

CHAPTER 10- REACHING THE AGE OF ADOLESCENCE

Question 1. What is the term used for secretions of endocrine glands responsible for changes taking place in the body?

Answer- Hormones.

Question 2. Define adolescence.

Answer- The period of life, when the body undergoes changes, leading to reproductive maturity, is called adolescence. The period of adolescence is normally 11 years to 19 years.

Question 3. What is menstruation? Explain.

Answer- The cyclic flow of blood and mucus along with inner lining of uterus in case of not fertilisation of egg from the female body is called menstruation. Each month uterus prepares itself to receive the fertilized egg. If fertilisation do not occurs the inner lining breaks away and comes out through vagina for 3-5 days.

Question 4. List changes in the body that take place at puberty.

Answer- The onset of puberty brings about:

- (i) Growth of the reproductive organs which begin to function.
- (ii) Hair growth at various places of the body. Breasts develop in girls and facial hairs appear in boys.
- (iii) Voice of the boys becomes hoarse as voice box enlarges during adolescence.

Question 5. Prepare a table having two columns depicting names of endocrine glands and hormones secreted by them.

Answer-

Endocrine glands	Hormones
1. Pituitary gland	(i) Growth hormones
2. Ovaries	(ii) Estrogen
3. Testes	(iii) Testosterone
4. Thyroid	(iv) Thyroxine
5. Pancreas	(v) Insulin
6. Adrenal glands	(vi) Adrenaline

Question 6- What are sex hormones? Why are they named so? State their function.

Answer- The chemical substances produced by the sex organs are called sex hormones. They are named so because they control the sexual activities and are secreted by males and females separately.

Estrogen: This hormone is responsible for the development of secondary sexual characters in females like enlargement of breasts, development of female reproductive organs etc.

Testosterone: this hormone brings the secondary sex character in boys such as the growth of beard, the voice becomes hoarse, development of the reproductive organs etc.

Question 7. Choose the correct option.

(a) Adolescents should be careful about what they eat, because:

- (i) proper diet develops their brains.
- (ii) proper diet is needed for the rapid growth taking place in their body. (✓)
- (iii) adolescents feel hungry all the time.
- (iv) taste buds are well developed in teenagers.

(b) Reproductive age in women starts when their

- (i) menstruation starts.(✓)
- (ii) breasts start developing.
- (iii) body weight increases.
- (iv) height increases.

(c) The right meal for adolescents consists of

- (i) chips, noodles, coke.
- (ii) chapati, dal, vegetables. (✓)
- (iii) rice, noodles and burger.
- (iv) vegetable cutlets, chips and lemon drink.

Question 8. Write notes on—

(a) Adam's apple.

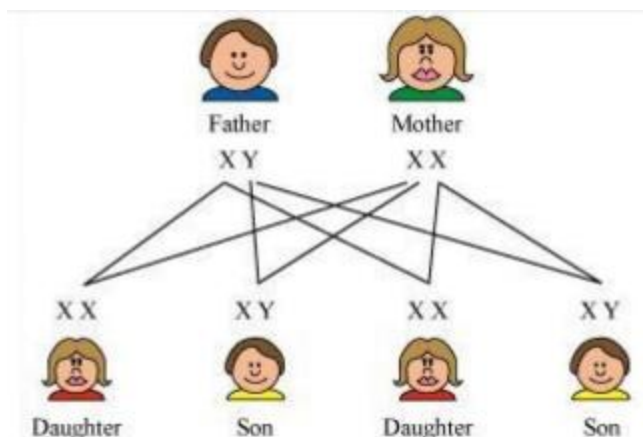
(b) Secondary sexual characters.

(c) Sex determination in the unborn baby.

Answer- (a) Adam's apple- At puberty, the voice box or the larynx begins to grow. The growing voice box in boys can be seen a protruding part of the throat called Adam's apple.

(b) Secondary sexual characters- Those characters which are visible more apparently and help in distinguishing a male from a female are called secondary sexual characters. For example, in girls, breasts and in boys facial hairs i.e., moustache and beard.

(c) Sex determination in the unborn baby- Human beings have 23 pairs of chromosome. One pair of male (XY) and one pair of chromosome in female (XX) are called sex chromosome. When the sperm containing Y chromosome fuse with egg the sex of baby is male and when X chromosome containing sperm fertilise the egg the sex of baby is female.



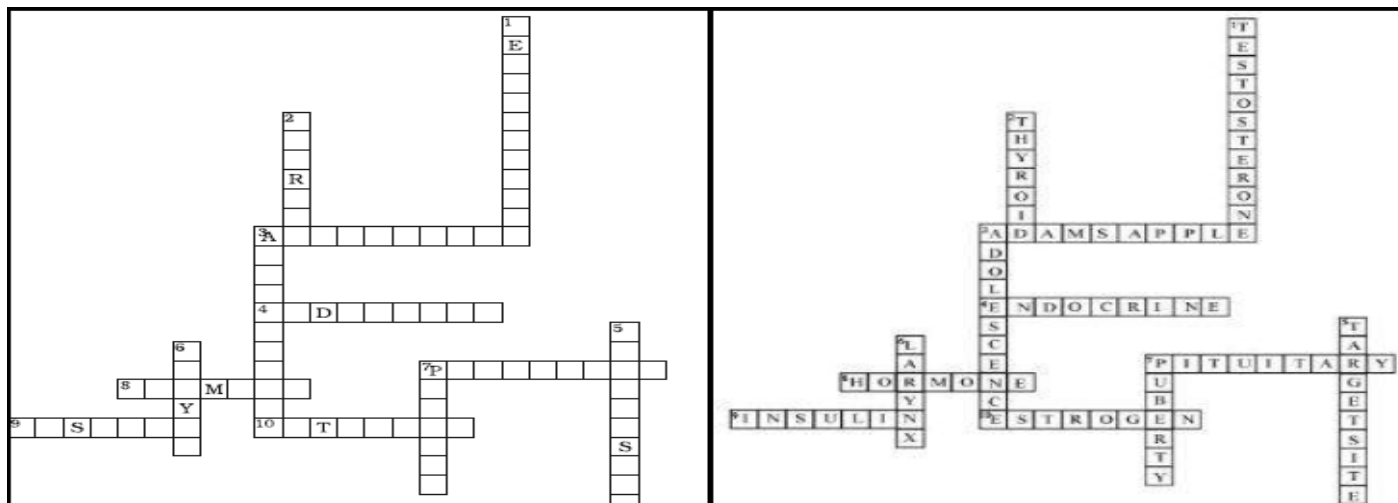
Question 9. Word game : Use the clues to work out the words.

Across

3. Protruding voice box in boys -- **Adam's apple**
4. Glands without ducts -- **Endocrine**
7. Endocrine gland attached to brain -- **Pituitary**
8. Secretion of endocrine glands -- **Hormone**
9. Pancreatic hormone -- **Insulin**
10. Female hormone -- **Estrogen**

Down

1. Male hormone -- **Testosterone**
2. Secretes thyroxine -- **Thyroid**
3. Another term for teenage -- **Adolescence**
5. Hormone reaches here through blood stream -- **Target site**
6. Voice box -- **Larynx**
7. Term for changes at adolescence -- **Puberty**.



CHAPTER 13- SOUND

Question 1. Choose the correct answer. Sound can travel through

- (a) gases only (b) solids only
(c) liquids only (d) solids, liquids and gases (✓)

Question 2. Voice of which of the following is likely to have minimum frequency?

- (a) Baby girl (b) Baby boy (c) A man (✓) (d) A woman

Question 3. In the following statements, tick 'T' against those which are true, and 'F' against those which are false.

- (a) Sound cannot travel in vacuum. (T)
(b) The number of oscillations per second of a vibrating object is called its time period. (F)
(c) If the amplitude of vibration is large, sound is feeble. (F)
(d) For human ears, the audible range is 20 Hz to 20,000 Hz. (T)
(e) The lower the frequency of vibration, the higher is the pitch. (F)
(f) Unwanted or unpleasant sound is termed as music. (F)
(g) Noise pollution may cause partial hearing impairment. (T)

Question 4. Fill in the blanks with suitable words.

- (a) Time taken by an object to complete one oscillation is called time period.
(b) Loudness is determined by the amplitude of vibration.
(c) The unit of frequency is Hertz.
(d) Unwanted sound is called Noise.
(e) Shrillness of a sound is determined by the frequency of vibration

Question 5. A pendulum oscillates 40 times in 4 seconds. Find its time period and frequency.

Answer- Number of oscillations in 4 seconds = 40

$$\text{Number of oscillations in 1 seconds} = \frac{40}{4} = 10$$

$$\text{Therefore, frequency of pendulum} = f = 10 \text{ Hz}$$

$$\text{Now Time period} = \frac{1}{f} = \frac{1}{10} = 0.1 \text{ sec.}$$

Question 6- The sound from a mosquito is produced when it vibrates its wings at an average rate of 500 vibrations per second. What is the time period of the vibration?

Answer- Number of vibrations in 1 seconds = 500

$$\text{Therefore, frequency of vibration} = f = 500 \text{ Hz}$$

$$\text{Now Time period} = \frac{1}{f} = \frac{1}{500} = 0.002 \text{ sec.}$$

Question 7. Identify the part which vibrates to produce sound in the following instruments.

(a) Dholak

(b) Sitar

(c) Flute

Answer- (a) Dholak - Stretched membrane.

(b) Sitar - Stretched string.

(c) Flute - Air column.

Question 8. What is the difference between noise and music? Can music become noise sometimes?

Answer- The type of sound which is unpleasant to listen is known as noise whereas music is a pleasant sound, which produces a sensation.

Yes, music can become noise when it's too loud.

Question 9. List the sources of noise pollution in your surroundings.

Answer- Noise pollution sources are:

(a) Bus and car horns.

(b) Firecrackers and loudspeakers.

(c) High volumes in televisions and DJ etc.

(d) Sound of kitchen appliances.

e) Sirens from factories

Question 10. Explain in what way noise pollution is harmful to humans.

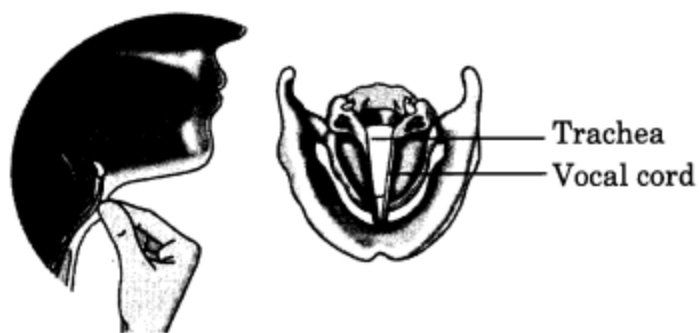
Answer- Noise pollution causes: (a) Lack of sleep, (b) Anxiety, (c) Hypertension.

Question 11. Your parents are going to buy a house. They have been offered one on the roadside and another three lanes away from the roadside. Which house would you suggest your parents should buy? Explain your answer.

Answer- I would suggest my parents to buy the house which is three lanes away from the roadside. This would protect us from noise pollution which is maximum at roadside building.

Question 12. Sketch larynx and explain its function in your own words.

Answer- The other name of larynx is voice box. It is present at the upper end of the windpipe. The function of larynx is to produce sound with the help of two vocal cords on passing air.



Larynx in human

Question 13. Lightning and thunder take place in the sky at the same time and at the same distance from us. Lightning is seen earlier and thunder is heard later. Can you explain why?

Answer- Speed of the light is much more than the speed of sound. Thus, lightning is seen earlier than thunder.

CHAPTER 15 – SOME NATURAL PHENOMENA

Question 1. Which of the following cannot be changed easily by friction?

- (a) A plastic scale
- (b) A copper rod (✓)
- (c) An inflated balloon
- (d) A woollen cloth

Question 2. When a glass rod is rubbed with a piece of silk cloth the rod

- (a) and the cloth both acquire a positive charge.
- (b) becomes positively charged while the cloth has a negative charge. (✓)
- (c) and the cloth both acquire a negative charge.
- (d) becomes negatively charged while the cloth has a positive charge

Question 3. Write T against true and F against false in the following statements.

- (a) Like charges attract each other. (F)
- (b) A charged glass rod attracts a charged plastic straw. (T)
- (c) Lightning conductor cannot protect a building from lightning. (F)
- (d) Earthquakes can be predicted in advance. (F)

Question 4. Sometimes, a crackling sound is heard while taking off a sweater during winters. Explain.

Answer- When we take out sweater, Woolen sweater gets charged due to friction between the sweater and the body. This results in crackling sound.

Question 5. Explain why a charged body loses its charge if we touch it with our hand.

Answer- Our body is a conductor of electricity. When we touch a charged body with our hand, the charged body loses charge to the earth through our body.

Question 6- Name the scale on which the destructive energy of an earthquake is measured. An earthquake measures 3 on this scale. Would it be recorded by a seismograph? Is it likely to cause much damage?

Answer- The destructive energy of an earthquake is measured on a scale called Richter scale. It has reading from 1 to 10. Earthquake with more than 7 values can cause much damage.

An earthquake measure 3 on this scale will be recorded by a seismograph. But it is not likely to cause much damage.

Question 7. Suggest three measures to protect ourselves from lightning.

Answer- (i) Do not use TV or cable phone during lightning.
(ii) Stay indoors or under covered area.
(iii) Don't take bath during lightning.

Question 8. Explain why a charged balloon is repelled by another charged balloon whereas an uncharged balloon is attracted by another charged balloon?

Answer- We know that same charges repel and opposite charges attract each other. A charged balloon is repelled by another charged balloon because both carry same type of charges. On the other hand, an uncharged balloon is attracted by another charged balloon as they have opposite charges.

Question 9. Describe with the help of a diagram an instrument which can be used to detect a charged body.

Answer- Electroscope is a device which is used to detect the charge on a body. It works on the principle that like charges repel each other while unlike charges attract each other. It consists of a metal rod with thin metal strip or leaf attached to it at the bottom.



A simple electroscope

Question 10- List three states in India where earthquakes are more likely to strike.

Answer- Kashmir, Rajasthan and Gujarat.

Question 11- Suppose you are outside your home and an earthquake strikes. What precaution would you take to protect yourself?

Answer- (i) Move to open space. Find a clean spot away from buildings, trees and overhead power lines. Drop to the ground.

(ii) If we are in a car or a bus, will not come out. Drive slowly to a clear spot and remain in it till the earthquake stops.

Question 12- The weather department has predicted that a thunderstorm is likely to occur on a certain day. Suppose you have to go out on that day. Would you carry an umbrella? Explain.

Answer- No, it is not advisable to carry an umbrella at all. Its metallic objects are more prone to lightning stroke. So an umbrella increases the risk.

CHAPTER- 18 POLLUTION OF AIR AND WATER

Question 1. What are the different ways in which water gets contaminated?

Answer- Following are the ways by which water gets contaminated:

- People dispose of garbage in the water.
- Many industries discharge their harmful chemicals directly into rivers and streams.
- Chemical fertilisers, pesticides and weedicides used in agricultural practices get dissolve in water and are washed away into water bodies from the fields.
- Untreated sewage is directly discharged into water from household activities.

Question 2. At an individual level, how can you help to reduce air pollution?

Answer- The following are the steps we can take for reduction of air pollution:

- i) We should use public transport.
- ii) We should properly dispose of the garbage and not burn it.
- iii) For shorter distances, avoid vehicles.
- iv) We should plant more trees.
- v) We should replace our vehicle fuel, diesel and petrol by LPG and CNG.

Question 3. Clear, transparent water is always fit for drinking. Comment.

Answer- No, this is not true that clean, transparent water is always fit for drinking. It is possible that they may carry disease-causing microorganisms and other transparent impurities.

Question 4. You are a member of the municipal body of your town. Make a list of measures that would help your town to ensure the supply of clean water to all its residents.

Answer- The following steps could be taken:

- (a) First of all, procurement of required amount of water for all residents should be ensured.
- (b) Wastage of water by leakage at various places should be taken into account.
- (c) Water treatment should be ensured.
- (d) Must have sufficient water tanker to meet emergency situations.

Question 5. Explain the differences between pure air and polluted air.

Answer- Pure air is free from any pollutant, has no smell, is soothing and not irritating to eyes. Whereas polluted air gives a filthy smell and people cannot breathe in it. If people inhale such air, they may suffer from various breathing, heart and lung problems. Even sometimes people die inhaling polluted air.

Question 6- Explain circumstances leading to acid rain. How does acid rain affect us?

Answer- Gases like sulphur dioxide and nitrogen dioxide react with water vapour present in atmosphere to form Sulphuric acid and nitric acid. These acids come down with rain water, making the rain acidic. This is known as acid rain.

Acid rain corrodes the marbles of the monuments. It also kills the useful organism in agricultural soil.

Question 7. Which of the following is not a greenhouse gas?

- (a) Carbon dioxide
- (b) Sulphur dioxide
- (c) Methane
- (d) Nitrogen (✓)

Question 8. Describe the 'Greenhouse Effect' in your own words.

Answer- Gases like carbon dioxide and methane trap Sun's radiation reflected from earth's surface. This causes warming of atmosphere. This effect is called greenhouse effect.

Question 9. Prepare a brief speech on global warming. You have to deliver the speech in your class.

Answer- Good Morning,

Respected teacher and my dear friends,

As we all know the continuous increase in the temperature of earth is called global warming. Global warming is basically caused by pollution of air, excessive heat which is trapped by the greenhouse gases. Global warming is a threat to life as it causes a lot of problems like droughts and fire. So we should plant more trees and should avoid air pollution.

Thanks.

Question 10- Describe the threat to the beauty of the Taj Mahal.

Answer- The major threat to the Taj Mahal is the acid rain. Acid rain corrodes the marble of Taj Mahal and makes it yellowish. This is a matter of great concern that world famous monument like Taj Mahal may get damaged due to the pollutants emitted by factories around it.

Question 11. Why does the increased level of nutrients in the water affect the survival of aquatic organisms?

Answer- Increased level of nutrients in the water affect the survival of aquatic organisms as these act as nutrients for algae to flourish and once these algae die, they serve as food for decomposers like bacteria and a huge amount of oxygen in water body gets used up. This results in decrease in the oxygen level, which may kill aquatic organisms.

ONE MARK MCQs

1. Smog is formed from _____?

- a) Vapour + Fog
- b) Smoke + vapours
- c) Smoke +Fog (✓)
- d) none of these

2. The substances which pollute air and water are called _____?

- a) Pollute b) Pollutants (✓) c) garbage d) decomposers

3. Which are main pollutants of environment?

- a) Carbon dioxide + Nitrogen oxide b) Sulphur dioxide + Carbon monoxide
c) Nitrogen oxide + Sulphur monoxide d) Both (a) and (b) (✓)

4. Which gas is responsible for Global warming?

- a) Carbon dioxide (✓) b) Carbon monoxide c) sulphur dioxide d) Sulphur trioxide

5. “Ganga Action Plan” was initiated in which year?

- a) 1982 b) 1988 c) 1987 d) 1985 (✓)

6. Which of the following is not a greenhouse gas?

- a) Methane b) Carbon dioxide c) nitrogen (✓) d) water vapour

7. Which is a non-renewable source of energy?

- a) Water energy b) Wind energy c) Solar energy d) Fossil fuels (✓)

8. Which chemical is used to purify water?

- a) Iodine b) Copper Sulphate c) Chlorine (✓) d) Caustic soda

9. What is not included in the 3R Principle?

- a) Reduce b) Reuse c) Recycle d) Cleanliness (✓)

10. Which gas is responsible for Acid rain?

- a) Sulphur dioxide (✓) b) Carbon Dioxide c) Carbon monoxide d) Methane

11. Which Chemical destroys Ozone layer?

- a) Methane b) Nitrogen dioxide c) sulphur d) Chlorofluoro carbon (✓)

12. _____ is a clean fuel?

- a) Petrol b) CNG (✓) c) Diesel d) Kerosene

13. What is the main reason for corrosion of buildings like Taj Mahal?

- a) Acid Rain (✓) b) House garbage c) Factory disposal d) Chloro fluoro Carbon

14. Which gas amount increases in the air due to Deforestation?

- a) CO b) CO₂ (✓) c) O₂ d) CH₄

15. Kyoto Protocol is an international treaty which commits State parties to reduce what?

- a) Chlorofluoro Carbon b) Greenhouse gas emission (✓)
c) Deforestation d) Reduce water pollution

16. Which of the following are the consequences of Global Warming?

- a) Increase in Sea water level b) Melting of Ice of Hilltops

c) Increase in Temperature

d) All of the above (✓)

17. Match the following:

- | | |
|--|----------|
| a) Nitrogen | i) 21% |
| b) Oxygen | ii) 1% |
| c) Carbon Dioxide, Argon,
methane & water vapours | iii) 78% |

18. We often hear that, “One should not sleep indoors with burning stove because?

- a) It produces heat
- b) Due to lack of air, poisonous gas like Carbon monoxide is produced which causes death (✓)
- c) Oxygen gas is produced
- d) None of these

19. What is the full form of CFC?

- a) Chlorine Fluorine Carbon
- b) Chloro Floro Carbon (✓)
- c) Carbon Floro chloro
- d) None of the above

20. How can you make Potable water?

- a) By filtration
- b) By boiling
- c) Chlorination
- d) All of the above (✓)

21. Lovepreet has a wooden piece which is burning in lack of air. Which poisonous gas will be produced?

- a) Carbon dioxide
- b) Oxygen
- c) Carbon monoxide (✓)
- d) none of the above