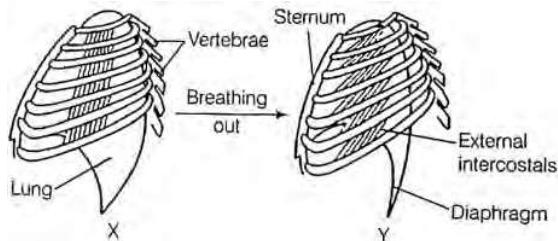


- (a) 1, 2, 3 and 4 (b) 1, 2, 3 and 6
 (c) 2, 3, 4 and 5 (d) 2, 3, 5 and 6

Ans : (b) 1, 2, 3 and 6

1 is stomach which secretes pepsin in gastric juice.
 2 is pancreas which secretes trypsin and amylase.
 3 is small intestine in which lipase and peptidase are secreted while 6 is salivary gland which secretes amylase in saliva.

- 26.** The diagram shows the ribs and some of the muscles used in breathing.



which muscles relax in moving from position X to position Y?

	Diaphragm	External Intercostals
(a)	No	No
(b)	No	Yes
(c)	Yes	No
(d)	Yes	Yes

Ans : (d)

During exhalation, the diaphragm arches upwards as a result of muscle relaxation. The external intercostal muscles are also relaxed to move the ribcage back into position.

- 27.** Which of the following is not a disorder of the circulatory system?
 (a) Atherosclerosis (b) Arteriosclerosis
 (c) Arthritis (d) Angina

Ans : (c) Arthritis

Arthritis is the inflammation of joints causing pain and stiffness.

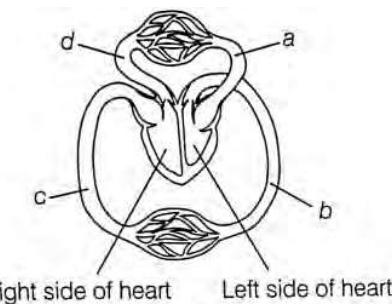
- 28.** Which of the following is responsible for the transport of water and minerals from roots to aerial parts of the plant?
 (a) Xylem (b) Phloem
 (c) Cortex (d) Both (a) and (b)

Ans : (a) Xylem

In rooted plants, transport of water and minerals occurs through xylem.

- 29.** The diagram represents a part of human circulatory

system. Where is the blood pressure highest?



Ans : (b)

The lungs receive low pressure of blood from right side of the heart, with thinner ventricle wall as compared to the thicker wall of left ventricle. From the left ventricle, blood is pushed into aorta (B), which has normal blood pressure of about 16 KPa. Pressure in D is less than 4 Kpa.

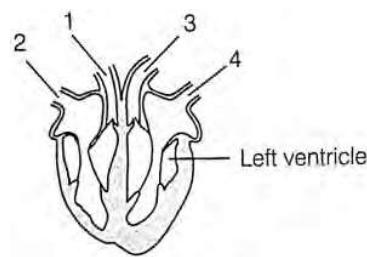
In the Pulmonary vein A, the blood pressure is evenless, after being passed through the alveolare capillaries.

- 30.** Urea is formed in:

- (a) Liver (b) Spleen
 (c) Kidney (d) Lungs

Ans : (a) Liver

- 31.** The diagram shows a vertical section through the heart.



what are the functions of the numbered blood vessels?

	Carries blood of body	Carries blood to lungs	Carries blood from lungs	Carries blood from body
(a)	1	2	3	4
(b)	1	3	4	2
(c)	2	4	3	1
(d)	3	1	4	2

Ans : (d)

Vessel 1 is pulmonary artery and carries blood to lungs. Vessel 2 is vena cava and carries blood from body to heart. Vessel 3 is aorta and carries blood from heart to body. Vessel 4 is pulmonary vein and carries blood from lungs to heart.

- 32.** What is the correct route for blood flow in a human?
- Left atrium → Left ventricle → Lungs → Right ventricle → Right atrium
 - Left atrium → Left ventricle → Right ventricle → Right atrium → Lungs
 - Right atrium → Right ventricle → Left ventricle → Left atrium → Lungs
 - Right atrium → Right ventricle → Lungs → Left atrium → Left ventricle

Ans : (d) Right atrium → Right ventricle → Lungs → Left atrium → Left ventricle

The correct route for blood flow in humans is

Right atrium → right ventricle → lungs → left atrium → left ventricle.

- 33.** What may happen if a young plant is dug up and replanted in another place?
- The leaves lose less water
 - The roots cannot take up mineral salts
 - The stem cannot transport water
 - The surface area of the root is reduced

Ans : (d) The surface area of the root is reduced

Digging up a plant may damage roots and affect mineral uptake. Wilting occurs if roots are damaged. Stem can still transport water.

- 34.** Which of the following is not a purpose of transpiration?
- Supplies water for photosynthesis
 - Helps in translocation of sugar in plants
 - Cools leaf surface
 - Transports minerals from the soil to all the parts of the plant

Ans : (b) Helps in translocation of sugar in plants

Transpiration is the loss of water in vapour form from the leaves. Translocation of sugars in plant is not performed by transpiration process.

- 35.** The table shows the characteristics of blood in one blood vessel of the body.

Oxygen concentration	Carbon dioxide concentration	Pressure
High	Low	High

which blood vessel contains blood with these characteristics?

- Aorta
- Pulmonary artery
- Pulmonary vein
- Vena cava

Ans : (a) Aorta

Oxygenated blood is carried back to the left atrium through the pulmonary vein and is pumped into the left ventricle before leaving the heart through the aorta. The thick muscular wall of the left ventricle of the heart contracts to generate the highest pressure possible to pump blood into the aorta and to the rest of the body.

- 36.** What are the functions of the Xylem?

	Carrying sygars	Carrying water	Carrying mineral ions	Giving support
(a)	✓	✗	✗	✓
(b)	✓	✓	✗	✗
(c)	✗	✓	✓	✗
(d)	✗	✓	✓	✓

Key ✓ = a function of xylem, ✗ = not a function of xylem

Ans : (d)

Xylem is a part of vascular tissue which not only supports a stem, but also transports water and mineral ions. Phloem is involved in the transport of sugars dissolved in water.

- 37.** Excretion is carried out by nephridia in:

- cockroach
- amoeba
- earthworm
- human

Ans : (c) earthworm

- 38.** Which chambers of human heart contain oxygenated blood?

- Left atrium and left ventricle
- Left atrium and right ventricle
- Right atrium and left ventricle
- Right atrium and right ventricle

Ans : (a) Left atrium and left ventricle

Left atrium receives oxygenated blood from pulmonary vein. This blood enters left ventricle before being pushed into aorta in order to supply the whole body.

- 39.** The process of conversion of glucose into pyruvic acid occurs in

- mitochondria
- cytoplasm
- outside the cell
- chloroplast

Ans : (b) cytoplasm

During aerobic respiration, the glucose is converted into pyruvic acid in the cytoplasm of respiring cells.

- 40.** Which process occurring in human body does not involve energy from respiration?

- Contraction of heart muscle
- Diffusion of oxygen from the alveoli into the blood
- Digestion of bread
- Maintaining a constant body temperature

Ans : (b) Diffusion of oxygen from the alveoli into the blood

Exchange of O₂ and CO₂ at the site of alveoli occurs due to diffusion gradient as the inhaled air carries more O₂ than blood and blood contains more CO₂ than the atmospheric air. Processes in other options are all energy requiring.

- 41.** The sites of exchange of wastes, nutrients, gases and hormones between the blood and body cells are the:

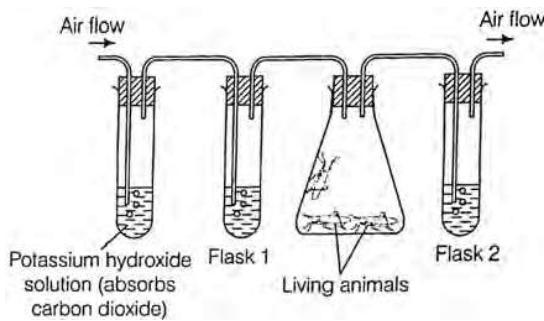
- arteries
- arterioles

Which one indicates hypertension or high Blood Pressure (BP)?

Ans : (d) 140/90

Person having blood pressure 140/90, shows hypertension or high blood pressure. The normal blood pressure for humans is 120/80.

- 53.** An experiment is set up as shown. Flasks 1 and 2 contain lime water. Air is pumped through the flasks.



What is the appearance of lime water in flasks 1 and 2 after a period of ten minutes?

	Flask 1	Flask 2
(a)	Clear	Clear
(b)	Clear	White/Cloudy
(c)	White/Cloudy	Clear
(d)	White/Cloudy	White/Cloudy

Ans : (b)

Living animals respire and produce carbon dioxide which causes lime water in flask 2 to become milky white. Potassium hydroxide solution in flask 1 absorbs carbon dioxide but remains clear.

Ans : (b) platyhelminths

Flame cells are the excretory organs of organisms belonging to phylum Platyhelminthes.

Ans : (c) no urea

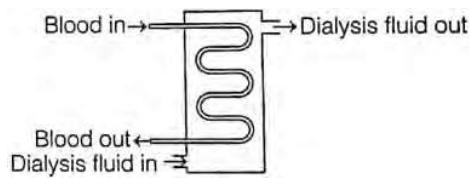
The dialysing fluid has the same composition as that of blood plasma except that it is devoid of nitrogenous waste such as urea.

- 56.** The movement of water and dissolved minerals from the roots of the leaves is best explained by:

 - (a) Cohesion-tension theory
 - (b) Translocation
 - (c) Tensile strength
 - (d) Pressure-flow hypothesis

Ans : (a) Cohesion-tension theory

- 58.** Figure given below is representing the dialysis machine for removing nitrogenous wastes in patient with a kidney failure.



which substances out of the following in the dialysis fluid should be at a lower concentration than in the blood of patient?

- (a) Glucose and urea
 - (b) Glucose and amino acids
 - (c) Salts and urea
 - (d) Glucose and salts

Ans : (c) Salts and urea
The dialysis fluid contains glucose various substances in the same concentration as in blood except urea and excess salts. The concentration of urea is higher in the dialysis fluid than in the blood. Urea is a nitrogenous waste product of protein metabolism which is excreted from the body along with the excess salts.

Ans : (a) have values

- 60.** Most often during a kidney disorder, the colour of urine changes from yellow to others. A patient is secreting dark coloured urine which turns to blue or black later. This is due to the presence of which of the following?

(a) Homogentisic acid (b) Methaemoglobin
 (c) Coproporphyrin (d) Both (a) and (b)

Ans : (a) Homogentisic acid

The build up of homogenetic acid in body occurs due to a rare genetic disorder i.e. Alkaptonuria. This causes the urine to run dark blue or black when exposed to air.

71. The process of transpiration in plants helps in

- (a) Opening of stomata
 - (b) Absorption of CO_2 from atmosphere
 - (c) Upward conduction of water and minerals
 - (d) Absorption of O_2 from atmosphere

Ans : (c) Upward conduction of water and minerals

72. Root cap has no role in water absorption because

- (a) It has no direct connection with the vascular system
 - (b) It has no cells containing chloroplasts
 - (c) It has no root hairs
 - (d) It has loosely arranged cells.

Ans : (c) It has no root hairs

73. Which substances will be present in the glomerular filtrate from the kidneys of a mammal?

	Glucose	Protein	Salts
(a)	✓	✓	✗
(b)	✗	✓	✓
(c)	✓	✗	✓
(d)	✗	✗	✓

Key ✓ = present, ✗ = absent

Ans : (c)

In mammals, the glomerular filtrate will consist of glucose and salts by the filtration of blood plasma.

The proteins are not present in glomerular filtrate because they are relatively larger in physical size.

2. FILL IN THE BLANK

1. In human, the right lung is lobed.
Ans : 3
 2. Carbonic anhydrase regulates the formation of
Ans : bicarbonates
 3. Principal waste product of metabolism in humans is
Ans : Water
 4. valve separates the left atrium from the left ventricle.
Ans : tricuspid
 5. Energy rich compound generated during photosynthesis is
Ans : ATP
 6. Ninety percent of the water lost by the plants during transpiration is through the of the leaf.
Ans : stomata

- 1.** Blood circulation in humans is called circulation.
Ans : double

8. Pressure in the arteries during ventricular relaxation is called pressure.
Ans : diastolic

9. are regarded as complete photosynthetic units of plants.
Ans : Chloroplasts

10. Starch changes blue in solution.
Ans : iodine

11. are the lymphatic capillaries arising from the small intestine.
Ans : lacteals

12. are fat soluble vitamins.
Ans : Vitamin A, D, E and K

13. Two are present on both sides of the stomata.
Ans : guard cells

14. Largest digestive gland in the human body is
Ans : liver

15. The structural and functional units of lungs is
Ans : alveoli

16. The prevents the entry of food into the respiratory tract.
Ans : epiglottis

17. (of bile juice) help in emulsification of fats.
Ans : Bile salts

18. In , waste is removed by diffusion.
Ans : kidney

19. Synthesis of ATP using light energy in photosynthesis is
Ans : photophosphorylation

20. Diffusion is insufficient to meet requirement of multicellular organisms like humans.
Ans : oxygen

21. node is present near the opening of superior and inferior vena cavae.
Ans : Sinu-auricular

22. A plant pigment known as is involved in the phenomenon of photoperiodism.
Ans : phytochrome

23. Man is in nutrition.
Ans : heterotrophic

24. involves the intake of complex material prepared by other organisms.

Ans : Heterotrophic

25. Contraction of heart is known as

Ans : systole

26. The major function of the blood cells is to transport oxygen.

Ans : red

27. The semiliquid mixture of partially digested food found in the stomach is called

Ans : chyme

28. The functional unit of the mammalian kidney is the

Ans : nephron

29. are the solid bodies in fruits in which waste is stored.

Ans : raphides

30. veins pour their blood into left atrium.

Ans : Pulmonary, oxygenated

31. Glomerulus occurs in capsule.

Ans : Bowman's

32. Kidney eliminate the excretory waste materials as their aqueous solution, called

Ans : urine

33. secretes bile and cholesterol.

Ans : liver

34. movements occur along the gut.

Ans : Peristaltic

35. Second heart sound heard as is due to closure of valves at the beginning of ventricular diastole.

Ans : Dup/Dubb, semilunar

36. The thin double-walled sac enclosing the heart is called

Ans : pericardium

37. Rings of present in trachea, bronchi and bronchioles prevent their collapse when air is not passing through them.

Ans : cartilage

2. The lacteals contain absorbed carbohydrates.

Ans : False

3. Teeth are the only part of the digestive system that physically breaks down food.

Ans : False

4. The loss of water by a plant is called transpiration.

Ans : True

5. Blood is not a tissue because it is a fluid.

Ans : False

6. Bowman's capsule is found in heart.

Ans : False

7. Arteries are the widest blood vessels.

Ans : True

8. Birds and mammals have tow-chambered heart.

Ans : False

9. Grass-eating animals need a longer small intestine to allow the cellulose to be digested.

Ans : True

10. Only animals have tissues.

Ans : False

11. Some organs are used in more than one system.

Ans : True

12. Fishes respire through skin.

Ans : False

13. Translocation is the transportation of the products of photosynthesis.

Ans : True

14. Essential amino acids cannot be synthesized in human body.

Ans : True

15. Stretching of inner wall of guard cells, open the stomata.

Ans : True

16. The systems in an organism work independently.

Ans : False

17. Veins are thick walled.

Ans : False

18. Respiration is the only source of energy for all organisms.

Ans : False

19. Carbon-di-oxide cannot be transported with

3. TRUE/FALSE

1. Fermentation is a form of aerobic respiration.

Ans : False

haemoglobin.

Ans : False

- 20.** In a general sense, digestion is simply hydrolysis of complex polymers to monomers.

Ans : True

- 21.** Leucocytes play an important role in blood coagulation.

Ans : False

- 22.** Circulatory system also performs the function of homeostasis.

Ans : True

- 23.** In humans, protein digestion is completed in the mouth.

Ans : False

- 24.** Only the multicellular organisms require transporting mechanisms.

Ans : False

- 25.** External respiration may be called breathing.

Ans : True

- 26.** The exchange of nutrients and waste products between the blood and cells occurs within the arteries.

Ans : False

- 27.** In humans, the alveoli are the functioning units of external respiration.

Ans : True

- 28.** Trypsin digests proteins into amino acids.

Ans : False

- 29.** Living organisms must maintain a constant internal environment.

Ans : True

- 30.** Deficiency of folic acid causes scurvy.

Ans : False

- 31.** A complete digestive tract consists of an oral and an anal opening.

Ans : True

- 32.** Stomata are tiny pores present on the surface of leaves.

Ans : True

- 33.** The liquid portion of the blood is called plasma.

Ans : True

- 34.** Generally gravitational water is utilized by the plants.

Ans : False

- 35.** Humans have an open circulatory system.

Ans : False

- 36.** In photosynthesis, carbon-di-oxide is given out by diffusion process.

Ans : False

4. MATCHING QUESTIONS

DIRECTION : Each question contains statements given in two columns which have to be matched. Statements (A, B, C, D) in column I have to be matched with statements (p, q, r, s) in column II.

1.

Column I		Column II	
(A)	Nutrition	(p)	The increase in cell size and/or number
(B)	Synthesis	(q)	The movement of materials within the cell or within the organism.
(C)	Growth	(r)	The process of obtaining food
(D)	Transport	(s)	Combining small molecules to create larger more complex molecules.

Ans : A-r, B-s, C-p, D-q

2.

Column I		Column II	
(A)	Regulation	(p)	The removal of metabolic waste from an organism
(B)	Reproduction	(q)	The chemical process of oxidizing organic molecules to release energy.
(C)	Respiration	(r)	The replication of an organism
(D)	Excretion	(s)	The control and coordination of chemical processes within the organism

Ans : A-s, B-r, C-q, D-p

3.

Column I	Column II
----------	-----------

(A)	Stomach	(p)	The structure is the site where the chemical breakdown of proteins first occurs.
(B)	Large intestine	(q)	This organ absorbs most of the water from the undigested food.
(C)	Small intestine	(r)	This organ is the section of the alimentary canal where most of the food is absorbed into the blood.
(D)	Excretion	(s)	This organ secretes the chemical bile, which is used to emulsify fats.

Ans : A-p, B-q, C-r, D-s

4.

Column I		Column II	
(A)	Pancreas	(p)	This organ secretes the chemical enzymes amylase, protease and lipase.
(B)	Rectum	(q)	This is a storage site for faeces before being egested from the body.
(C)	Oesophagus	(r)	This tube structure transports food from the oral cavity to the stomach.
(D)	Oral cavity	(s)	The structure where mechanical digestion of food first occurs.

Ans : A-p, B-q, C-r, D-s

5.

Column I (Animal)		Column II (Respiratory Organ)	
(A)	Fish	(p)	Trachea
(B)	Birds	(q)	Gills
(C)	Aquatic	(r)	Lungs
(D)	Earthworm	(s)	Moist cuticle

Ans : A-q, B-r, C-p, D-s

6.

Column I (Region of digestive system)		Column II (Digestive Organ)	
(A)	Mouth	(p)	Pancreatic juice
(B)	Stomach	(q)	Intestinal juice
(C)	Duodenum	(r)	Gastric juice
(D)	Small intestine	(s)	Saliva

Ans : A-s, B-r, C-p, D-q

7.

Column I		Column II	
(A)	Autotrophic	(p)	Leech
(B)	Heterotrophic nutrition	(q)	Paramaecium
(C)	Parasitic nutrition	(r)	Deer
(D)	Digestion in food vacuoles	(s)	Green plant

Ans : A-s, B-r, C-p, D-q

8.

	Column I		Column II
(A)	Phloem	(p)	Excretion
(B)	Nephron	(q)	Translocation of food
(C)	Veins	(r)	Clotting of blood
(D)	Platelets	(s)	Deoxygenated blood

Ans : A-(q), B-(p), C-(s), D-(r)

5. ASSERTION AND REASON

DIRECTION : The following question consist of two statements - Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both Assertion and Reason are false.

1. Assertion : in the daytime, CO_2 generated during respiration is used up for photosynthesis.

Reason : There is no CO_2 release during day.

Ans : (a) Both A and R are true and R is the correct explanation of A

In night, dark reaction of photosynthesis occurs, in which the products of light reaction, i.e. CO_2 , ATP, NADPH and H_2O are utilised. CO_2 is reduced for the production of carbohydrates.

- 2. Assertion :** Raw materials needed for photosynthesis are carbon dioxide, water and minerals.

Reason : Nutrients provide energy to an organism.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

Raw materials needed for photosynthesis are carbon dioxide, water and minerals like nitrogen, phosphorus, iron and magnesium.

Nutrients are the substances required for proper growth and maintenance of a living body but they provide energy to an organism.

Hence, both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

- 3. Assertion :** Lungs always contain a residual volume of air.

Reason : It provides sufficient time for oxygen to be absorbed and for carbon dioxide to be released.

Ans : (a) Both A and R are true and R is the correct explanation of A.

During the breathing cycle, when air is taken in and let out, the lungs always contain a residual volume of air. It provides sufficient time for oxygen to be absorbed and for carbon dioxide to be released.

Both Reason and Assertion are true and Reason is the correct explanation of Assertion.

- 4. Assertion :** Transpiration is a necessary evil.

Reason : It causes water loss but helps in absorption and upward movement of water and minerals.

Ans : (a) Both A and R are true and R is the correct explanation of A.

Transpiration is a necessary evil. It is so because water is lost in the form of vapours from the aerial parts of the plant through transpiration. But, it helps in absorption and upward movement of water and minerals creating transpiration pull.

- 5. Assertion :** Translocation of sugar occurs through the phloem.

Reason : It is achieved by diffusion of sugars through phloem.

Ans : (c) A is true but R is false.

The transport or movement of soluble products (sugar) of photosynthesis from leaves to other parts of the plant is termed as translocation. It occurs in the part of vascular tissue known as phloem. The translocation in phloem is mainly achieved by utilising energy by expenditure of ATP.

Assertion is true, but Reason is false.

- 6. Assertion :** Digestion breaks large complex molecules to simple smaller molecules which can be easily absorbed.

Reason : Digestion is necessary for the absorption of all molecules.

Ans : (c) A is true but R is false.

Digestion breaks large complex organic molecules to simple smaller ones which can be easily absorbed. However, certain molecules such as glucose, vitamin C etc, do not need any digestion before their absorption.

- 7. Assertion :** Energy is used during the process of respiration.

Reason : Respiration stores energy in the form of ATP.

Ans : (d) A is false but R is true.

Respiration involves the oxidation of glucose inside the mitochondria to produce energy, which is stored in the high energy bonds of ATP molecules as biologically useful energy.

- 8. Assertion :** During physiology of excretion, deamination does not take place in liver.

Reason : Deamination is a process to make use of excess of amino acids which cannot be incorporated into protoplasm.

Ans : (d) A is false but R is true.

- 9. Assertion :** Egestion is the removal of nitrogenous waste products from the body.

Reason : Excretion is the discharge of undigested matter from the digestive tract.

Ans : (e) Both Assertion and Reason are false.

Egestion is the discharge of undigested matter from the digestive tract via anus. While, excretion is the removal of nitrogenous waste products from the body. Thus, both Assertion and Reason are false.

- 10. Assertion :** The muscular walls of ventricles are thicker than auricles.

Reason : This helps in preventing the back flow of blood.

Ans : (c) A is true but R is false.

Since ventricles have to pump blood into various organs, they have thicker muscular walls than atria do. Valves prevent back flow of blood.

- 11. Assertion :** In human heart, there is no mixing of oxygenated and deoxygenated blood.

Reason : Valves are present in the heart which allows the movement of blood in one direction only.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

There is no mixing of oxygenated and deoxygenated blood due to presence of inter-auricular and interventricular septum. On the other hand, valves are present in the heart which allows the movement of blood in one direction only.

- 12. Assertion :** In woody plants, gaseous exchange occurs through lenticels.

Reason : Lenticels are specialised cells found along with stomata on the stem of woody plants.

Ans : (c) A is true but R is false.

In woody plants, gaseous exchange occurs through the small pores found on stems called lenticels. Stomata on the stem aid in gaseous exchange, in herbaceous plants.

Assertion is true, but Reason is false.

- 13. Assertion :** Excretory unit of kidney is nephrons.

Reason : It has no role in secretion of urine.

Ans : (c) A is true but R is false.

Nephrons are the basic filtration unit of kidneys. They carry out filtration, selective reabsorption and tubular secretion to form urine in kidney, which is then passed out through the urethra, via the ureters and urinary bladder.

- 14. Assertion :** Muscles of stomach wall possess thick layers of muscles.

Reason : These muscles help in mixing the food with the enzymes present in the alimentary canal.

Ans : (a) Both A and R are true and R is the correct explanation of A.

The lining of alimentary canal has muscles that contract rhythmically in order to push the food forward. This is known as peristaltic movement.

- 15. Assertion :** Artificial kidney is a device used to remove nitrogenous waste products from the blood through dialysis.

Reason : Reabsorption does not occur in artificial kidney.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

Kidney failure can be managed by artificial kidney. It is a device used to remove nitrogenous waste products from the blood through dialysis.

Artificial kidney is different from natural kidney as the process of reabsorption does not occur in artificial kidney.

Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

- 16. Assertion :** Respiration is a biochemical process opposite to photosynthesis.

Reason : Energy is released during respiration.

Ans : (a) Both A and R are true and R is the correct explanation of A.

Respiration is defined as the process of biochemical oxidation of nutrients at cellular level. It occurs in the presence of specific enzymes at optimum temperature in the cells to release energy for various metabolic activities.

Both Reason and Assertion are true and Reason is the correct explanation of Assertion.

- 17. Assertion :** The release of energy in aerobic process is much more than in anaerobic process.

Reason : Each glucose molecule produces 2 molecules of ATP and 38 molecules of ATP in aerobic and anaerobic respiration, respectively.

Ans : (c) A is true but R is false.

In aerobic process, 38 molecules of ATP released per one glucose molecule is much more than the 2 molecules of ATP per one glucose molecule in anaerobic process.

Assertion is true, but Reason is false.

- 18. Assertion :** In plants there is no need of specialised respiratory organs.

Reason : Plants do not have great demands of gaseous exchange.

Ans : (a) Both A and R are true and R is the correct

explanation of A.

- 19. Assertion :** Plants have low energy needs.

Reason : Plant bodies have large proportion of dead cells.

Ans : (a) Both A and R are true and R is the correct explanation of A.

Because plants have a large proportion of dead cells in many tissues. So, their energy needs are low and they can afford to have slow transport system.

- 20. Assertion :** Walls of the intestine has numerous villi.

Reason : These villi increase the surface area of digestion.

Ans : (c) A is true but R is false.

All the digested food is taken up by the walls of intestine, which has numerous villi. These increase the surface area of absorption. Assertion is true, but Reason is false.

- 21. Assertion :** Mitochondria help in photosynthesis.

Reason : Mitochondria have enzymes for dark reaction.

Ans : (d) A is false but R is true.

- 22. Assertion :** Blood pressure is arterial blood pressure.

Reason : It is measured by sphygmomanometer.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

- 23. Assertion :** Lymph, also known as tissue fluid is colourless.

Reason : It lacks erythrocytes.

Ans : (a) Both A and R are true and R is the correct explanation of A.

Lymph is similar to plasma of blood but is colourless due to lack of erythrocytes.

Erythrocytes contain haemoglobin, which imparts red colour to blood. Due to its absence, lymph is colourless.

- 24. Assertion :** The main organ of human excretory system is kidney.

Reason : Kidneys perform the function of removing excess water and nitrogenous wastes from the body.

Ans : (a) Both A and R are true and R is the correct explanation of A.

The main organ of human excretory system is kidney. The major function performed by kidneys is to remove excess water and nitrogenous wastes from blood in the form of urine.

Thus, both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- 25. Assertion :** Lipases help in emulsification of fats.

Reason : Lipases hydrolyses fats and oils.

Ans : (d) A is false but R is true.

Bile helps in emulsification of fats whereas lipases are the enzymes which hydrolyze fats and oils.

- 26. Assertion :** Humans are not truly aerobic.

Reason : They produce lactic acid anaerobically.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

Human are aerobically respiring animals, but sometimes anaerobic respiration takes place in certain tissues like skeletal muscles, which do not get immediately as much oxygen as it requires. Therefore, the muscles respire anaerobically and produce lactic acid from glucose.

27. Assertion : Photorespiration decreases net photosynthesis.

Reason : Rate of respiration in dark and light is almost same in all plants.

Ans : (d) A is false but R is true.

28. Assertion : HCl converts pepsinogen into active enzyme pepsin.

Reason : Pepsin converts protein into proteoses and peptones.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

HCl creates an acidic medium, which facilitates the action of the enzyme pepsin. The active enzyme pepsin converts proteins into proteoses and peptones.

29. Assertion : Autotrophic nutrition occurs in green plants.

Reason : Green plants self-manufacture their

Ans : (a) Both A and R are true and R is the correct explanation of A.

Autotrophic nutrition occurs in green plants. Food is self-manufactured by them using CO_2 , light energy trapped by chlorophyll and water as raw materials.

Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

30. Assertion : Haemoglobin is the respiratory pigment in human beings.

Reason : It transports oxygen in the human body.

Ans : (a) Both A and R are true and R is the correct explanation of A.

Haemoglobin is the respiratory pigment in human beings. It takes up oxygen from the air in the lungs and carries it to tissues.

Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

31. Assertion : Interauricular septum separates left from right atrium.

Reason : Interventricular septum separates left from right ventricle.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

There are four chambers of the heart. The left and right atria are separated by an interauricular septum. The two inferior chambers of the heart, i.e., right and left ventricles are separated by an interventricular septum.

32. Assertion : Blood of insects is colourless.

Reason : The blood of insect does not play any role in transport of oxygen.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

33. Assertion : All the arteries carry oxygenated blood from the heart to various organs.

Reason : Pulmonary vein carries deoxygenated blood to the heart.

Ans : (e) Both Assertion and Reason are false.

The arteries carry oxygenated blood from the heart to various organs, except pulmonary artery.

The veins collect deoxygenated blood from different organs and bring back to the heart, except pulmonary vein.

Both Assertion and Reason are false.

34. Assertion : Human body produces highly toxic substances, which if not eliminated may cause the death.

Reason : Excretory substance removes nitrogenous waste from the body.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

The biological process which involves the removal of harmful metabolic wastes from the body is called excretion. If these harmful wastes are not removed from the body, then it may cause the death of the organisms.

35. Assertion : Amoeba is an omnivore organism.

Reason : Lion is a carnivore organism.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

Amoeba is an omnivore organism, its mode of nutrition is holozoic. Lion is a carnivore organism because it eats other animals (meat eaters). Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

36. Assertion : Liver is known as the smallest gland of the body.

Reason : It secretes salivary amylase.

Ans : (e) Both Assertion and Reason are false.

Liver is known as the largest gland of the body, which secretes bile juice. Salivary glands secrete salivary amylase. Both Assertion and Reason are false.

37. Assertion : Carbohydrate digestion mainly takes place in small intestine.

Reason : Pancreatic juice contains the enzyme lactase.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

38. Assertion : Valves are present in the arteries.

Reason : Arteries carry oxygenated blood from heart to different body parts except pulmonary artery.

Ans : (d) A is false but R is true.

Valves are absent in arteries, whereas it is present in veins, which prevent back flow of blood.

39. Assertion : Plants lack excretory organs.

Reason : Plants usually absorb essential nutrients.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

40. Assertion : Haemodialysis can save the life of patients with kidney failure.

Reason : Waste products like urea can be removed from the blood by haemodialysis.

Ans : (a) Both A and R are true and R is the correct explanation of A.

In case of kidney failure, haemodialysis is the process of purifying blood (or removing waste products like urea) by an artificial kidney. This can save the life of the patient.

41. Assertion : In humans, major amount of water is absorbed by the tubular part of nephron.

Reason : Absorption of water depends on the dissolved waste to be excreted from the body.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

Major amount of water is selectively reabsorbed by the tubular part of nephron in humans. It depends on the amount of excess water present in the body and dissolved waste to be excreted from the body.

42. Assertion : Photosynthesis is an anabolic process.

Reason : The process of photosynthesis occurs in chlorophyll.

Ans : (c) A is true but R is false.

Photosynthesis is an anabolic process as it takes CO_2 and H_2O then assembles them into glucose. The process of photosynthesis occurs in chloroplast.

43. Assertion : In humans, there is a complex respiratory system.

Reason : Human skin is impermeable to gases.

Ans : (b) Both A and R are true but R is not the correct explanation of A.

Humans need more oxygen to maintain their high metabolic rates. Thus, a complex respiratory system has evolved so as to meet this need.

44. Assertion : Alveoli contain an extensive network of blood vessels.

Reason : Alveoli is the site where exchange of gases occurs.

Ans : (a) Both A and R are true and R is the correct explanation of A.

The alveoli of lungs are richly supplied with blood and are the sites where exchange of gases (O_2 and CO_2) occurs between blood and atmosphere.

45. Assertion : Excretion is the biological process by which harmful wastes are removed from an organism's body.

Reason : The mode of excretion is completely same in both unicellular and multicellular organisms.

Ans : (c) A is true but R is false.

Excretion is the biological process by which harmful metabolic wastes are removed from the body. The mode of excretion is completely different in unicellular organisms. In unicellular organisms, waste products are diffused into surrounding water through body

surface. While, in multicellular organisms, specialised organs perform the function of excretion. Thus, Assertion is true, but Reason is false.

46. Assertion : Plants excrete various waste products during their life processes.

Reason : They produce urea just like humans.

Ans : (c) A is true but R is false.

Like human beings and other organisms, plants also excrete various waste products during their life processes. The waste products include gums, CO_2 , O_2 , resins, rubber, etc.

Urea is produced in humans liver and excreted in the form of urine through urethra. Plants do not produce urea.

Thus, Assertion is true, but Reason is false.

47. Assertion : In anaerobic respiration, one of the end product is alcohol.

Reason : There is an incomplete breakdown of glucose.

Ans : (a) Both A and R are true and R is the correct explanation of A.

48. Assertion : Bile is essential for digestion of lipids.

Reason : Bile juice contains enzymes.

Ans : (c) A is true but R is false.

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