ободочная кишка
3) нисходящая ободочная кишка
4) сигмовидная кишка
5) прямая кишка и анальный канал
6) снабжать кровью толстую кишку
7) связанный с диетой с низким содержанием клетчатки
8) повышенное давление внутри толстой кишки
9) образуется дивертикул
10) дивертикулы воспаляются
11) боль в нижней левой части живота
12) скопление гноя
13) тяжелый случай дивертикулита
14) дренировать абсцесс
15) снова прикрепить к прямой кишке
16) повышенное употребление продуктов, богатых клетчаткой

III. Choose the correct answer (answers).

1. The presence of small sacs that can develop in the lining of the gastrointestinal tract is called
   A) diverticulosis.
   B) diverticulitis.
   C) diverticulum.
   D) vasa recta.

2. Diverticulosis is the presence of inflamed diverticula.
   A) True. B) False.

3. Diverticulosis may be caused by
   A) H. pylori infection.
   B) a low fiber diet.
   C) frequent straining with bowel movements.
   D) constipation.
   E) gas.

4. Which of the following is associated with colonic diverticulosis?
   A) Diarrhea and leukocytosis.
   B) Constipation and fever.
   C) Few or no symptoms.
   D) Blood in the stool.

5. The symptoms of diverticulitis are
   A) fever.
   B) left lower quadrant abdominal pain.
   C) abdominal pain that is mainly present in the upper right quadrant.
   D) constipation or diarrhea.

6. The complications of diverticulitis may include
   A) perforation.
   B) abscess and fistula formation.
   C) obstruction.
   D) All of the above.

7. What can treatment for diverticulitis include?
   A) Oral antibiotics.
   B) High-fiber diet.
   C) A clear liquid diet.
   D) Surgery.
   E) Radiation therapy.

SPEAKING TASK

IV. Answer the following questions.

1) What are the parts of the large intestine?
2) What are the main layers of your colon?
3) How are the blood vessels that supply blood to the colon called?
4) What is diverticulosis associated with?
5) When does diverticulitis occur?
6) What are the symptoms of diverticulitis?
7) Why is it necessary to drain an abscess?
8) What is the treatment for complicated diverticulitis?
9) How is a colon resection performed?
10) How to prevent diverticular disease?

V. Work in pairs.

1) Make up a dialogue between a healthcare professional and a patient suffering from constant constipation (discuss the connection between constipation and diverticulosis, how to prevent the disease).
2) Make up a dialogue between a doctor and a patient just diagnosed with diverticulitis (discuss complications and treatment options).

SELF-ASSESSMENT MODULE 6

I. Give the English equivalents.

1) язва желудка
2) содержимое кишечника
3) гастроэзофагеальный рефлюкс
4) плоскоклеточный рак
5) дивертикулез
6) восходящая ободочная кишка
7) язва двенадцатиперстной кишки
8) вздутие живота и спазмы
9) гландулоциты, железистые клетки
10) язва пищевода
11) воспаление / инфекция дивертикула
12) спазмолитические препараты
13) наружная лучевая терапия
14) лимфатический узел

(14 marks)

II. Fill in the gaps. Use the words from the box.

• Barrett's esophagus	• diverticulitis	• irritable bowel syndrome
• peptic ulcer	• diverticulosis	• adenocarcinoma
• stomach ulcer	• esophageal cancer	• acid reflux
	• duodenal ulcer	

1) … is a common term for GERD.
2) GERD is a risk factor for the development of …
3) … occurs when you have diverticula but often no other symptoms.
4) … occurs when the diverticula become inflamed.
5) Signs and symptoms of … include cramping, abdominal pain, bloating, gas, and diarrhea or constipation, or both.
6) Common causes of … disease include the bacteria Helicobacter pylori and non-steroidal anti-inflammatory drugs (NSAIDs).
7) There are different types of treatment for patients with …: surgery, chemotherapy and radiation therapy.
8) In … a medication called a proton pump inhibitor (PPI) is recommended.
9) A … is a peptic ulcer that develops in the first part of the small intestine.
10) One type of esophageal cancer called … may occur in the changed lining of Barrett's esophagus.

(10 marks)

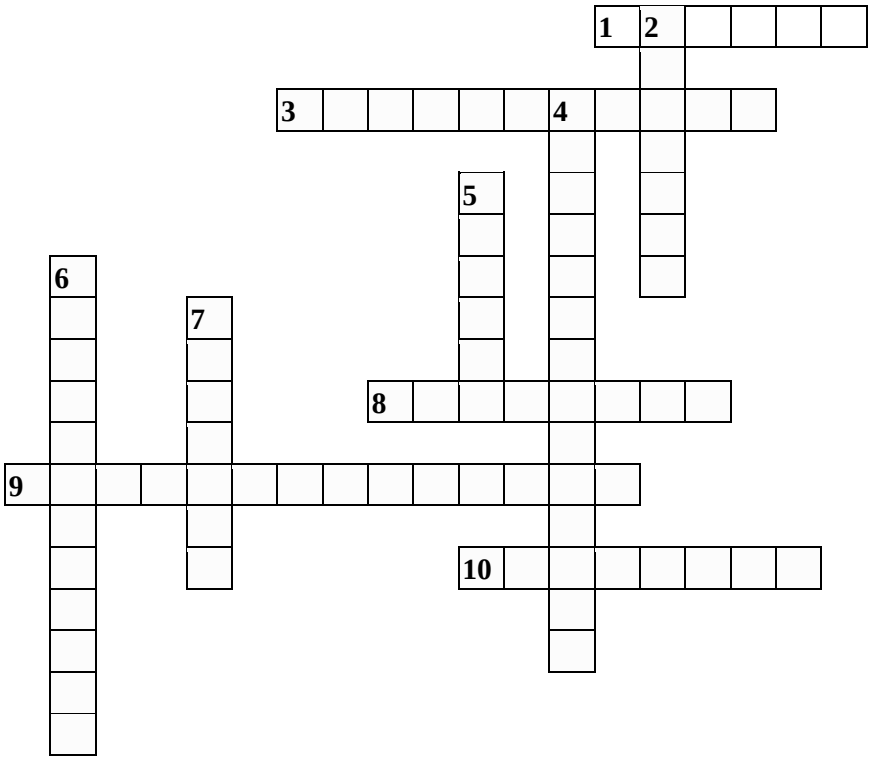
III. Solve the crossword puzzle below.

Across

1. a disease caused by an uncontrolled division of abnormal cells in a part of the body
3. a series of wave-like muscle contractions that move food through the digestive tract
8. loose, watery stools
9. inflammation of a diverticulum, especially in the colon, causing pain and disturbance of bowel function
10. a condition where your belly feels full and tight, often due to gas

Down

2. a swollen area within body tissue, containing an accumulation of pus
4. a malignant tumor formed from glandular structures in epithelial tissue
5. a membrane that lines various cavities in the body and covers the surface of internal organs
6. a condition in which there is difficulty in emptying the bowels, usually associated with hardened feces
7. the opening from the stomach into the duodenum

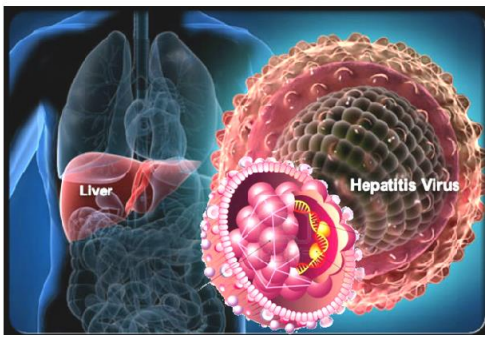


(10 marks)

TOTAL: 34 marks

Unit 7. THE DISEASES OF THE LIVER AND BILE DUCTS

HEPATITIS A AND B



PRE-VIEWING TASK

I. Vocabulary practice.
Pay attention to the pronunciation of the words.

hepatitis	[ˌhepə'taɪtɪs]	гепатит
hepatic	[hɪ'pætɪk]	печёночный
lobules	['lɔbju:lz]	дольки
clotting factor	['klɔtɪŋ 'fæktə]	фактор свертывающей системы крови
bile	[baɪl]	желчь
nutrients	['nju:trɪənts]	питательные вещества
fecal	['fi:k(ə)l]	фекальный
feces	[fi:si:z]	фекалии
hygiene	['haɪʤi:n]	гигиена
scar tissue	[skɑ: 'tɪʃu:]	рубцовая ткань
cirrhosis	[sɪ'rəusɪs]	цирроз печени
shrinking	['ʃrɪŋkɪŋ]	сжатие
hardening	['hɑ:d(ə)nɪŋ]	затвердевание
immune	[ɪ'mju:n]	иммунный
antiviral	[ˌæntɪ'vaɪər(ə)l]	противовирусный
to transplant	[træn'splɑ:nt]	трансплантировать

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) вирус гепатита А
2) вирус гепатита В
3) расщеплять вредные вещества
4) выводить бактерии и изношенные клетки крови
5) подвергнуться воздействию фекалий
6) загрязненная пища или вода
7) незащищенный секс
8) совместное использование шприца
9) инфицированный человек
10) обмен предметами личной гигиены
11) прямой контакт с кровью
12) проникать в клетки печени
13) большое количество рубцовой ткани
14) приводить к постоянному сжатию и затвердеванию
15) противовирусные препараты
16) операция по пересадке печени

III. Watch the video. Choose the correct answer (answers).

1. Which statement best describes hepatitis?
   A) Cancer of the liver.
   B) Liver failure.
   C) Inflammation of the liver.
   D) None of the above.

2. Hepatitis A is
   A) a bacterial infection.
   B) a viral infection.
   C) a fungal infection.
   D) an autoimmune disease.

3. Which form of hepatitis can be passed through contaminated food or water?
   A) A.
   B) B.
   C) A and B.
   D) None of the above.

4. Which of the following is NOT a common source of transmission for hepatitis A?
   A) Water.
   B) Food.
   C) Semen ['siːmən].
   D) Blood.

5) Select all the ways a person can become infected with hepatitis B.
   A) Contaminated food/water.
   B) During the birth process.
   C) Intravenous drug use.
   D) Undercooked meat.
   E) Hemodialysis [ˌhiːmədaɪ'æləsɪs].
   F) Sexual intercourse.

6. What kind of hepatitis goes away on its own?
   A) A.
   B) B.
   C) A and B.
   D) None of the above.

7. Having a chronic HBV infection can lead to serious complications, such as
   A) kidney problems.
   B) scarring of the liver (cirrhosis).
   C) psychological problems.
   D) liver failure.

8. What is the most important patient information to give your friend about avoiding hepatitis A exposure?
   A) Tell her/him to avoid sharing needles or using nonsterile needles.
   B) Remind her/him about using insect repellant and mosquito netting at night.
   C) Encourage her/him to take safe sex precautions.
   D) Explain good hand washing and food and water precautions.

9. A patient with hepatitis A asks you about the treatment options for this condition. Your response is
   A) antiviral medications.
   B) interferon.
   C) supportive care.
   D) hepatitis A vaccine.

10. Treatment for chronic hepatitis B may include
   A) antiviral medications.
   B) external beam radiation therapy.
   C) a liver transplant.
   D) immunotherapy.

IV. Agree or disagree.

1) The liver plays an essential role in converting the food we eat into fuel for the body cells.

2) Hepatic lobules store bile and release it into your small intestine.

3) Hepatitis refers to an inflammatory condition of the liver caused by a bacterial infection.

4) Hepatitis A is contagious.

5) In hepatitis the blood carries the virus to its target, the liver, where it multiplies within hepatocytes and Kupffer cells (liver macrophages).

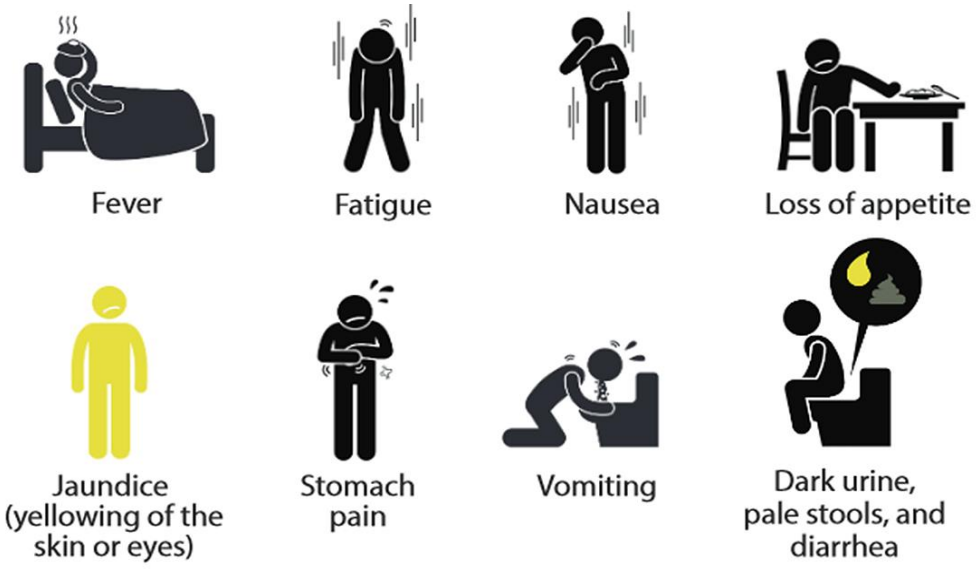
6) The risk of hepatitis B infection is associated with a lack of safe water, and poor sanitation and hygiene (such as dirty hands).

7) If your doctor determines your hepatitis B infection is acute — meaning it is short-lived and will go away on its own — you may not need treatment.

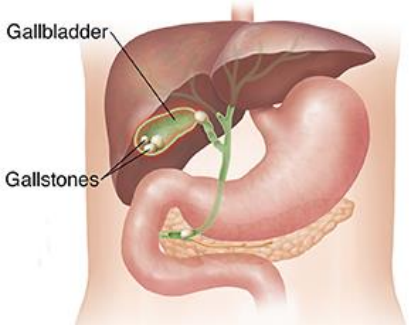
8) Corticosteroids and antiviral medications are extremely important in the early treatment of hepatitis A.

SPEAKING TASK

V. Study the symptoms of hepatitis. Speak about hepatitis A and hepatitis B.



GALLSTONES



PRE-VIEWING TASK

I. Look at the title of the film.

What do you expect to see in this video? What issues are likely to be discussed? What do you know about gallstones?

II. Vocabulary practice. Pay attention to the pronunciation of the words.

gallbladder	['gɔːlˌblædə]	желчный пузырь
bile	[baɪl]	желчь
digestion	[daɪ'ʤestʃ(ə)n]	пищеварение
absorption	[əb'zɔːpʃ(ə)n]	всасывание
obstruction	[əb'strʌkʃ(ə)n]	закупорка
excruciating	[ɪks'kruːʃɪeɪtɪŋ]	мучительный
jaundice	['ʤɔːndɪs]	желтуха
cholangitis	[ˌkɒlan'gaɪtɪs]	холангит
to trigger	['trɪgə]	инициировать
pancreatic enzymes	[ˌpæŋkrɪ'ætɪk 'enzaɪmz]	панкреатические ферменты
pancreatitis	[ˌpæŋkrɪə'taɪtɪs]	панкреатит
cholecystectomy	[ˌkɒlɪsɪ'stɛktəmɪ]	холецистэктомия

COMPREHENSION CHECK

III. Watch the video and guess the word according to the definition.

1) A yellowish-green fluid secreted by the liver.
2) A yellowish pigmentation of the skin and whites of the eyes due to high bilirubin levels.
3) A small hollow organ where bile is stored and concentrated before it is released into the small intestine.
4) Solid particles that form from bile cholesterol and bilirubin in the gallbladder.
5) Inflammation of the bile duct.
6) Inflammation of the gallbladder.
7) Inflammation of the pancreas.
8) The surgical removal of the gallbladder.
9) The short duct that joins the gallbladder to the common hepatic duct.
10) This organ is located in the abdomen and has two main functions: an exocrine function that helps in digestion and an endocrine function that regulates blood sugar.

IV. Give the English equivalents.

1) желчные кислоты
2) еда с высоким содержанием жира
3) перекачивать желчь в двенадцатиперстную кишку
4) пузырный проток
5) желчные протоки
6) блокировать общий желчный проток
7) плохое усвоение жира
8) воспалительная реакция
9) удаление желчного пузыря
10) диета с низким содержанием жиров

V. Choose the correct answer (answers).

1. The gallbladder is located
   A) behind the stomach.
   B) in the upper right portion of the abdominal cavity.
   C) behind the rib cage and the stomach.
   D) beneath the liver.

2. Your gallbladder
   A) helps your immune system.
   B) helps your digestive system.
   C) makes hormones.
   D) produces insulin.

3. What are the signs of a gallbladder attack?
   A) Pain in the upper right abdomen.
   B) Diarrhea.
   C) Gas.
   D) Increased urination.

4. A gallbladder attack often happens
   A) in the morning on an empty stomach.
   B) in the middle of the day after a workout.
   C) at night after a heavy meal.
   D) All of the above.

5. What happens if gallstones are left untreated?
   A) They will dissolve.
   B) They can get bigger.
   C) They can cause infection and inflammation.
   D) None of the above.

6. Gallstones can cause jaundice.
   A) True. B) False.

7. What is the most common treatment for gallstones?
   A) No treatment may be needed.
   B) Medications.
   C) Surgery.
   D) All of the above.

8. What food should you eat if you have gallstones?
   A) Fruit and vegetables. C) White bread.
   B) Sugary desserts. D) Red meat.

9. You can live without your gallbladder.
   A) True. B) False.

10. Can gallstones be prevented?
   A) Yes. B) No.

SPEAKING TASK

VI. Answer the questions.

1) Where is the gallbladder located?
2) What are the functions of the gallbladder?
3) What is the role of bile?
4) What is a common complication caused by gallstones?
5) What happens when gallstones block the common bile duct?
6) When is the flow of pancreatic juice from the pancreas blocked?
7) How can gallstones be treated?
8) How is laparoscopic gallbladder removal done?
9) What happens when you have your gallbladder removed?
10) Should you follow any diet after your gallbladder removal?
11) What are the advantages of laparoscopic gallbladder surgery?

VII. Speak on the following.

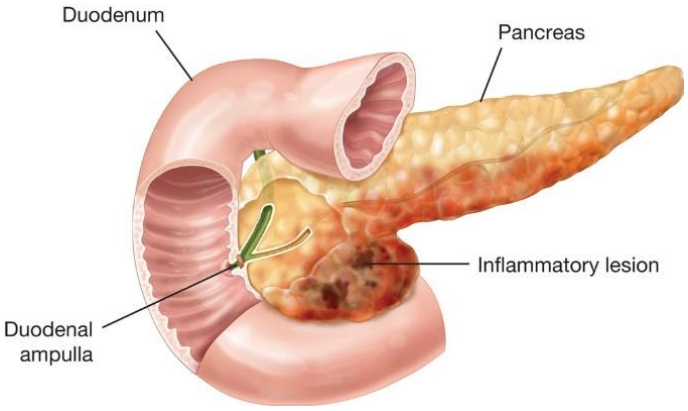
1) The role of the gallbladder.
2) The complications of the gallstones.
3) The treatment for gallstones.

CHRONIC PANCREATITIS

PRE-VIEWING TASK

I. Vocabulary practice.
a) Pay attention to the pronunciation of the words.

pancreatitis	[ˌpæŋkrɪə'taɪtɪs]
pancreas	['pæŋkrɪəs]
triglyceride	[traɪ'glɪsəraɪd]
fibrosis	[faɪ'brəʊsɪs]
hormone	['hɔːməun]
debilitating	[dɪ'bɪlɪteɪtɪŋ]
endoscopic	['ɛndəskəʊpɪk]
exocrine	['ɛksə(ʊ)kraɪn]
diabetes	[ˌdaɪə'biːtiːz]
secretin	[sɪ'kriːtɪn]



b) Study the meaning of the words.

irreversible destruction ..... необратимое разрушение
elevated triglycerides ..... высокий уровень триглицеридов
cystic fibrosis ..... кистозный фиброз
hereditary ..... наследственный
enzymes ..... ферменты
nutrients ..... питательные вещества
nutrition-related diseases ..... болезни, связанные с питанием

the hallmark symptom ..... отличительный признак
stabbing pains ..... колющие боли
the belly button ..... пупок
debilitating (pain) ..... изнуряющая (боль)
oily, foul-smelling bowel movements ..... маслянистые, дурно пахнущие испражнения
a CT scan (computerized tomography) ..... компьютерная томография
an MRI (magnetic resonance imaging) ..... МРТ

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) длительное воспаление поджелудочной железы
2) ткань поджелудочной железы
3) длительное, тяжелое употребление алкоголя или табака
4) аутоиммунное состояние
5) наследственные или генетические заболевания
6) иметь проблемы с правильным перевариванием пищи
7) поддержание уровня сахара в крови
8) слабые кости и потеря зрения
9) постоянная боль
10) хроническая или прерывистая боль
11) продукты с высоким содержанием жиров
12) экзокринная недостаточность поджелудочной железы
13) эндоскопическое ультразвуковое исследование
14) труднодиагностируемые случаи
15) тестирование стимуляции поджелудочной железы
16) замедлить прогрессирование заболевания
17) заместительная терапия ферментами поджелудочной железы

III. Choose the correct answer (answers).

1. What does the pancreas do?
   A) Filters toxins from the blood.
   B) Aids in digestion.
   C) Absorbs nutrients from food.
   D) Regulates major body functions.

2. Chronic pancreatitis develops slowly over time and is caused by long-standing inflammation of the pancreas.
   A. True. B. False.

3. What causes pancreatitis?
   A) Excessive alcohol consumption.
   B) Autoimmune conditions.
   C) Genetic disorders.
   D) All of the above.

4. What is the main sign of pancreatitis?
   A) Constipation.
   B) Pain in the upper mid-abdomen.
   C) Headache.
   D) Fatigue.

5. The symptoms may include
   A) unexplained weight loss.
   B) pain in your upper abdomen.
   C) type 1 diabetes.
   D) dark urine.
   E) greasy, foul-smelling stools.

6. Chronic pancreatitis can affect the body's ability to absorb nutrients from food, which can lead to malnutrition.
   A) True. B) False.

7. The diagnosis of chronic pancreatitis can be made based upon
   A) a blood test.
   B) a CT scan.
   C) an MRI.
   D) endoscopic ultrasound.
   E) a secretin stimulation test.

8. Chronic pancreatitis is a long-lasting condition but it is usually not fatal. Can pancreatitis be cured?
   A) Yes, in some cases. B) No.

9. The treatment for pancreatitis involves
   A) endoscopic treatment.
   B) surgery.
   C) medications.
   D) All of the above.

10. Pancreatitis cannot be prevented.
   A) True. B) False.

SPEAKING TASK

IV. Work in pairs.

1) Make up a dialogue between a patient, suffering from constant abdominal pains and unexplained weight loss, and a healthcare professional (discuss the connection between abdominal pains, weight loss and chronic pancreatitis; the causes of the disease).

2) Make up a dialogue between a doctor and a patient with suspected chronic pancreatitis (discuss tests used for diagnosis; treatment options).

3) Make up a dialogue between a professor and a student (speak about the pancreas and its functions).

LIVER CANCER

PRE-VIEWING TASK

I. Vocabulary practice.

a) Pay attention to the pronunciation of the words.

cancer	['kænsə]
glandular	['glændjulə]
to weigh	[weɪ]
segment	['segmənt]
regeneration	[rɪˌʤen(ə)'reɪʃ(ə)n]
digestion	[daɪ'ʤesʧ(ə)n]
iron	['aɪən]
copper	['kɔpə]
cessation	[se'seɪʃ(ə)n]
extraneous	[ɪk'streɪnɪəs]
excretion	[eks'kri:ʃ(ə)n]
ambiguous	[æm'bɪgjuəs]
lethargy	['leθədʒɪ]
excision	[ek'sɪʒ(ə)n]

b) Study the meaning of the words.

glandular organ ..... железистый орган
natural regeneration ..... естественное восстановление
the resultant fat ..... полученный жир
nutrition ..... пища
to be retained by the liver ..... быть сохраненным печенью
a multitude of substances ..... множество веществ
cessation of blood loss ..... прекращение кровопотери
extraneous substances ..... инородные вещества
ambiguous symptoms ..... неясные симптомы
a blood sample ..... анализ крови

COMPREHENSION CHECK

II. Watch the video and give the English equivalents.

1) функция печени
2) непосредственно под диафрагмой
3) правая доля и левая доля
4) вырабатывать желчь
5) помочь пищеварению
6) расщепить жир
7) факторы свертывания крови
8) быть необходимым для поддержания жизни
9) очищение крови
10) посредством выделения
11) надутый живот и вялость
12) перемещаться по кровотоку
13) увеличение печени
14) ультразвуковое и компьютерное обследование
15) первичный рак печени
16) восстановиться до полного размера

III. Choose the correct answer (answers).

1. Which one of these sentences is correct about the liver?
   A) It is the largest organ of the human body.
   B) It is not a vital organ.
   C) It cannot regenerate itself.
   D) It regulates the body temperature.

2. An adult liver weighs
   A) less than 500 g. C) from 1.4 to 1.6 kg.
   B) more than 3 kg. D) from 1.8 to 2.0 kg.

3. Where is it located in the body?
   A) In the upper right of the abdominal cavity.
   B) Just in the middle of the rib cage.
   C) On the left side, just below the heart.
   D) In the lower right of the abdominal cavity.

4. The primary functions of the liver are
   A) bile production and excretion.
   B) bile storage.
   C) metabolism of fats, proteins, and carbohydrates.
   D) storage of glycogen, vitamins, and minerals.
   E) synthesis of plasma proteins, such as albumin, and clotting factors.
   F) blood detoxification and purification.

5. Liver has the ability to regenerate.
   A) True. B) False.

6. The most common type of liver cancer seen clinically is
   A) primary. B) secondary.

7. Early-stage primary liver cancer is often hard to detect during a physical examination.
   A) True. B) False.

8. The presenting features of liver cancer include
   A) weight loss and loss of appetite.
   B) jaundice (yellowish discoloration of skin and eyes).
   C) abdominal pain and swelling.
   D) All of the above.

9. The steps included in the diagnosis of liver cancer are
   A) endoscopy.
   B) blood tests.
   C) ultrasound and CT examination.
   D) All of the above.

10. The preferred mode of treatment in early liver cancer is
   A) chemotherapy.
   B) surgery.
   C) supportive (palliative) care.
   D) targeted drug therapy.

SPEAKING TASK

IV. Answer the questions.

1) Where is the liver located in the body?
2) What is the approximate weight of the liver in a healthy adult?
3) What is the role of the liver?
4) What are the symptoms of liver cancer?
5) What is a clear indication of failure in the liver or gallbladder?
6) What does the first examination involve?
7) How is liver cancer diagnosed?
8) Where does primary liver cancer start?
9) What is secondary liver cancer?
10) Can the tumor be removed surgically?
11) Does the liver grow back after the operation?
12) How do you think liver cancer can be prevented?

V. Speak on the following.

1) Anatomy and functions of the liver.
2) Liver cancer: symptoms and diagnosis.
3) Liver cancer: treatment and prevention.

SELF-ASSESSMENT MODULE 7

I. Give the English equivalents.

1) цирроз печени
2) вирус гепатита А
3) желчный пузырь и поджелудочная железа
4) кистозный фиброз
5) рак печени
6) печеночные дольки
7) расщеплять вредные вещества
8) фактор свертывающей системы крови
9) операция по пересадке печени
10) желчный проток
11) острый панкреатит
12) необратимое разрушение
13) естественное восстановление
14) желтуха и холангит

(14 marks)

II. Match the words to their definitions.

• hepatitis A	• regeneration	• bile
• gallstone	• liver	• jaundice
• cirrhosis	• pancreas	• gallbladder
	• hepatitis B	

1) a viral infection that attacks the liver; it is transmitted from mother to child during birth and delivery, as well as through contact with blood or other body fluids
2) a gland located in the abdomen with two key functions: digestion and blood sugar regulation

3) a medical condition with yellowing of the skin or whites of the eyes, arising from excess of the pigment bilirubin and typically caused by obstruction of the bile duct, by liver disease, or by excessive breakdown of red blood cells
4) the natural process of restoring damaged or missing cells, tissues, organs, and even entire body parts to full function
5) a small, hard crystalline mass formed abnormally in the gall bladder or bile ducts from bile pigments, cholesterol, and calcium salts
6) a liver condition that causes irreversible scarring on the liver
7) a viral liver disease transmitted through ingestion of contaminated food and water or through direct contact with an infected person
8) a liquid produced by the liver which helps digest fat
9) a large lobed glandular organ in the abdomen of vertebrates, involved in many metabolic processes
10) a small hollow organ where bile is stored and concentrated before it is released into the small intestine

(10 marks)

III. Choose the correct word to fill in the blanks. In your exercise-books put down the numbers from 1 to 10 and write down the missing words.

Your 1) _____ is an important organ that performs hundreds of tasks related to metabolism, energy storage, and detoxification of waste. It helps you 2) _____ food, convert it to energy, and store the energy until you need it. It also helps 3) _____ toxic substances out of your bloodstream.

Liver disease is a general term that refers to any 4) _____ affecting your liver. These conditions may develop for different reasons, but they can all damage your liver and impact its function. Liver disease symptoms vary, depending on the underlying 5) _____.

However, there are some general symptoms that may indicate some kind of liver disease: yellow skin and eyes, known as 6) _____; dark urine; pale, bloody, or black stool; nausea and vomiting; 7) _____ appetite, ongoing fatigue, itchy skin, easy bruising.

Hepatitis is a 8) _____ infection of your liver. It causes inflammation and liver 9) _____, making it difficult for your liver to function as it should. All types of hepatitis are 10) _____, but you can reduce your risk by getting vaccinated for types A and B or taking other preventive steps, including practicing safe sex and not sharing needles.

1	**A**	gallbladder	**B**	liver	**C**	pancreas
2	**A**	digest	**B**	store	**C**	break down
3	**A**	absorb	**B**	filter	**C**	break down
4	**A**	disturbance	**B**	malaise	**C**	condition
5	**A**	course	**B**	case	**C**	cause
6	**A**	jaundice	**B**	yellowish	**C**	yellowing
7	**A**	decreased	**B**	diminished	**C**	low
8	**A**	bacterial	**B**	viral	**C**	fungal
9	**A**	injury	**B**	trouble	**C**	damage
10	**A**	transferable	**B**	infected	**C**	contagious

(10 marks)

TOTAL: 34 marks

KEYS

SELF-ASSESSMENT MODULE 1

Ex. I

1) vital signs
2) a surgical team
3) a recovery room
4) the IV
5) cardiopulmonary resuscitation
6) appendectomy
7) an operating room
8) rescue breathing
9) to be hooked up to monitors
10) to insert the laparoscope
11) to assess symptoms
12) tiny keyhole incisions
13) a life-threatening perforation
14) the body's oxygen levels

Ex. II

1) A, B, C, D, E
2) B
3) B
4) A, B
5) C
6) C
7) C
8) C
9) D
10) A

Ex. III

Across
2) keyhole
6) cannula
8) resuscitation
9) victim
10) catheter

Down
1) urgent
3) laparoscope
4) incision
5) anesthesia
7) anesthetist

SELF-ASSESSMENT MODULE 2

Ex. I

1) communicable or contagious diseases
2) herpes virus
3) viral meningitis
4) shingles
5) Human Immunodeficiency Virus
6) varicella-zoster virus
7) opportunistic infection
8) Acquired Immunodeficiency Syndrome
9) antiretroviral medications
10) meninges
11) postherpetic neuralgia
12) tingling
13) the ongoing infection
14) to quarantine smb

Ex. II

1) A
2) A
3) A
4) B
5) B, D
6) B, D
7) D
8) D
9) C
10) B, C

Ex. III

Across
1) tingling
3) lymphocyte
5) giardiasis
6) trichomoniasis
7) parasite
9) blister

Down
1) toxoplasmosis
2) virus
4) enterovirus
8) thrush

SELF-ASSESSMENT MODULE 3

Ex. I

1) the thorax
2) oxygen and carbon dioxide
3) arteries, veins and capillaries
4) the digestive system
5) nostrils
6) alveolar chambers
7) atria and ventricles
8) the small bowel / small intestine
9) the tricuspid valve
10) duodenum, jejunum and ileum
11) the muscular diaphragm
12) the vena cava
13) the rectum and the anus
14) the pancreas and the gallbladder

Ex. II

1) D
2) A
3) A
4) B
5) A
6) B
7) D
8) D
9) B
10) D

Ex. III

Across
7) ileum
8) sphincter
9) exhalation

Down
1) alveolus
2) ventricle
3) bronchus
4) anus
5) pancreas
6) diaphragm
10) oxygen

SELF-ASSESSMENT MODULE 4

Ex. I

1) to breathe in/to inhale and to breathe out/to exhale
2) bronchi and bronchioles
3) chronic obstructive pulmonary disease
4) wheezing and chest tightness
5) SARS (severe acute respiratory syndrome)
6) stuffy nose and loss of smell
7) difficulty breathing
8) respiratory failure
9) allergy causing substances
10) secondhand smoke
11) to have underlying conditions
12) a weakened immune system
13) cilia
14) inflamed and swollen airways

Ex. II

1) asthma
2) emphysema
3) COVID-19
4) pneumonia
5) COPD
6) bronchodilators
7) influenza
8) triggers
9) respiratory failure
10) HIV or AIDS

Ex. III

Across
1) germs
3) cilia
4) abscess
8) alveoli
9) wheezing
10) ribosomes

Down
2) mucus
5) coronavirus
6) allergen
7) windpipe

SELF-ASSESSMENT MODULE 5

Ex. I

1) acute coronary syndrome
2) hypertrophic cardiomyopathy
3) high blood pressure
4) atrial fibrillation
5) blood volume
6) cardiac arrhythmia
7) coronary artery dissection
8) a heart attack
9) the cardiac conduction system
10) cardiac output
11) unstable angina
12) a blood clot
13) ventricular fibrillation
14) blood pressure cuff

Ex. II

1) angioplasty
2) heart attack
3) arrhythmia
4) atherosclerosis
5) systolic pressure
6) angina
7) tachycardia
8) diastolic pressure
9) hypertension
10) aneurysm
11) hypertrophic cardiomyopathy
12) pacemaker

Ex. III

1) C
2) C, D
3) B, C
4) B
5) A
6) D
7) A, B, D
8) D
9) B
10) B, D

Ex. IV

1) *Symptoms*: sudden pain extending to the upper abdomen, shoulders, arms, neck, and lower jaw; discomfort; tightening; burning sensation (angina); dizziness and nausea; sweating; shortness of breath.
Treatment: blood-thinner drugs (aspirin); clot-buster drugs (thrombolytics); beta blockers; surgical procedures: coronary angioplasty; a coronary artery bypass graft.
2) *Treatment*: lifestyle changes (a healthy diet; regular exercises; losing weight; avoiding excessive alcohol intake; quitting smoking); beta blockers; ACE (angiotensin-converting enzyme) inhibitors; angiotensin II receptor blockers; calcium channel blockers; direct-acting vasodilators.
3) *Symptoms*: a fluttering in your chest; tachycardia; bradycardia.
Treatment: lifestyle changes (eating a heart-healthy diet, exercising and quitting smoking); beta blockers; implantable devices, (a pacemaker or defibrillator); catheter ablation.
4) *Symptoms*: shortness of breath; chest pain; lightheadedness; heart pounding; fainting.

SELF-ASSESSMENT MODULE 6

Ex. I

1) a gastric ulcer
2) the intestinal contents
3) gastroesophageal reflux
4) squamous cell carcinoma
5) diverticulosis
6) ascending colon
7) a duodenal ulcer
8) bloating and cramping
9) gland cells
10) an esophageal ulcer
11) diverticulitis
12) antispasmodic drugs
13) external beam radiation therapy
14) a lymph node

Ex. II

1) acid reflux
2) Barrett's esophagus
3) diverticulosis
4) diverticulitis
5) irritable bowel syndrome
6) peptic ulcer
7) esophageal cancer
8) stomach ulcer
9) duodenal ulcer
10) adenocarcinoma

Ex. III

Across
1) cancer
3) peristalsis
8) diarrhea
9) diverticulitis
10) bloating

Down
2) abscess
4) adenocarcinoma
5) mucosa
6) constipation
7) pylorus

SELF-ASSESSMENT MODULE 7

Ex. I

1) (liver) cirrhosis
2) hepatitis A virus
3) gallbladder and pancreas
4) cystic fibrosis
5) liver cancer
6) hepatic lobules
7) to breakdown harmful substances
8) clotting/coagulation factor
9) a liver transplant operation
10) the bile duct
11) acute pancreatitis
12) the irreversible destruction
13) natural regeneration
14) jaundice and cholangitis

Ex. II

1) hepatitis B
2) pancreas
3) jaundice
4) regeneration
5) gallstone
6) cirrhosis
7) hepatitis A
8) bile
9) liver
10) gallbladder

Ex. III

1) B — liver
2) A — digest
3) B — filter
4) C — condition
5) C — cause
6) A — jaundice
7) A — decreased
8) B — viral
9) C — damage
10) C — contagious

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25. *The digestive* system [Электронный ресурс]. Режим доступа : https://youtu.be/lm3oIX6jjn4. Дата доступа : 12.04.2020.
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Skagit Valley Hospital

Thank you for choosing Skagit Valley Hospital for your health care today. We are grateful for the trust you placed on us to provide you with the highest level of care.

I am Doctor Shawna Laursen, Medical Director at Skagit Valley Hospital Emergency Department. The program you are about to see will help answer any questions you may have during your stay.

Our team of doctors, nurses and other health care professionals are specially trained to provide you with high quality emergency care. Upon entering the emergency department patients go through a process called "triage". A nurse will take a brief history, assess symptoms, and check vital signs to determine the severity of the patient's condition. Patients are not seen on a first come, first served basis. Patients who have urgent medical conditions or injuries are brought back to a room and seen faster than patients with less urgent conditions. Please, understand. There are medical conditions that need to be treated urgently. These patients may not always look as ill as you feel. During peak hours between 1 and 10 p.m. we will make every effort to evaluate patients with lesser acuity illnesses in a shorter way time as possible. If your condition worsens while you are in the lobby area waiting to be seen, please, notify the front desk immediately. We do appreciate your patience. Our priority at Skagit Valley Hospital is to provide the highest quality of care as quickly as possible. Skagit Valley Hospital cares for all patients who come to the emergency department and our staff sees on average about 100 patients each day. Many factors influence wait times. And the situation in the department can change rapidly. This may change the amount of time you might have to wait. As a result, the time visit may take longer than you expect. Waits may be due to an unexpected number of patients arriving by ambulance, an increase in the number of very ill patients to treat and care for in the emergency department, pending test results. The average time for test results: blood analysis: 60 to 90 minutes, urine analysis: 60 to 90 minutes, X-rays: 60 to 90 minutes, CT Scans: 1 to 4 hours, ultrasounds: 1 to 4 hours.

The Skagit Valley Hospital Emergency Department is designed to get you in 24 private patient rooms as quickly as possible. Once settled in an exam room you will be examined by one of our Emergency Providers. Our Emergency Department staff will monitor your vital signs and work with the doctor to coordinate your care. For your safety, our staff will verify your name and birth date before any lab tests or procedures are initiated. If your condition requires, you may be admitted to the hospital. If you do not require admission, the provider will talk with you about your diagnosis and give you a treatment plan. This may include medications, activity restrictions and recommended follow-up care. Once all of your questions are answered, you will complete discharge paperwork and be discharged from the emergency department. We will do our best to keep you informed about delays. If you have questions, please, ask to speak with your nurse. Keep in mind that it's challenging to give you an exact amount of time you wait due to the unpredictable changes that frequently occur in the Emergency Department.

Emergency Departments can be busy places. Your care and your family's concerns are important to us. To help you and your family or your guests we ask that you keep the following in mind; your family members or guests may be asked to leave the room. They can return to the lobby while care is being provided. Every room has a telephone. Dial

"9" and then your local number. Local calls only, please. Your television is hooked up to cable and is there for your pleasure. The nurse or technician will give you a "call light". Please, use the call light to communicate with your nurse. Your privacy is important to us. The hallway is considered a public area and we ask everyone to stay in his or her room to ensure privacy for all. Social Work Services are available to you. If you would like to speak to a social worker, please, let the nurse or doctor know. Please, provide a list of any allergies you may have. Also feel free to bring in a list of your regular medications or the actual pill bottles to help your providers. Skagit Valley Hospital provides Translation and Interpreter Services for those who speak languages other than English or who may be hearing-impaired. Please, ask our staff for assistance. Ask questions. If something does not seem or feel right to you, ask your doctor or nurse.

For non-life-threatening illnesses and injuries Skagit Regional Health offers two urgent care locations in Mount Vernon and one location in Arlington. All urgent care locations are open extended hours including evenings and weekends and are staffed 364 days a year.

General Anesthesia

If you are having an operation, you may be given general anesthesia to put you to sleep and keep you free from pain. Your doctor may recommend general anesthesia for a procedure that is extensive, takes a long time or requires you to be in an uncomfortable position.

Before your procedure, an IV line will be placed in a vein in your arm using a small tube, called a cannula. The IV will deliver fluid and medications directly into your bloodstream. You may receive some medication to help you relax. You will be placed on the operating table and made as comfortable as possible. A blood pressure cuff will be placed on your arm to check your blood pressure readings, sticky pads will be placed on your chest to check your heart rate and a clip will be put on your finger to check your body's oxygen levels. These devices allow the anesthesia specialist to closely monitor your vital signs before, during and after your procedure. You will begin receiving general anesthesia by either breathing anesthetic gases through a mask or through IV injection, which will cause you to fall asleep. Once you are asleep, you will be given a mixture of oxygen and anesthetic gases either through your mask or through a special tube inserted through your mouth and into your windpipe. The tube is attached to a respirator which helps you breathe while delivering the gases to your lungs. Deep in your lung tissues the gases are absorbed into your bloodstream and carried by blood cells to your brain. The anesthesia prevents your brain from receiving messages from nerves in your body. As a result, you will remain asleep and pain free during your procedure and you will have no memory of it when you wake up.

After your operation, the anesthesia specialist will give you medications to reverse the anesthesia and you will awaken quickly. If you had a breathing tube in place, he or she will remove it as soon as you can safely breathe on your own. You will be taken to the recovery room where you will be closely monitored and given pain medication as needed. You may feel light-headed and slightly disoriented but this feeling should pass quickly. Once you are stable, you will be sent to a hospital room or home.

The Operating Room

It is my pleasure to welcome you to an actual operating room in Alberta Health Services Facility. I hope, by showing you what the operating room looks like and by introducing you to the people who be part of your surgical team, we can help reduce any anxiety you might be feeling.

Your operating nurse will first meet you in the pre-op holding area and will ask you a number of questions for patient verification: your name, date of birth, what surgery you are having and the name of your surgeon. Your anesthesiologist will also talk to you in the pre-op holding area prior to your surgery to talk about how you will be kept comfortable during your surgery. From the pre-op holding area you will be wheeled on a stretcher into the operating room. You will be asked to slide from your stretcher on to the operating bed. If you need assistance, we will be happy to help you. A safety belt much like a seatbelt will be placed across your thighs. This is an important safety measure because the bed you are now on is very narrow and there is no wiggle room. We will position you comfortably, keep you warm and maintain your dignity and privacy.

When you first arrive to the operating room, there will be a flurry of activity with many people working around you to get things ready. You might see a member of the nursing team set up the sterile components needed for your procedure. Two or three people would be attending to you preparing you for surgery. You will be hooked up to monitors that will measure your blood pressure, heart rate, breathing and oxygen levels. Actually, there may be as many as seven people in your surgical room attending to all of your needs. Safety is a priority in the operating room. Prior to your anesthetic you will be included in part one of a safe surgery checklist. The safe surgery checklist is a three-part set of questions and checks designed to help keep you safe as you go into surgery. Your surgeon, anesthetist and nursing team will be present during the checklist where you will be asked some of the same questions you have already answered, including your name and birth date, what surgery you're having, any allergies you may have, your health history, when you last ate and drank. The team will perform parts 2 and 3 after you are asleep. If you do not already have an intravenous started, the anesthetist will now start one. This is how the medications are given to you for your anesthetic. Shortly, you will be going off to sleep and the surgical and anesthetic team will take excellent care of you.

We will perform what we call a prep of your surgical area by gently scrubbing the skin and cleaning it with an antiseptic solution, all to decrease the risk of infection. After the prep, we will apply sterile drapes leaving uncovered only the surgical area. Draping prevents infections and helps keep you warm. We call these the prep and drape parts of the procedure. All in all, it takes about 30 minutes from when you enter the operating room until your surgeon is ready to start the procedure. Please, be assured that even though we are performing multiple functions you are always the most important person in the operating room.

When the surgery is finished, the incision is covered in a sterile dressing. You will be carefully transferred back to your stretcher and taken to the recovery room. Here you will receive nursing care as you wake up from the surgery. They will take your vitals and ensure you are safe for the return to the surgical unit where you will begin your recovery. We take pride in delivering the very best surgical care and keeping you safe will always be our greatest concern.

Laparoscopic Appendectomy

Removal of the appendix, called appendectomy, is performed when appendicitis is suspected. Right lower abdominal pain, fever and elevated white blood cell count are common symptoms and signs of appendicitis which usually occurs when a blockage develops between the appendix and the intestine. This leads to infection, swelling and distension. If the appendix is not removed, it can lead to a life-threatening perforation or rupture. The only treatment for appendicitis is appendectomy which is almost always performed on an emergency basis.

New laparoscopic techniques require only tiny keyhole incisions or puncture wounds which generally result in a shorter recovery period. Before your surgery, an intravenous line will be started. Appendectomies are done under general anesthesia which will put you to sleep for the duration of the operation. A breathing tube will be temporarily inserted through your mouth and into your throat to help you breathe during the operation. A catheter may also be placed in your bladder to drain your urine. An uncomplicated laparoscopic appendectomy usually takes between 20 and 30 minutes. To gain access to your appendix your surgeon will use sharp instruments, called trocars, to create three small holes or ports through your abdominal wall. These ports are usually located at your navel or umbilicus and in the upper right and lower left quadrants of your abdomen. Carbon dioxide gas will then be pumped through the umbilical port to puff up your abdomen so its contents can be viewed more easily. Next, your surgeon will insert the laparoscope through the umbilical port. Images from its camera are projected onto a video monitor in the operating room. Your surgeon will carefully examine the inside of your abdomen confirming that your appendix is red, swollen and needs removal. At this point your surgeon will pass surgical instruments through the other two ports, grasp the appendix, separate it from the intestine, drop it into a specimen bag and remove the specimen bag through one of the ports. After your appendix has been safely removed, your surgeon will instill warm sterile saltwater through one of the ports into the abdomen to cleanse the abdominal cavity and remove any traces of infection. The salt water is then suctioned out. Before removing the laparoscope, your surgeon will take one final look around for areas of bleeding or other damage. When the laparoscope is removed, a port valve is left in place briefly to allow all the carbon dioxide to escape from the abdomen. Finally, the keyhole incisions are closed with sutures or staples and covered with bandages.

At the conclusion of the surgery your breathing tube and catheter will be removed, and you will be taken to the recovery area for monitoring where you will be given pain medication as needed. When you are able to drink liquids, your intravenous line will be removed. Most patients can leave the hospital within 24 hours.

How to Perform CPR

In this video I am going to demonstrate how to administer CPR on an adult. OK. Suppose you find someone lying down on the floor. What are you going to do? First, assess the scene: look around, make sure the scene is safe. Are there safety hazards, a chemical spill, electrical wires, gas fumes or anything dangerous? You cannot help anyone if you become a victim too. If the scene is safe, check the person for a response. Tap or shake the victim on the shoulder and shout: “Are you okay?” If you do not get a response from the victim, yell for help. Next, tell a specific bystander to phone 911 or the emergency

response number and get an AED (automatic external defibrillator), and very importantly to come back to help. Many facilities, stores, schools, airports, conventions and sports arenas will have AEDs available. Next, check the victim for breathing or only gasping. You need to scan the victim's body back and forth from head to abdomen for at least 5 seconds but no more than 10 seconds. Agonal breathing sounds like gurgling or gasping. It is not breathing. You must start CPR. Now check for a pulse. To locate a carotid pulse on an adult or child place your two fingers on the center of the victim's neck, slide your fingers down the side of the neck into the notch between the muscles. You should feel a strong pulse there. If the victim has a pulse but is not breathing, give one rescue breath every 5 seconds. Then recheck the victim's pulse every 2 minutes. To perform a rescue breath gently tilt the victim's forehead back with one hand and with your other hand lift the victim's chin. This position opens the airway. Pinch the nose closed and cover the victim's mouth with your mouth breathing life-giving air into the victim. If you have a one-way mouth guard, use it as directed. The mouth guard has a one-way valve and protects the rescuer from contact with vomit, secretions, infectious fluids, etc. Place the elastic bands around the victim's ears to hold it in position. Give two rescue breaths, one second for each breath, look for chest rise. If you don't see the chest rise, reposition if needed. If the victim has no pulse, start the CPR cycle of 30 compressions, 2 breaths, 30 compressions, 2 breaths until help arrives or you can no longer perform effective CPR. Let me show you how to do this. First, if possible, remove clothing out of the way of the victim's chest. Next, locate your hand placement for compressions. With your hand draw a line from armpit to center of chest for placement. Place the heel of one hand on the lower half of the sternum or breastbone. Now, place your other hand over the first interlacing your fingers for support. With your arms straight and your shoulders positioned over the victim's chest push down on the victim's chest. For an adult you will want to push down at least 2 inches or 5 centimeters. Now, watch as I perform 30 deep compressions in 18 seconds or less. You want to be able to give at least 100 compressions in a minute. You may lift your hands slightly off the chest between compressions to allow for full chest recoil. But keep your hand placement. Keep interruptions to a minimum. It helps to count out loud. Some say humming the tune to the 1980's pop tune "Staying alive" is good for keeping the right tempo. I will give 30 compressions in 18 seconds or less counting out loud to 30. After 30 compressions give 2 breaths. Look for the chest to rise between breaths. If there was no one available to help, after performing five cycles of CPR call 911 and/or get an AED.

Is it Communicable or Non-Communicable?

Everyone experiences illness now and then. In fact, part of what makes us human is that we are susceptible to disease. If you have ever been sick and most likely you have, you have probably found yourself wondering how you got sick in the first place. There are many causes of disease from germs to genetics but all diseases can be placed into one of two categories: communicable or non-communicable. The word communicable basically means contagious. So, a communicable disease is one that can be spread to another person through infection. Non-communicable diseases, on the other hand, cannot be spread from person to person because they are not contagious. Each category has its own causes that will be discussed throughout this lesson.

Communicable or contagious diseases are caused by pathogens and parasites. Pathogens are germs, while parasites are organisms that obtain nutrition at another

organism's expense. Pathogens and parasites can be spread from one person to another through physical contact, contaminated food or water, coughing or sneezing or even through insect vectors. There are a number of different kinds of pathogens and parasites some of which may be familiar to you, while others may be new.

One type of pathogen that you have probably heard a lot about is viruses. Viruses are not considered living things but they do need living cells to reproduce. These living cells are called host cells. A viral infection begins when a virus particle invades a cell. The virus then hijacks the host's cellular machinery to produce new virus particles. The host cell essentially becomes a virus factory that is ultimately destroyed by the virus as it multiplies. New virus particles can be spread through the air when the infected person coughs or sneezes, through contaminated food, bodily fluids or by insect and animal bites. Once spread, the new virus particles can infect more cells and multiply even further. Examples of illnesses caused by viruses include the common cold, measles, chickenpox, AIDS and many more. Unfortunately, there is no cure for viral infections. While medicines may treat the symptoms and ease the discomfort of the patient, the virus must run its course in your body and only the immune system can ward off the attack. Antibiotics are not effective against viral infections and can even be harmful to you if taken unnecessarily because they can upset the balance of good bacteria in your body. Taking antibiotics can also increase the chances that the bad bacteria will evolve to resist the antibiotics, a phenomenon known as antibiotic resistance. Therefore, it is useless to take antibiotics if you have a viral infection.

Another type of pathogen that you are probably familiar with is bacteria. Unlike viruses, bacteria are alive. They are single-celled organisms that are found everywhere on earth: from soil, air and water to the surface of your skin and even inside your body. Most bacteria are beneficial in some way and do not cause disease. In fact, less than 1 % of known bacterial species cause illness in humans. Those that are pathogenic, however, can cause some pretty serious diseases. Some examples of diseases that are caused by pathogenic bacteria include strep throat, whooping cough, pneumonia, scarlet fever and Lyme disease. Pathogenic bacteria cause infections when they enter your body either through a cut, insect bite or through mucous membranes such as your mouth, nose or eyes. The bacteria reproduce inside your body and many give off toxins that damage cells and make you sick. Diseases caused by bacteria are treated with antibiotics. Antibiotics kill bacteria by attacking their cell wall or other cellular structures. Viruses do not possess these cellular structures which is why antibiotics do not work to cure viral infections.

Protozoans are another group of single-celled organisms that cause disease. You may not have heard of protozoans before, but you might be familiar with some of the illnesses they cause. Some protozoan infections like amoebic dysentery, giardiasis and toxoplasmosis are spread through contaminated food, water or from person-to-person contact. Others like malaria and African sleeping sickness are transmitted by insect bites. Trichomoniasis is sexually transmitted. These illnesses can be treated with antiparasite medications.

Fungi may also act as pathogens, although most fungi do not cause disease. The fungi you most commonly see are mushrooms and molds, however, most fungi are microscopic. Parasitic fungi cause diseases such as athlete's foot, ringworm, jock itch, and thrush. Fungal infections usually occur after contact with a contaminated surface. These conditions can generally be treated with topical antifungal ointments or creams.

The last group of pathogens that cause communicable diseases are parasitic worms. We are not talking everyday earthworms here. Earthworms are not parasites nor do they

cause disease. Worms that can be pathogenic include a number of different species. Trichinella worms which cause trichinosis and tapeworms, for example, are usually contracted by eating the undercooked meat of an infected animal. In both cases you may experience nausea, diarrhea and weight loss. Treatment involves oral medications. Hookworms and schistosome worms which cause schistosomiasis are contracted through contaminated soil or water. Both cause a rash and possible diarrhea and can be treated with oral medications. Guinea worms are also contracted by drinking contaminated water. In this case the worm burrows through flesh causing pain and burning. There is no treatment except to wait for the worm to emerge from a blister in the skin and slowly extract it by winding the worm around a matchstick. In most cases worm parasites like those just mentioned are spread when the feces of an infected person contaminate soil or water in areas of poor sanitation. The feces contain worm eggs. So, if another person happens to drink the contaminated water or walk in contaminated soil, the worms may invade their bodies.

As you can see there are quite a few pathogens and parasites that cause disease in humans. Since communicable diseases are contagious it is important to try to prevent their spread through a population. Strategies for prevention will be covered in a later lesson.

People who study the patterns, causes and effects of diseases are called epidemiologists. Epidemiologists always have plenty of work to do, but work becomes especially busy if there happens to be a serious disease outbreak called an epidemic. Epidemics may occur as a result of the spread of a communicable disease, for example, whooping cough or an epidemic may refer to a non-communicable disease like diabetes. In both instances the number of disease cases during an epidemic is higher than would normally be expected. When an epidemic occurs, epidemiologists work to contain the outbreak that may involve quarantining infected individuals if the disease is contagious. During a quarantine all the infected individuals are held in isolation to prevent the spread of the disease. Epidemics of non-communicable diseases do not require quarantines because they do not spread from person to person. In addition to preventing the spread of communicable diseases epidemiologists also study the causes of disease and the patterns those diseases exhibit. For example, an epidemiologist might document the symptoms of an illness, how long it takes for a patient to start showing symptoms and whether the disease is contagious. Epidemiologists may also study treatments or research cures for a disease. If an epidemic spreads over a wide geographic range, it is called a pandemic. AIDS is an example of a pandemic because it affects people all over the world. During a pandemic, epidemiologists from around the globe work together to stop the disease. While some epidemiologists work on pandemics on a global scale, other epidemiologists work in smaller communities on what are referred to as endemic diseases. Endemic diseases are common to a specific area or population and generally present a fairly constant number of cases over time. Malaria, for example, is a communicable disease that is endemic to the tropics. Certain places in Africa, Asia and Central and South America have ongoing problems with this disease. Other areas that are cooler and drier do not experience many cases of malaria because the environment is not ideal for the mosquitoes that spread it.

Epidemiologists have a lot of freedom in their career path. They could choose to work with communicable or non-communicable diseases and within their own small community or on a global scale. Perhaps, it is a career that you find interesting or might consider pursuing.

Viral meningitis

Viral meningitis is an infection occurring mostly in children under age five. It happens when certain viruses invade the meninges which are the tissues that cover and protect the brain and spinal cord. The meninges are arranged in three layers. The layer that actually touches the brain and spinal cord is called the pia mater. The spider web-like middle layer is called the arachnoid mater. The outermost and toughest layer is called the dura mater. Cerebrospinal fluid which also protects the brain and spinal cord flows between the meninges and over the surface of the brain.

The most common cause of viral meningitis is a type of virus called enterovirus. Other viruses that can cause meningitis include the mumps virus, the measles virus, herpes viruses and a variety of viruses spread by blood-feeding insects, such as mosquitoes and ticks. Viruses, that cause meningitis, may be spread through the bite of an infected insect. However, the two most common ways the viruses spread are through fecal contamination, which can happen when hands are not washed after using the toilet or changing a diaper, and through contact with the body fluids from an infected person, such as through sneezing or coughing. Once inside the body, the viruses make copies of themselves and enter the bloodstream. Viruses travel through the bloodstream to the brain where they cross the border between the bloodstream and the brain into the cerebrospinal fluid. The viruses spread throughout the cerebrospinal fluid and infect the cells of the meninges. The meninges become inflamed as the immune system begins to fight off the infection.

Symptoms of viral meningitis in infants and young children include fever, irritability, loss of appetite and trouble waking up. Symptoms in older children and adults include fever, headache, stiff neck, sensitivity to light, sleepiness, trouble waking up, nausea, vomiting and loss of appetite. The symptoms of viral meningitis are similar to those of bacterial meningitis but are usually less severe.

Doctors may recommend acetaminophen or other non-steroidal anti-inflammatory drugs for fever and headache. For meningitis caused by a type of herpes virus doctors may prescribe an antiviral medication, such as acyclovir. There is no treatment for most viruses that cause meningitis, though most people recover on their own within two weeks.

Shingles

Shingles is a painful skin condition in adults caused by the chickenpox virus, also known as the varicella-zoster virus. If you had chickenpox as a child, you still have the varicella-zoster virus inside some of your nerves but not in active form. For unknown reasons the varicella-zoster virus may become active again in older people or those with weakened immune systems. The reactivated virus travels along your nerves to your skin causing symptoms such as numbness, tingling and pain. A red blistery rash quickly follows these symptoms. Shingles normally happens in a single patch on one side of your body. It may also happen on one of your shoulders, on the side of your neck, or head. Within three to five days bumps in the rash fill with fluid and become blisters that look like chickenpox. Next, the blisters fill with pus which forces them to break open and begin to scab over. When the scabs fall off and the blisters heal, the pain usually goes away. These symptoms usually last one to two months.

You may experience a complication of shingles called postherpetic neuralgia or PHN, which is pain even after your rash has cleared up. Other complications of shingles include

vision loss (if shingles occurs around your eye), pneumonia, hearing problems, brain inflammation, neurologic problems and skin infections. Both the chickenpox vaccine and the shingles vaccine can dramatically reduce your risk for getting shingles and postherpetic neuralgia.

Although there is no cure for shingles, antiviral drugs, such as acyclovir, can speed healing and reduce the severity of the rash when taken within three days after the rash appears. To reduce pain your doctor may recommend over-the-counter pain medication, calamine lotion, cool compresses and an oatmeal bath. For severe post herpetic neuralgia your doctor may prescribe medications such as gabapentin.

HIV and AIDS

HIV is the Human Immunodeficiency Virus. If you have HIV, you have an infection that damages your immune system over time and causes AIDS. AIDS stands for Acquired Immunodeficiency Syndrome. It is the final stage of an HIV infection when your immune system is damaged and too weak to fight off ordinary infections. When foreign invaders, such as bacteria and viruses, get into your body, they can cause infections. These events activate your body defenses. The white blood cells of your immune system are part of your body defenses. One type of white blood cells, called helper T lymphocytes, or helper T cells, strengthens your immune system response to infection in two ways. First, helper T cells release chemicals that attract other white blood cells to the site of the infection. These additional white blood cells attack the invading bacteria or virus, as well as other infected cells. Second, helper T cells release chemicals that cause other white blood cells to multiply. These new white blood cells create markers, called antibodies, which can identify the same foreign invader throughout your body. Antibodies attach to the bacteria or virus, marking them as targets for your immune system to destroy them. If you have HIV, it travels through your blood and other body fluids to infect and kill certain white blood cells. The virus enters helper T cells, which are the primary target. Once inside, the virus makes many copies of itself. As these virus particles are made, they leave the damaged helper T cell to infect other cells. The T cell loses its ability to protect the body from the ongoing infection and dies. In this way, HIV spreads and kills more of your helper T cells weakening your immune system. As a result, other types of infections are able to take advantage of your body’s inability to defend itself. These infections are called opportunistic infections.

If you have an HIV infection, and one or more opportunistic infections, you have AIDS. Some of the common AIDS-related opportunistic infections are inflammation of the tissues covering your brain and spinal cord, called meningitis; inflammation of your brain, called encephalitis; respiratory illnesses, such as pneumonia and tuberculosis; intestinal illnesses, such as chronic diarrhea caused by infectious parasites; and cancers, such as Kaposi's sarcoma and non-Hodgkin lymphoma.

HIV passes from person to person through infected body fluids. HIV can enter your body during unprotected sex, while sharing drug injection needles, during your own childbirth, while breastfeeding from your mother, or from contaminated blood or blood products.

Although there is no cure for HIV, drugs called antiretroviral medications can reduce the amount of HIV in your body. One class of antiretroviral medication, called entry or fusion inhibitors, disrupts the HIV infection process by preventing the virus from attaching to your cells. Other classes of antiretroviral medications include reverse transcriptase inhibitors, protease inhibitors, and integrase inhibitors. These drugs prevent the creation,

assembly, and spread of new viruses. Your doctor may prescribe a combination of these drug classes, known as highly active antiretroviral therapy, or HAART. Antiretroviral medication does not completely remove HIV from your body but slows it down enough to enable your immune system to fight infections. Regular blood tests will let your doctor know how effective your antiretroviral medication is in controlling HIV. If the number of helper T cells is high enough in your blood sample, your medication is working. Treatments for the opportunistic infections of AIDS are medications specific for each type of infection. For example, your doctor may prescribe antibiotics if you have pneumonia or tuberculosis.

To avoid getting or spreading an HIV infection, know your HIV status and your partner's status by getting tested regularly. The most effective way to prevent HIV infection is to avoid vaginal and anal sex. When engaging in sexual activity, you will be less likely to contract HIV if you only have sex with one uninfected partner or use latex condoms for protection. Avoid using injectable illegal drugs, or sharing drug needles, because the needles may have the virus on them. Avoid intoxication from drugs or alcohol, because you will be more likely to engage in unsafe sexual behavior.

Human Circulatory System

You can feel your heart pounding away every time you put your hand to your chest. But do you have any idea what is really going on in there or what keeps your heart ticking as it should?

Every day your heart beats about 100,000 times sending 2,000 gallons of blood searching through your body. Although it is no bigger than your fist, your heart has the mighty job of keeping the blood flowing through 60,000 miles of blood vessels that feed your organs and tissues. Food, water and oxygen are essential for the existence of human life. Blood transports all these substances through various channels called blood vessels. Blood vessels involve arteries, veins, capillaries. To keep the blood flowing throughout our body we have a pumping system. And the heart is the pump which is composed of a muscle that pumps blood throughout the body beating approximately 72 times per minute of our lives. The human heart has four chambers: the right atrium, the left atrium, the right ventricle and the left ventricle. There are four valves in the heart. These valves are tricuspid valve, mitral valve, aortic valve, pulmonic valve. These valves are one-way valves.

Now you have seen the structure of the heart. Let us find out how it works. The blood becomes oxygen-rich by absorbing oxygen in the lungs. The function of the heart starts when oxygenated blood is carried from the lungs to the left atrium of the heart by means of the pulmonary veins. The left atrium relaxes, this blood is pumped into the heart. When the left atrium contracts the left ventricle relaxes simultaneously. The left atrium pushes the blood into the left ventricle through the one-way valve. When the left ventricle contracts the blood is pumped into the aorta which carries oxygenated blood to the different parts of the body except the lungs. Oxygenated blood reaches the different parts of the body through the blood vessels called the arteries. The arteries get branched into capillaries which then reach to the different organs of the body. The blood then becomes deoxygenated and the blood capillaries get mixed and form thicker blood vessels called the veins. The veins carry deoxygenated blood to the heart. The blood vessels that carry deoxygenated blood to the heart are known as the vena cava. The deoxygenated blood from different parts of body enters the upper right chamber of the heart which is called the right atrium. The right atrium gets contracted allowing the blood to flow into the right ventricle which contracts with

the expansion of the right atrium through the one-way valve. The right ventricle then contracts pushing the blood into the pulmonary artery. The pulmonary artery carries the deoxygenated blood to the lungs for oxygenation. The lungs oxygenate the blood by exchanging of gases. It flows back into the heart through the pulmonary vein and starts the circulatory cycle all over again.

Respiratory System

In humans the main organs responsible for respiration are present in the thoracic cavity. In the thorax region the rib cage and a dome-shaped fibrous tissue known as the diaphragm are observed, present within the rib cage or the pleural membranes which enclose the lungs. The right lung is divided into three lobes: the right superior, right middle and the right inferior lobe. The left lung is smaller and has only two lobes: the left superior and the left inferior lobe. Both the lungs are associated externally with small tubular bronchi which unite and extend into the trachea. The trachea has incomplete c-shaped rings of cartilages which prevent the tracheal wall from collapsing. The trachea leads into the pharynx which is connected to the nostrils. As we breathe in air, the oxygen molecules enter the nostrils and travel downwards through the pharynx and trachea to finally reach the bronchi. From each bronchus oxygen travels into the lungs. Within the lungs the bronchus divides repeatedly to form bronchioles. Oxygen travels through these bronchioles and reaches the alveoli each of which is surrounded by a network of capillaries. A section of one alveolus shows the presence of numerous alveolar chambers with pores. Blood containing RBCs (red blood cells) is seen flowing through the capillaries. The oxygen molecules from the alveolus diffuse into the capillary and then get absorbed by the bluish-purple RBCs. This causes oxygenation of the RBCs and a transition in their color from bluish purple to red is observed. The blood moving into the alveolus contains RBCs and carbon dioxide molecules. These molecules are released into the alveolus. The carbon dioxide collects in the alveolar chamber and then from the alveolus it travels through the bronchioles into the bronchus which finally reaches the trachea and it is breathed out through the nostrils. So, the process of breathing in air rich in oxygen is called inhalation. After the contraction of the muscular diaphragm the lungs expand and the air rushes in resulting in the inflation of the alveoli. During exhalation the diaphragm moves up and the lungs contract. Thus, the alveoli deflate causing the air to be forced out. This exhaled air is rich in carbon dioxide. This process of inhalation and exhalation is known as respiration which is approximately 20 times per minute.

Summary: In the thorax region the rib cage and the diaphragm are observed, which play a vital role in respiration, present within the rib cage or the pleural membranes which enclose the lungs. The right lung consists of three lobes while the left lung has only two lobes. Both the lungs are associated externally with bronchi which unite and extend into the trachea. As we breathe, the oxygen molecules enter the nostrils and travel downwards through the pharynx and trachea to finally reach the bronchi. From each bronchus oxygen travels into the lungs. Within the lungs the bronchus divides repeatedly to form bronchioles. Oxygen travels through these bronchioles and reaches the alveoli, each of which is surrounded by a network of capillaries. As blood flows through the capillaries, the oxygen molecules from the alveolus diffuse into the capillary. This causes oxygenation of the RBCs. The carbon dioxide molecules are released into the alveolus. They are collected in the alveolar chamber and then from the alveolus it travels through the bronchioles into the bronchus which finally reaches the trachea and is breathed out through the nostrils.

The Digestive Process

Our digestive system is made up of a series of organs that allows our body to get the nutrients and energy it needs from the food we eat. Digestion starts in the mouth where chewing and saliva breaks down food, so it is more easily processed by your body.

Esophagus: The esophagus is a muscular tube that connects the pharynx (throat) to the stomach. The esophagus contracts as it moves food into the stomach. A "valve" called the lower esophageal sphincter (LES) is located just before the opening to the stomach. This valve opens to let food pass into the stomach from the esophagus and it prevents food from moving back up into the esophagus from the stomach.

Stomach: An organ with strong muscular walls, the stomach holds the food and mixes it with acid and enzymes that continue to break the food down into a liquid or paste.

Small Intestine (Small Bowel): Almost 20 feet long, the small intestine also called the small bowel is the workhorse of the digestive system. It will continue to break down food with enzymes released by the pancreas and bile released from the liver. It is made up of three segments, the duodenum, which continues the breakdown of food; and the jejunum and ileum, which are mainly responsible for the absorption of nutrients.

Pancreas: Your pancreas is located behind your stomach and is attached to both your gall bladder and your small intestines. Among other functions, the pancreas helps digestion by producing digestive enzymes and secreting them into the duodenum (the first segment of the small intestine). These enzymes break down protein, fats, and carbohydrates.

Liver: The liver is another organ with many functions. Its main responsibilities in the digestive process are to make and secrete bile and to process and purify the blood which contains newly absorbed nutrients that are coming from the small intestine. Bile has two main purposes: to help absorb fats and to carry waste from the liver that cannot pass through the kidneys.

Bile Ducts: Bile made in the liver travels to the small intestine through the bile ducts. If the bile is not needed immediately, it is stored in the gallbladder.

Gallbladder: The gallbladder is a pear-shaped reservoir located just under the liver that receives and stores bile made in the liver. The gallbladder sends this stored bile into the small intestine to aid in the digestion of food.

Colon (Large Intestine): The colon is a 5- to 7-foot-long muscular tube that connects the small intestine to the rectum and is responsible for processing waste so that defecation is easy and convenient. (It is made up of the ascending (right) colon, the transverse (across) colon, the descending (left) colon and the sigmoid colon, which is connected to the rectum.)

Rectum: The rectum is an 8-inch chamber that connects the colon to the anus. The rectum receives stool from the colon, sends signals to the brain if there is stool to be evacuated, and holds stool until evacuation can happen.

Anus: The last part of the digestive tract, the anus, consists of pelvic floor muscles and two anal sphincters (internal and external). Together their jobs are to detect contents in the rectum, determine whether the contents are liquid, gas or solid, and then control when stool should and should not be excreted from the body.

It is useful to understand the digestive system and the role it plays in your overall health and well-being. Knowing where to go when conditions of the digestive system affect your health and well-being is just as important.

Pneumonia

Pneumonia is inflammation in your lungs caused by an infection. You have two lungs: one on each side of your chest. Each lung has separate sections called lobes. Normally, as you breathe, air moves freely through your trachea, or windpipe, then through large tubes, called bronchi, through smaller tubes, called bronchioles, and, finally, into tiny sacs, called alveoli. Your airways and alveoli are flexible and springy. When you breathe in, each air sac inflates like a small balloon. And when you exhale, the sacs deflate. Small blood vessels, called capillaries, surround your alveoli. Oxygen from the air you breathe passes into your capillaries then carbon dioxide from your body passes out of your capillaries into your alveoli, so that your lungs can get rid of it when you exhale.

If you have pneumonia, your airways or lungs have an infection caused by germs such as bacteria, viruses, fungi or parasites. Your airways catch most germs in the mucus that lines your trachea, bronchi and bronchioles. Hair like cilia lining the tubes constantly push the mucus and germs out of your airways where you may expel them by coughing. Sometimes germs make it past your mucus and cilia and enter your alveoli. Normally, cells of your immune system attack these germs which keep them from making you sick. However, if your immune system is weakened due to age, illness or fatigue, pneumonia-causing germs can overwhelm your immune cells and begin to multiply. Your bronchioles and alveoli become inflamed as your immune system attacks the multiplying germs. The inflammation causes your alveoli to fill with fluid making it difficult for your body to get the oxygen it needs.

If you have lobar pneumonia, one lobe of your lungs is affected. If you have bronchopneumonia, many areas of both lungs are affected.

Pneumonia may cause the following symptoms: difficulty breathing, chest pain, coughing, fever and chills, confusion, headache, muscle pain and fatigue.

Pneumonia can lead to serious complications. Respiratory failure occurs when your breathing becomes so difficult that you need a machine called a ventilator to help you breathe. Bacteremia occurs when the bacteria causing your pneumonia move into your bloodstream where they may travel to infect other organs. In some cases of pneumonia, a large collection of fluid and pus, called an abscess, may form inside one of your lungs. If an abscess forms around the outside of your lung, it’s called an empyema.

Possible treatments for pneumonia include:

– antibiotics (if the cause is bacteria or a parasite);

– antiviral drugs (if the cause is a flu virus);

– antifungal medication (if the cause is a fungus);

– rest and drinking plenty of fluids;

– over the counter or OTC remedies to manage your fever, aches, and pains.

If you have severe pneumonia, you may be admitted to the hospital and given intravenous antibiotics and oxygen.

Asthma

Asthma is a lung disease that inflames and narrows your airways. Normally, as you inhale, air moves freely through your trachea, or windpipe, then through large tubes, called bronchi, smaller tubes, called bronchioles, and, finally, into tiny sacs, called alveoli. Small blood vessels, called capillaries, surround your alveoli. Oxygen from the air you breathe

passes into your capillaries, then carbon dioxide from your body passes out of your capillaries into your alveoli, so that your lungs can get rid of it when you exhale. Your bronchioles expand when the air is warm, moist, and free of irritants and allergy-causing substances, called allergens. When air is cold, or dry, or contains irritants or allergens, your bronchioles contract.

If you have asthma, your airways are frequently inflamed and swollen. Certain substances can cause your inflamed airways to overreact even more resulting in an asthma attack. Triggers of asthma attacks are slightly different for everyone but usually include outdoor irritants and allergens (such as pollen, smoke, pollution and cold weather); indoor irritants and allergens (such as mold, pet dander, dust mites and cockroach droppings); food allergens (such as fish, shellfish, eggs, peanuts and soy); and conditions (such as respiratory infections, stress, strong emotions and exercise).

The symptoms of an asthma attack include coughing, wheezing, shortness of breath and tightness in your chest. During an asthma attack, also known as a bronchospasm, the muscles around your airways tighten and the airway wall becomes more swollen. Your airways also produce thick mucus that narrows them even more, making it hard for you to breathe.

If you have asthma, your doctor may prescribe medications to reduce inflammation in your airways, constriction of the muscles surrounding your airways, or mucus secretion in your airways. During an asthma attack you may need to use a short-acting rescue medication, called a bronchodilator. This medication causes your airway muscles to relax quickly and provides symptom relief within minutes. Since there is no cure for asthma, the goal is to prevent you from having asthma attacks by using long-acting anti-inflammatory control medications. If you take them every day, they will reduce the inflammation of your airways, making them less sensitive to triggers of asthma attacks.

Understanding COPD

Chronic obstructive pulmonary disease or COPD is a lung disease that makes it difficult to breathe. COPD is a long-term disease that often gets worse over time and is characterized by inflammation and severe limitation of airflow in and out of the lungs. COPD is an umbrella term used to describe a group of breathing conditions, the most common being chronic bronchitis and emphysema. Many people living with COPD may have both emphysema and chronic bronchitis. A few people have both asthma and COPD.

Cigarette smoking is the leading cause of COPD. Long-term exposure to secondhand smoke or irritants such as air pollution, dust or workplace fumes and biomass exposure such as wood smoke can also contribute to COPD. An uncommon genetic disorder called alpha-1 antitrypsin deficiency is sometimes associated with COPD. Although respiratory infections such as influenza and pneumonia do not cause COPD, they can make people with COPD very sick. Therefore, it is very important to keep these vaccinations up to date.

At first, COPD may cause no symptoms or only mild symptoms. As the disease progresses, common symptoms include shortness of breath, wheezing and chest tightness especially with exercise and an ongoing cough often with a lot of mucus. As COPD symptoms worsen, breathing requires much more energy and it can get harder to exercise or do routine activities like getting dressed or climbing stairs. This may lead to fatigue, weight loss and muscle loss. People with COPD can experience a variety of symptoms. Different stages of COPD range from mild to moderate, to severe.

In normal functioning lungs, when air is inhaled, it travels down the windpipe and then into the airways or bronchial tubes of the lungs. Inside the lungs the airways branch out into smaller and smaller tubes, called bronchioles, that are rich in blood supply. At the end of these tubes are billions of tiny air sacs, called alveoli. Normally, the walls of the airways and air sacs are elastic and flexible in nature. Inhaling causes each air sac to fill with air. Exhaling causes each air sac to deflate. Efficient uptake of air into the lungs provides oxygen to the blood which is then carried to all parts of the body. In COPD, however, the airways become thick and inflamed and they produce more mucus than usual. This mucus can clog the airways and makes it hard to breathe. In COPD the walls of the air sacs in the lungs are damaged and lose their elastic quality. The air sacs get floppy, broken and lose their shape. As the air spaces get larger, air gets trapped and there are fewer air sacs to supply oxygen to the blood. Because air is trapped in these air sacs, it is difficult for lungs with COPD to deflate like normal lungs. This trapped air makes it harder to get fresh air into the lungs and makes breathing more difficult.

COPD is the third leading cause of death in the United States and affects more than thirteen and a half million Americans. It is predominantly diagnosed in middle-aged individuals older than 40 years and is present in both women and men. Although COPD is more common in men, more women die from this disease each year than men. The rate of COPD continues to increase worldwide due to smoking and worsening air pollution. While there is no cure for COPD you can take steps to feel better, stay more active, and slow disease progression. COPD can be managed by consulting early with your health care provider, seeking diagnosis and intervention therapies and adopting lifestyle changes that include quitting smoking, pulmonary rehabilitation, healthy eating and exercise, and maintaining a positive outlook.

COVID-19

COVID-19 is the short name for the disease known as novel coronavirus disease 2019. Coronaviruses are a large group of similar viruses. Some are known to infect humans, such as SARS-CoV and MERS CoV. The one that causes COVID-19 is called SARS-CoV-2.

All coronaviruses are named for the crown like spikes that cover their surface, called spike or S proteins. Inside the virus genetic material, called RNA, is made up of genes. Genes carry the information to make more copies of the virus. The virus can infect you if it enters your mouth, nose or lungs. Inside your body the S protein of the virus locks to a receptor on the surface of one of your cells. This can trigger the virus to enter the cell in a couple of ways. It may cause the virus to fuse with the cell surface then release its genes into the cell, or the cell may pull the virus inside by enclosing it in a sac. Once inside, the virus can fuse to the sac and release its genes. Next, the genes use a structure in your cell, called a ribosome, to make new copies of the virus. The new viruses travel to the surface of the cell. There they leave to infect more cells. In the meantime, viral S proteins left on the surface of the infected cell can cause it to fuse with nearby healthy cells forming a giant cell. This may be another way for the virus to spread between cells.

People may be infected with COVID-19 for two to 14 days before symptoms appear. The three main symptoms of COVID-19 are a fever, cough and shortness of breath. Other symptoms may include tiredness, body aches, stuffy nose, sore throat, diarrhea and vomiting, loss of appetite and loss of smell. Most people have a mild illness and can recover at home. Some people who have the virus may not get sick at all or may show no symptoms. But if you have trouble breathing or any other symptoms that are severe, call your doctor or

the emergency room. They will tell you what to do. For most people who have the virus the risk for serious illness is thought to be low. People 65 years and older may have a higher risk for serious illness and people of any age may be at high risk if they have underlying conditions such as chronic lung disease or asthma, serious heart conditions, diabetes, severe obesity, chronic kidney disease and liver disease. High-risk groups also include people with a weakened immune system including those on certain medications such as corticosteroids, people in cancer treatment and those with HIV or AIDS. Even if you are not in a high-risk group, it is important to practice social distancing which means keeping at least two meters or six feet between you and other people. This helps prevent infections and serious illness in others as well as yourself.

High Blood Pressure

High blood pressure, or hypertension, is a common condition in which the force of blood on the walls of your arteries is often too high. Arteries are the blood vessels that carry blood away from your heart to supply your tissues with oxygen and nutrients. In your heart two chambers, called ventricles, contract with each heartbeat to push blood to your lungs and through your arteries to your body. As blood flows through them three main factors affect the pressure on your artery walls. The first is cardiac output, or the amount of blood your ventricles push out of your heart each minute. Your blood pressure goes up as cardiac output increases. The second factor affecting your blood pressure is blood volume, or the total amount of blood in your body. Blood pressure also goes up as blood volume increases. The third factor that affects your blood pressure is resistance, which is anything working against the blood flow through your arteries. Several factors contribute to resistance. One resistance factor is the flexibility of your artery wall. Healthy arteries expand with each heartbeat to help reduce blood pressure on the wall. Another resistance factor is the diameter of your arteries. Your body is able to increase the diameter of your arteries to lower your blood pressure or reduce the diameter to raise your blood pressure. The third resistance factor is blood viscosity, or thickness. In your blood more particles, such as proteins and fat, increase viscosity. If your blood is thicker, your blood pressure goes up as your heart works harder to push it through your arteries.

Your blood pressure can be measured with a device called a sphygmomanometer, or blood pressure cuff. When your heart beats, the pressure of blood on the walls of your arteries is called systolic pressure. When your heart relaxes between beats, pressure on the artery wall is called diastolic pressure. While your blood pressure may change throughout the day, it should normally be less than 120 millimeters of mercury for systolic pressure, and less than 80 millimeters of mercury for diastolic pressure. If your systolic pressure frequently stays above 140, or your diastolic pressure frequently stays above 90, you have high blood pressure.

Over time, high blood pressure will damage the walls of your arteries. Your artery wall may become weak and form an enlargement called an aneurysm. Or the wall may burst and bleed into the surrounding tissue. Small tears in your artery wall may attract certain substances in your blood, such as cholesterol, fat and calcium, to form a buildup called a plaque. Blood flow through your artery decreases as the plaque enlarges. Blood cells can stick to the plaque and form solid clumps, called clots, further reducing, or completely blocking, your blood flow. Damage to your arteries raises your blood pressure even more by making your heartbeat more forcefully. Artery damage and reduced blood flow lead to conditions such as a stroke, heart attack, or kidney disease.

In most cases, the cause of high blood pressure, or hypertension, is unknown. This type of high blood pressure is called primary, or essential, hypertension. Treatment for essential hypertension includes lifestyle changes, such as eating a healthy diet. If you are sensitive to the sodium in salt, your doctor may recommend limiting your intake of salt and highly processed foods. Sodium may cause your body to retain water, which increases both your blood volume and your blood pressure. Other lifestyle changes that can reduce blood pressure include avoiding excessive alcohol intake; getting regular exercise; losing weight if you are overweight; and quitting smoking. Your doctor may also recommend medications that act on your kidneys, blood vessels, or heart to help reduce your blood pressure. Diuretics, commonly called water pills, cause your kidneys to move more salt and water from your blood into your urine, which reduces your blood volume and pressure. Beta blockers reduce the workload on your heart by decreasing both the rate of your heartbeat and the strength of your heart contractions. Several types of drugs act directly or indirectly to reduce your blood pressure by relaxing your blood vessels, which increases their diameter. These drugs include ACE (angiotensin-converting enzyme) inhibitors, angiotensin II receptor blockers, calcium channel blockers, and direct-acting vasodilators.

Acute Coronary Syndrome and Heart Attack

If you have acute coronary syndrome, you have one or more conditions caused by a blockage of blood flow to your heart muscle. This is a medical emergency, because you may be having a heart attack, a condition in which your heart muscle begins to die.

Your heart is a muscular organ that pumps blood containing the oxygen and nutrients your body needs. The main pumping chamber of your heart is the left ventricle. When your left ventricle contracts, it sends oxygen-rich blood to your body through a large artery called the aorta. Connected to your aorta are small arteries called coronary arteries. Blood flows from your aorta through the coronary arteries to supply your heart muscle with oxygen and nutrients. If you have acute coronary syndrome, blood flow through your coronary arteries is severely reduced or completely blocked. One possible cause of reduced blood flow is atherosclerosis. In this condition a build-up of a fatty substance, called plaque, can narrow your coronary arteries. If this plaque ruptures, a blood clot can form and block the artery. A blood clot is the most common cause of coronary artery blockage. Other less common causes of reduced blood flow include coronary artery spasm or dissection.

In a coronary artery spasm triggers, such as drugs, smoking, cold weather, and extreme stress or emotions, can cause a temporary and sudden tightening of a coronary artery. During a coronary artery dissection, the inside wall of one of your coronary arteries separates, which can block blood flow. Regardless of the cause, a blockage in either coronary artery prevents the oxygen and nutrients in your blood from reaching the part of your heart supplied by the artery. As a result, heart muscle in that area starts to die. Death of part of your heart muscle is called a heart attack. It is also known as a myocardial infarction or MI.

A blocked coronary artery may also cause you to feel sudden pain, discomfort, tightening, or a burning sensation in your chest called angina. This pain may extend to your upper abdomen, shoulders, arms, neck, and lower jaw. If you have angina when you are at rest, or frequent angina that prevents even moderate physical activity, you have unstable angina, which is the main symptom of acute coronary syndrome. Other symptoms of acute coronary syndrome include shortness of breath, dizziness, nausea, and sweating.

If you have had a heart attack or have other types of acute coronary syndrome, your doctor may prescribe oxygen therapy to get more oxygen into your blood. You may take aspirin or other prescription blood-thinner drugs to prevent blood clots. Thrombolytics, also known as clot-buster drugs, may be used to break up any existing blood clots. Drugs such as nitroglycerin and morphine will relax your coronary arteries and relieve the pain of angina. You may also receive drugs, called beta blockers, that slow down your heart and reduce its need for oxygen. Your doctor may also recommend immediate surgical procedures, such as coronary angioplasty, in which a balloon-tipped catheter inflates inside your blocked coronary artery to open it. After inflating, the balloon catheter may leave behind a mesh-like (сетка) device, called a stent, to hold your artery open. Or you may have a coronary artery bypass graft or CABG. CABG is a surgical procedure in which the blocked areas of the coronary arteries are bypassed with veins or artificial graft material. Seek treatment immediately if you have the symptoms of acute coronary syndrome.

Cardiac Arrhythmia

Depending on activity level the heart beats about 60 to 100 times per minute. It may be higher during exercise or lower at rest. A normal heart rate and rhythm ensures the delivery of oxygen-rich blood to all of the body's organs such as the brain and lungs. A group of cells in the heart, called the cardiac conduction system, uses electrical impulses to control the speed and rhythm of each heartbeat. Each heartbeat starts in the right atrium in the sinoatrial or SA node, then spreads through the walls of the heart chambers, called the atria, and ventricles causing them to contract. This process repeats with each heartbeat.

Problems with the cardiac conduction system cause the heart to have an abnormal rhythm called an arrhythmia. This may cause an irregular pulse. Arrhythmias may happen in the atria or ventricles. Types of arrhythmias include fibrillation (which is an irregular heartbeat rhythm); tachycardia (which is a fast heartbeat of more than 100 beats per minute) and bradycardia (which is a slow heartbeat of less than 60 beats per minute).

Atrial fibrillation is the most common type of arrhythmia. Random impulses cause the atria to fibrillate or twitch rapidly and randomly. Tachycardia in the atria is called supraventricular tachycardia. In focal atrial tachycardia small areas within the atrial wall start or pass along impulses that cause the atria to contract rapidly but with a regular rhythm. In atrial flutter larger areas within the atrial wall start or pass along impulses that cause the atria to contract rapidly but with a regular rhythm.

Tachycardia may also happen in the ventricles with rapid and regular contractions. The body may not receive enough blood because the ventricles contract before completely filling with blood. The most serious arrhythmia is ventricular fibrillation where many random impulses fire rapidly within the ventricular walls. In ventricular fibrillation the ventricles are quivering instead of beating. This is a medical emergency because the heart cannot effectively pump blood to the body or itself.

Sometimes problems with the SA node or problems with the pathway of the electrical impulses to the ventricles can cause the slow heartbeat in bradycardia. If the heart beats too slowly, the body may not receive enough oxygen-rich blood.

Depending on the type of arrhythmia a doctor may recommend one or more of the following treatments:

– lifestyle changes, such as eating a heart-healthy diet, exercising and quitting smoking;

– medication, such as anti-arrhythmic drugs and beta blockers;

– catheter ablation where thin wires inserted into the heart destroy the tissue causing the arrhythmia with hot or cold energy;

– implantable devices, such as a pacemaker or defibrillator, to correct the pace or rhythm of the heart.

Hypertrophic Cardiomyopathy (HCM)

Hypertrophic cardiomyopathy is a condition where the walls of your heart thicken often caused by an abnormal gene. In order to understand this condition, it's important to know the main parts of your heart. Your heart has four chambers. They are the right atrium, the right ventricle, the left atrium and the left ventricle. A muscular wall, called the septum, divides the two sides of your heart. Your heart pumps blood in one direction through four valves. They are the tricuspid valve, pulmonary valve, mitral valve and aortic valve. The job of your heart's left ventricle is to pump oxygenated blood throughout your body. This provides your body with the oxygen and nutrients it needs.

Hypertrophic cardiomyopathy usually affects your left ventricle by thickening its walls. This happens because your heart muscle cells grow bigger. In some people scar tissue may form between the muscle cells over time. Even though your cells are bigger your heart stays about the same size. As a result, your left ventricle cannot hold as much blood. The left ventricle may also become stiffer, contract harder and relax less between contractions. These problems make it harder for your heart to fill and pump more blood as is needed during exercise.

Hypertrophic cardiomyopathy can be non-obstructive or obstructive. If you have non-obstructive hypertrophic cardiomyopathy, your heart has thickened walls, but the walls and mitral valve do not block blood flow out of your left ventricle. In obstructive hypertrophic cardiomyopathy the heart has thickened walls as well, but the septum may bulge into the path where blood leaves the left ventricle called the outflow tract. During contraction of the heart muscle the mitral valve is pushed toward the septum which narrows the outflow tract and may prevent closing of the mitral valve. This can cause backflow of blood into your left atrium. The size of the outflow tract may change during the day. It may become narrower or widen based on your activity. A narrowed outflow tract means more pressure and heart work are needed to push blood out of your left ventricle to your body. This pressure difference is called gradient. Symptoms of hypertrophic cardiomyopathy with or without obstruction typically include tiredness and shortness of breath, chest pain, lightheadedness, heart pounding or fainting. Talk to your health care provider if you have any of these symptoms or other questions about hypertrophic cardiomyopathy.

Peptic ulcer

A peptic ulcer is a sore that develops in the lining of the lower part of your esophagus or various parts of your stomach or small intestine. A peptic ulcer in your esophagus is called an esophageal ulcer. In your stomach, it is called a gastric ulcer. When the ulcer affects the first part of your small intestine, called the duodenum, it is called a duodenal ulcer.

When you eat, your stomach produces highly acidic digestive juices, also known as stomach acid, to help break down food. Then the food passes into your duodenum for further digestion and subsequent absorption into the bloodstream. To protect your organs

from the corrosive effects of stomach acid, a layer of mucus coats the lining of your stomach and duodenum. When the protective mucus layer breaks down, stomach acid can seep into the lining of your stomach or duodenum and cause an ulcer. Most peptic ulcers are caused by the bacteria Helicobacter pylori, also known as H. pylori. Scientists think these bacteria may enter your body through contaminated food or water or through close contact with an infected person. Once inside your body, they lodge in the mucous layer of your stomach or duodenum. As the bacteria grow, they damage the mucus layer, allowing stomach acid to reach the stomach or duodenum lining. Together the bacteria and stomach acid cause an ulcer. Some peptic ulcers are linked to heavy usage of non-steroidal anti-inflammatory drugs, also known as NSAIDs, including aspirin and ibuprofen. These drugs reduce the ability of your stomach and duodenum to protect themselves from the effects of stomach acid.

Your doctor may prescribe one or a combination of drugs to treat your peptic ulcer. If H. pylori is the cause of your ulcer, you will take antibiotics to kill the bacteria. If your ulcer is due to non-steroidal anti-inflammatory drugs, your doctor will recommend you stop or limit your use of these drugs. For a gastric ulcer, you may be given a proton pump inhibitor, also known as a PPI, to decrease acid production in your stomach. For a duodenal ulcer, you may be given a histamine type 2 receptor antagonist, commonly known as an H2 blocker, to reduce the amount of acid secreted in your stomach. In addition, your doctor may recommend medications to coat and protect the lining of your stomach and duodenum until the ulcer has healed. These include sucralfate, misoprostol and bismuth subsalicylate, commonly known as Pepto-Bismol.

You may need surgery for an ulcer that does not heal with medication. Or you may need surgery for an ulcer that goes away with treatment, then comes back. You may need an operation for an ulcer that bleeds. If your ulcer breaks through or perforates the wall of your stomach or duodenum, you may need surgery to repair the damage. You may also need surgery for an ulcer that blocks food from moving out of your stomach. If you have one or more of these complications, your doctor may recommend one of the following three surgical procedures: a vagotomy, an antrectomy, or a pyloroplasty. In a vagotomy your surgeon will cut part of your vagus nerve. Through this nerve, your brain tells your stomach to release acid. After your surgeon cuts the nerve, your stomach will secrete less acid. In an antrectomy your surgeon will remove the lower part of your stomach, which is called the antrum. The antrum signals your stomach to release acid. Once it is removed, your stomach releases less acid. If your ulcer is blocking the exit of food from your stomach, your surgeon may perform a pyloroplasty. During this procedure your surgeon will widen the pylorus, which is the opening between your stomach and duodenum, allowing food to pass through more easily. While your ulcer heals, you should avoid alcohol and cigarettes as they can slow the healing process and may make your ulcer worse. A few weeks after treatment, your doctor may perform an endoscopy, which is a procedure to look inside your upper digestive tract to be sure your ulcer has healed.

Irritable Bowel Syndrome

Irritable bowel syndrome or IBS is a chronic condition affecting your large intestine. Your large intestine, also known as your colon, includes the cecum, ascending colon, transverse colon, descending colon, sigmoid colon, rectum and anal canal. The muscular wall of your colon contracts in a rhythmic fashion, called peristalsis, to move the intestinal

contents toward your rectum. As it contracts, your colon absorbs water and nutrients from partially digested food moving through it. Waste material, called stool, is stored in the rectum until it is expelled through the anus as a bowel movement.

With IBS the muscular contractions of your colon are abnormal. In some cases, the contractions may cause food to move too quickly through your colon. As a result, your colon does not have enough time to absorb most of the water from your food. This condition leads to a watery stool and diarrhea. In other cases, the contractions may cause food to move too slowly. As a result, your colon absorbs too much water from your food. This condition leads to a hardened stool and constipation. It is unclear why your colon contracts abnormally. However, if you have IBS, your colon may be more sensitive to certain factors such as stress that seemed not to affect most people. Other symptoms of IBS include abdominal pain and discomfort, bloating, gas and cramping.

You can manage your IBS symptoms through a combination of dietary habit changes, stress management and medications. Eating food high in fiber creates softer bulkier stools which may prevent spastic colon contractions. Fiber also helps relieve constipation. Stress management therapies, such as hypnotherapy and yoga, may help relieve your symptoms. Your doctor may prescribe medications to help manage your symptoms such as:

– anti-constipation drugs to help regulate your bowel movements;

– antispasmodic drugs to minimize muscle spasms and reduce pain;

– or sedatives and antidepressants to relieve anxiety and elevate your mood.

Esophageal Cancer

Esophageal cancer is a disease that begins in your esophagus. Your esophagus is a muscular tube that food passes through from your mouth to your stomach. The flat thin cells lining your esophagus are called squamous cells. Below the surface cells divide and flatten to make new squamous cells as the old ones wear out. If you have a condition called gastroesophageal reflux or GERD, you frequently have a backflow or reflux of acid from your stomach into your esophagus. Over time GERD may cause the squamous cells lining your lower esophagus to be replaced with gland cells that make mucus called goblet cells. This change in the lining of your esophagus is a condition called Barrett’s esophagus.

One type of esophageal cancer, called adenocarcinoma, may occur in the changed lining of Barrett’s esophagus. Another type of esophageal cancer, called squamous cell carcinoma, occurs in the squamous cells in your esophagus. Like all cancers, both of these types begin when damaged or abnormal genetic material inside your cells causes them to grow out of control. A tumor forms as the abnormal cells begin to multiply. Over time a lump may form in the wall of your esophagus as the tumor grows. You may have no symptoms in the early stages of esophageal cancer. Later, you may have trouble swallowing when the tumor becomes large enough to block part of your esophagus. Having trouble with swallowing may cause you to have difficulty eating. As a result, you may lose weight in a short period of time. Depending on the location of the growing tumor you may also have pain in your chest or neck.

If you have esophageal cancer, your doctor may recommend one or more of the following: surgery, chemotherapy and radiation therapy. Surgery is the most common treatment for esophageal cancer especially in the early stages when the tumor is small. If you have a surgical procedure, your doctor will remove the section of your esophagus that contains the tumor as well as some normal tissue above and below it. The surgery may include removing part of your stomach. The remaining healthy esophagus and stomach will

be attached to each other. Your surgeon may also remove nearby lymph nodes to see if cancer cells have spread to them. Your doctor may recommend chemotherapy as the main treatment for more advanced tumors or to shrink your tumor before surgery. Chemotherapy uses drugs to stop cancer from spreading by either stopping or slowing down the growth of cancer cells. Your doctor may recommend radiation therapy, such as external beam radiation therapy, in addition to chemotherapy. Radiation therapy damages and kills the esophageal cancer cells.

Some common ways to reduce your risk of esophageal cancer include seeking treatment if you have gastroesophageal reflux or GERD, quitting smoking and avoiding alcohol.

Diverticular Disease

Diverticular disease is a condition occurring when pouches form toward the end of the large intestine. Your large intestine, also known as your colon, includes the cecum, ascending colon, transverse colon, descending colon, sigmoid colon, rectum and anal canal.

The wall of your colon has four main layers: the mucosa, the submucosa, a muscular layer and the outer serosa. Blood vessels, called vasa recta, supply blood to your colon. Although the cause is unknown, diverticulosis is associated with a low fiber diet, constipation and frequent straining with bowel movements. Constipation causes increased pressure inside your colon. Increased pressure may cause the mucosa and submucosa to herniate through a weakened area of the wall of your colon and form a diverticulum. Diverticulosis occurs when you have these diverticula but often no other symptoms. In contrast, diverticulitis occurs when the diverticula become inflamed.

The usual symptoms of diverticulitis are lower left abdominal pain, fever, constipation, or diarrhea and decreased appetite. Diverticulitis may develop an accumulation of pus called an abscess. Excessive swelling and accumulation of pus may lead to the formation of a perforation allowing pus and other material to escape into your abdomen. This is a very serious condition and requires immediate medical attention.

If you have a severe case of diverticulitis, you may need to have a procedure to drain an abscess. If the condition persists, you may require surgery to remove the affected part of your colon. During your procedure your surgeon will pass the remaining end of your colon through your abdominal wall creating an opening, called a stoma. After your colon heals, it can be reattached to your rectum. The main treatment for diverticulosis is increased consumption of fiber rich foods to soften and add bulk to stools which help stimulate the colon to contract and eliminate them. Other treatments for diverticulitis include a clear liquid diet and oral antibiotics.

Hepatitis A and B

If you have hepatitis A or B, your liver is inflamed because you have been infected with either the hepatitis A virus, or the hepatitis B virus. Your liver is a soft flexible organ that performs many important functions. The functional parts of your liver are called hepatic lobules. Your hepatic lobules filter all of the blood in your body. As the blood passes through, your hepatic lobules breakdown harmful substances, remove bacteria and worn-out blood cells, and form clotting factors that control bleeding. After a meal, your liver stores nutrients to provide your body with energy when needed. Your liver also makes a substance called bile. Your gallbladder stores bile and releases it into your small intestine to help digest fats in the food you eat.

If you have hepatitis A, the virus enters your body when you are exposed to fecal matter from a person infected with the virus. You may have been exposed to the virus by eating contaminated food or water, contact with infected feces such as during a diaper change, or having unprotected sex with a person infected with the virus. If you have hepatitis B, the virus enters your body when you are exposed to the blood or other body fluids from a person infected with the virus. This could have happened from sharing a drug syringe with an infected person. Other ways you may have been exposed to the virus include having sex with someone infected by the virus; sharing personal hygiene items, such as razors or toothbrushes, used by an infected person; direct contact with the blood or body fluids of an infected person; or when a mother passes it to her baby during birth.

When either the hepatitis A or B virus enters your liver, it invades your liver cells and makes copies of itself. In response your body sends immune cells to attack both the virus and liver cells infected with the virus. As a result, these liver cells become inflamed and then die. Over time, scar tissue forms around dead and infected liver cells which prevents your liver from working properly. If you have a chronic hepatitis B infection, your liver contains a large amount of scar tissue, called cirrhosis, which limits blood flow and results in permanent shrinking and hardening of your liver.

If you have hepatitis A, your doctor will not prescribe any medical treatment because your immune cells will eventually find and destroy all of the hepatitis A viruses in your body. If you have hepatitis B, your immune system will usually remove all the hepatitis B viruses from your body. In some people with chronic hepatitis B, particularly children, their immune cells are unable to remove all of the hepatitis B viruses. If you have chronic hepatitis B and your immune system cannot get rid of the virus completely, your doctor may prescribe antiviral medication. If you have a severe case of chronic hepatitis B, your doctor may recommend a liver transplant operation.

Gallstones

The gallbladder is a small sac located underneath the liver. The gallbladder serves to store and concentrate bile. Bile is a yellowish-green fluid secreted by the liver and contains bile acids which aid in fat digestion and absorption. Bile flows through the bile duct into the duodenum — the first part of the small intestine. After filling the bile duct, it overflows into the gallbladder where it is stored for later use. After a high-fat meal, the gallbladder contracts to pump bile into the duodenum.

Gallstones are hard masses formed in the gallbladder. Gallstones may cause obstruction of the cystic duct and excruciating pain when the gallbladder contracts. This usually happens after a fatty meal and is commonly referred to as a gallbladder attack.

Blockage of the cystic duct is a common complication caused by gallstones. Other less common but more serious problems occur when gallstones become lodged down the path of the biliary tree. When gallstones block the common bile duct, they prevent bile from reaching the intestine. This causes jaundice, poor fat digestion and subsequently leads to infection of the bile duct or cholangitis. Gallstones may also obstruct the pancreatic duct, forcing pancreatic enzymes to back up in the pancreas. This damages the pancreatic tissues and triggers inflammatory response. This condition is known as acute pancreatitis or sudden inflammation of the pancreas.

The most common treatment for gallstones is the surgical removal of the gallbladder or cholecystectomy. Laparoscopic cholecystectomy is currently the standard procedure for

gallbladder removal. This minimally invasive procedure requires only several small incisions in the abdomen and thus results in less pain and quicker recovery. The cystic duct and cystic artery are clipped with tiny titanium clips and cut. The gallbladder is then dissected and removed through one of the incisions. After surgery, bile enters the intestine without being concentrated in the gallbladder and may not be sufficient after a high-fat meal. A low-fat diet is therefore recommended after removal of the gallbladder.

Chronic Pancreatitis

Chronic pancreatitis is caused by long-term inflammation of the pancreas which eventually leads to the irreversible destruction of pancreatic tissue. Chronic pancreatitis develops slowly over time and is predominantly triggered by lifestyle factors in predisposed patients such as long-standing, heavy alcohol or tobacco use, although this is not always the case. Other less common causes are medications that put stress on the pancreas, elevated triglycerides, some autoimmune conditions, and some inherited or genetic conditions, notably cystic fibrosis and hereditary pancreatitis. In some people, the cause of chronic pancreatitis is never discovered and remains a mystery.

The pancreas is a digestive system organ that has two important functions. It produces hormones that regulate blood sugar as well as enzymes to break down food in the digestive tract. When the pancreas does not work properly, it affects the body's ability to properly digest food. This means that some people with chronic pancreatitis are unable to get the nutrients they need from the food they eat. They can have trouble digesting food properly or maintaining their blood sugar in a healthy range. This can lead to nutrition-related diseases, such as weak bones and vision loss. Some people may also have difficulty gaining or maintaining their weight, and persistent pain.

The hallmark symptom of chronic pancreatitis is abdominal pain. The pain may be intermittent or chronic and is frequently very severe with stabbing pains localized in the upper part of the abdomen between the belly button and the chest. The pain may radiate to the back and may be triggered by eating, especially high-fat foods. As the disease progresses, the pain may become more severe and debilitating, and often it becomes constant. In some cases, surgery or endoscopic treatment may be required. Oily, foul-smelling bowel movements and weight loss may be seen in the advanced stages of the disease and usually signals exocrine pancreatic insufficiency. As well, depending on the severity and extent of the damage to the pancreas, some people develop diabetes.

A combination of tests is used to diagnose chronic pancreatitis. In some people, diagnosis is challenging due to the course of the disease. However, in others, it is relatively straightforward. A CT scan of the abdomen is the most commonly used test. An MRI or endoscopic ultrasound may also be used to confirm the diagnosis. In some difficult-to-diagnose cases, pancreatic stimulation testing can be useful. This test artificially stimulates the pancreas using secretin. This test is expensive and invasive, so it is not frequently performed. Blood tests are not useful for diagnosing chronic pancreatitis. Although there is no cure for chronic pancreatitis, early diagnosis and treatment can help slow the progression of the disease. Treatment involves avoiding triggers, such as heavy alcohol use, smoking, and high-fat foods. Other treatment interventions involve pain management, medication such as pancreas enzyme replacement therapy (PERT) and supporting a healthy diet with multivitamin and mineral supplements.

Liver Cancer

In this video we will cover the function of the liver and how cancer may arise. The liver is located in the upper right of the abdominal cavity and lies directly beneath the diaphragm. It is the largest glandular organ measuring approximately 20 centimeters in length, 15 centimeters in depth and weighs around 1.5 kilograms for adults. The liver can be divided into two: a right lobe and a left lobe. Blood vessels and bile ducts also define the boundaries of eight separate segments. The liver is the only internal organ capable of natural regeneration of lost tissue. As little as 25 % of a liver can regenerate into a whole liver. One of its most important functions is to produce bile. This collects in bile capillaries within the liver. Some is stored in the gallbladder where it can be discharged into the duodenum and small intestine to aid digestion and break down fat. When the food is fully digested, the resultant fat, sugar, proteins, vitamins, minerals and all other nutrition are absorbed into the bloodstream and transported to the liver for processing. Some nutrients, such as sugar, are retained by the liver and released if the body requires additional energy. The liver stores a multitude of substances including iron, copper, vitamins A, D, B12 and vitamin K. It also produces coagulation factors that are critical to cessation of blood loss from damaged vessels. Due to its wide range of functions the liver is absolutely essential for sustaining life. Another important function of the liver is cleansing blood. Liver cells break down toxic and extraneous substances found in the blood and discharge them by means of excretion or urination.

Initial symptoms are often ambiguous, such as weight loss, poor appetite, inflated abdomen, lethargy, discomfort in the upper abdomen and fever. Often the tumor has grown significantly before being discovered. Liver cancer is currently very rare. Yellowing of the skin and eyes is a clear indication of failure in the liver or gallbladder and should be examined by a doctor. The first examination involves palpating the abdominal area to check for enlargement of the liver and a blood sample is taken. Suspicious findings entail further examination. Blood tests, ultrasound and CT examination are often sufficient to determine a diagnosis. Primary liver cancer originates either in the gallbladder or liver. However, the majority of cancer instances are a result of spreading from other organs, in particular the stomach and intestines. Cancer cells can separate from the tumor and be transported via the bloodstream to the liver where they can attach and establish secondary sites. If the tumor is not too large and the remaining liver tissue is healthy, surgical removal is often possible. After the excision, the liver can regenerate back to full size within a few months.

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