

LIFE PROCESSES : NUTRITION

EXERCISE # 1

A. Single Choice Type Questions

- Q.1** CO₂ and O₂ balance in atmosphere is due to
 (A) Photorespiration (B) Photosynthesis
 (C) Respiration (D) Leaf anatomy
- Q.2** During photosynthesis the oxygen in glucose comes from
 (A) Water
 (B) Carbon dioxide
 (C) Both from water and carbon dioxide
 (D) Oxygen in air
- Q.3** First stable compound in C₃ cycle is
 (A) Phosphoglyceraldehyde
 (B) Phosphoglyceric acid
 (C) Fructose-1-6 diphosphate
 (D) Glucose-6-phosphate
- Q.4** Dark reaction of photosynthesis occurs in the
 (A) Stroma of the chloroplast outside the lamellae
 (B) Space between the two membranes of the chloroplast
 (C) Membranes of the stroma lamellae
 (D) Thylakoid membrane of the grana
- Q.5** A specific function of light energy in the process of photosynthesis is to
 (A) Activate chlorophyll
 (B) Split water
 (C) Synthesis of glucose
 (D) Reduce CO₂
- Q.6** Digestion within a digestive tract is
 (A) Incomplete
 (B) Extracellular
 (C) The same as absorption
 (D) An irreversible process
- Q.7** Dark reaction in photosynthesis is called so because
 (A) It does not require light energy
 (B) Cannot occur during daytime
 (C) Occurs more rapidly at night
 (D) It can also occur in darkness
- Q.8** Phloem always flows from a
 (A) Solar source to sugar sink
 (B) Sugar sink to sugar source
 (C) Leaf to the xylem to the phloem
 (D) Leaf to a root
- Q.9** With regards to natural eating habits, a human is
 (A) An herbivore (B) A carnivore
 (C) An omnivore (D) A Granivore
- Q.10** Muscular contractions of alimentary canal are
 (A) Circulation (B) Deglutition
 (C) Peristalsis (D) Churning
- Q.11** Which of the following regions of the alimentary canal of man does not secrete a digestive enzyme ?
 (A) Oesophagus (B) Stomach
 (C) Duodenum (D) Mouth
- Q.12** A digestive enzyme, salivary amylase, in the saliva begin digestion of
 (A) Protein (B) Nucleic acids
 (C) Fats (D) Carbohydrates
- Q.13** If you chew on a piece of bread long enough, it will begin to taste sweet because
 (A) Maltase is breaking down maltose
 (B) Lipases are forming fatty acids
 (C) Amylase is breaking down starches to disaccharides
 (D) Disaccharides are forming glucose
- Q.14** In the presence of lactase, lactose breaks down into molecules of
 (A) Glucose and galactose
 (B) Glucose and fructose
 (C) Galactose only
 (D) Glucose only
- Q.15** Saliva has the enzyme

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- (A) Pepsin (B) Ptyalin
(C) Trypsin (D) Rennin
- Q.16** Pepsin digests
(A) Proteins in stomach
(B) Carbohydrates in duodenum
(C) Proteins in duodenum
(D) Fats in ileum
- Q.17** Curding of milk in the stomach is due to the action of
(A) Pepsin (B) Renin
(C) HCl (D) Tenin
- Q.18** Chief function of HCl is
(A) To maintain a low pH to prevent growth of micro-organisms
(B) To facilitate absorption
(C) To maintain low pH to activate pepsinogen to form pepsin
(D) To dissolve enzyme secreted in stomach
- Q.19** If the stomach did not produce any hydrochloric acid, which enzyme will not function ?
(A) Ptyalin (B) Trypsin
(C) Pepsin (D) Collagenase
- Q.20** Chief function of bile is
(A) To digest fat by enzymatic action
(B) To emulsify fat for digestion
(C) To eliminate waste product
(D) To regulate process of digestion
- Q.21** Where is bile produced ?
(A) In gall bladder
(B) In blood
(C) In liver
(D) In spleen
- Q.22** Ileum is
(A) First part of the small intestine
(B) Middle part of the small intestine
(C) Last part of the small intestine
(D) Not a part of the small intestine
- Q.23** Largest gland in human body is
(A) Liver (B) Pancreas
(C) Pituitary (D) Thyroid
- Q.24** The specific function of liver is
(A) Excretion
(B) Digestion
(C) Histolysis
(D) Glycogenesis and glycogenolysis
- Q.25** The original function of the vertebrate stomach was
(A) Storage
(B) Digestion
(C) Enzyme secretion
(D) Absorption

EXERCISE # 2

A. Very Short Answer Type Questions

- Q.1 Define heterotrophic nutrition.
- Q.2 What are heterotrophs ?
- Q.3 Which types of organisms are called consumers ?
- Q.4 What is saprophytic nutrition ?
- Q.5 Define saprophyte.
- Q.6 Define a herbivore.
- Q.7 What is carnivore ?
- Q.8 Which type of animal is called omnivore ?
- Q.9 Define digestion.
- Q.10 What is ingestion ?
- Q.11 Define egestion.
- Q.12 What is the mode of nutrition in *Amoeba* ?
- Q.13 What type of digestion occurs in *Paramecium* ?

B. Short Answer Type Questions

- Q.14 Differentiate between autotrophic and heterotrophic nutrition.
- Q.15 Distinguish saprophytes from parasites.
- Q.16 Differentiate between photosynthetic and holozoic nutrition.
- Q.17 How do saprophytic organisms obtain their nourishment ?
- Q.18 What is the importance of saprophytes ?
- Q.19 What is the action of hydrochloric acid of gastric juice ?

Q.20 Name a digestive juice that has no enzymes. What is the role of this juice ?

Q.21 Name the various parts of large intestine. What is the role of large intestine ?

C. Long Answer Type Questions

Q.22 Explain the mechanism of nutrition of *Amoeba* with the help of suitable diagram.

Q.23 Describe the various types of heterotrophic nutrition.

Q.24 Briefly describe the digestive system of humans.

Q.25 What happens to food in the small intestine ?

Q.26 Why chlorophyll is needed for photosynthesis.

LIFE PROCESSES : RESPIRATION

EXERCISE # 1

A. Single Choice Type Questions

- Q.1** Which one is anabolic process -
 (A) Respiration (B) Digestion
 (C) Photosynthesis (D) Ascent of sap.
- Q.2** A catabolic process is -
 (A) Absorption of minerals
 (B) Ascent of sap
 (C) Respiration
 (D) Assimilation
- Q.3** Exchange of gasses occurs through
 (A) Stomata
 (B) Lenticles
 (C) Root surfaces
 (D) All of the above
- Q.4** Glycolysis occurs in -
 (A) Cytoplasm
 (B) Mitochondria
 (C) Chloroplasts
 (D) Golgi complex
- Q.5** Krebs cycle operates in -
 (A) Endoplasmic reticulum
 (B) Chloroplasts
 (C) Golgi bodies
 (D) Mitochondria
- Q.6** Which one is a product of glycolysis -
 (A) Oxaloacetate
 (B) Pyruvate
 (C) Ethyl alcohol
 (D) Lactic acid
- Q.7** Adam's Apple occurs in -
 (A) Buffaloes
 (B) Dogs
 (C) Human males
 (D) Human females
- Q.8** Muscular partition present between thorax and abdomen is -
 (A) Pericardium (B) Pleura
 (C) Epiglottis (D) Diaphragm
- Q.9** Covering of lungs is -
 (A) Pleura (B) Pericardium
 (C) Epiglottis (D) Capsule
- Q.10** Gaseous exchange occurs in the lungs in the region of -
 (A) Trachea (B) Bronchi
 (C) Bronchioles (D) Alveoli
- Q.11** Trachea and bronchi have -
 (A) C-shaped cartilaginous rings
 (B) Complete cartilaginous rings
 (C) Complete chitinous rings
 (D) C-shaped chitinous rings
- Q.12** Respiratory tract is lined by ciliated epithelium. The function of cilia is to -
 (A) Trap dust
 (B) Trap germs
 (C) Push out mucus with trapped germs and dust
 (D) Push in air vigorously
- Q.13** If the thoracic wall but not the lungs is punctured -
 (A) The lungs get inflated
 (B) The man dies as the lungs get collapsed
 (C) The breathing rate decreases
 (D) The breathing rate increases
- Q.14** Skin is an ideal respiratory organ in frog because it is -
 (A) Highly vascular
 (B) Kept moist
 (C) Devoid of hair and scales
 (D) All the above
- Q.15** Respiration is -
 (A) Anabolic and exergonic
 (B) Anabolic and endergonic
 (C) Catabolic and exergonic
 (D) Catabolic and endergonic
- Q.16** Glycolysis occurs in -
 (A) Anaerobic organisms
 (B) Muscle cells
 (C) Prokaryotic cells

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(D) Almost all the cells

Q.17 The blood coming out of lungs is richer than that entering into lungs in -

- (A) CO₂ (B) O₂
(C) Both (D) None of these

Q.18 Anaerobic respiration is likely to occur in -

- (A) Ants (B) Earthworms
(C) Echinoderms (D) Tapeworms

Q.19 Respiratory quotient is -

- (A) CO₂/O₂ (B) O₂/CO₂
(C) CO₂/N₂ (D) N₂/CO₂

Q.20 Epiglottis guards the opening of -

- (A) Eustachian tube (B) Glottis
(C) Lungs (D) Internal ear

Q.21 Skin is an accessory respiration in -

- (A) Humans (B) Frog
(C) Rabbit (D) Lizard

Q.22 The process of respiration is -

- (A) Anabolic (B) Catabolic
(C) Metabolic (D) Anaerobic

Q.23 Lungs are covered with the covering of -

- (A) Pleural membrane
(B) Pericardium
(C) Peritoneum
(D) Mucous membrane

EXERCISE # 2

A. Very Short Answer Type Questions

- Q.1 What is respiration ?
- Q.2 What are stomata ?
- Q.3 Name the energy currency of living system.
- Q.4 What is respiratory organ ?
- Q.5 What is diaphragm ?
- Q.6 Define glottis.
- Q.7 What is epiglottis ?
- Q.8 Define breathing
- Q.9 What is inspiration ?
- Q.10 Define expiration.
- Q.11 Name the common passage for food and air.
- Q.12 What is the shape of diaphragm during expiration ?
- Q.13 What is the shape of cartilaginous rings in trachea ?

B. Short Answer Type Questions

- Q.14 Differentiate between photosynthesis and respiration.
- Q.15 Distinguish between breathing and respiration.
- Q.16 Differentiate between bronchioles and tracheoles.
- Q.17 What is the composition of inhaled and exhaled air ?
- Q.18 Differentiate between inspiration and expiration.
- Q.19 What are the functions of nasal passage ?

C. Long Answer Type Questions

- Q.20 Name the respiratory organs in the following :
(a) a fish (b) a bird (c) an earthworm
- Q.21 How is respiration different from breathing ?
- Q.22 Explain the processes of 'aerobic' respiration and 'anaerobic' respiration.
- Q.23 Draw a diagram showing 'human respiratory system'. Label its following parts
(i) Larynx (ii) Trachea
(iii) Primary Bronchus (iv) Lungs.
- Q.24 Why do the walls of the trachea not collapse when there is less air in it & write its importance ?

LIFE PROCESSES : TRANSPORTATION

EXERCISE # 1

A. Single Choice Type Questions

- Q.1** Water will be absorbed by root hairs when -
 (A) Concentration of solutes in the cell sap is high
 (B) Plant is rapidly respiring
 (C) They are separated from soil by a permeable membrane
 (D) Concentration of salts in the soil is high
- Q.2** Which of the following is connected with transport of water in plants ?
 (A) Phloem (B) Xylem
 (C) Epidermis (D) Cambium
- Q.3** The transpiration in plants will be lowest -
 (A) When there is high humidity in the atmosphere
 (B) There is excess of water in the cell
 (C) Environmental condition share very dry humidity
 (D) High wind velocity
- Q.4** Which of the following process keeps plant cool ?
 (A) Transpiration (B) Guttation
 (C) Photosynthesis (D) Translocation
- Q.5** Rate of transpiration in a dorsiventral leaf is -
 (A) Greater at the upper surface
 (B) Greater at the lower surface
 (C) Equal at both the surface
 (D) None of the above
- Q.6** In a closed circulatory system blood is completely enclosed within -
 (A) The skeleton (B) Sinuses
 (C) Vessels (D) Hearts
- Q.7** In which of the following groups of animal the heart pumps only deoxygenated blood ?
 (A) Fishes (B) Reptile
 (C) Birds (D) Amphibians
- Q.8** Haemoglobin is found in -
 (A) All invertebrates
 (B) Only in vertebrates
 (C) Earthworm and rabbit
 (D) Cockroach and earthworm
- Q.9** The smallest blood vessel in the body is a -
 (A) Capillary (B) Artery
 (C) Vena cava (D) Vein
- Q.10** The exchange of materials between blood and interstitial fluid occurs only at the -
 (A) Veins (B) Capillaries
 (C) Arteries (D) Arterioles
- Q.11** Both erythrocytes and leucocytes are formed in the -
 (A) Bone marrow (B) Thymus
 (C) Arterial walls (D) Lymph nodes
- Q.12** An erythrocyte lives for approximately -
 (A) One week (B) One month
 (C) Four months (D) One year
- Q.13** Which blood constituent makes up more the volume of blood ?
 (A) Red blood cells
 (B) Plasma
 (C) Blood proteins
 (D) White blood cells
- Q.14** Number of RBC increases if one lives at higher altitude because -
 (A) There is less oxygen on mountains
 (B) More heat is required in body for producing body warmth
 (C) There are no germs in mountain air
 (D) There is more oxygen on mountains

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- Q.15** "Leukaemia" a cancer is due to -
(A) Excessive production of WBCs
(B) Excessive production of RBCs
(C) Excessive production of platelets
(D) All of these
- Q.16** Females need more dietary iron than males because -
(A) They lose iron during menstruation
(B) They have less bone marrow
(C) They have large volume of blood
(D) They are less able to absorb iron
- Q.17** Blood clot inside a blood vessel is known as -
(A) Thrombosis (B) Agglutinin
(C) Clot (D) Thrombus
- Q.18** In human, the prothrombin required for blood clotting is produced in -
(A) Liver (B) Stomach
(C) Pancreas (D) Spleen
- Q.19** Oxygenated blood is carried by -
(A) Pulmonary vein
(B) Pulmonary artery
(C) Hepatic portal vein
(D) Renal vein
- Q.20** In mammals, oxygenated blood enters the heart at the -
(A) Right atrium
(B) Left atrium
(C) Right ventricle
(D) Left ventricle
- Q.21** Which chamber of a bird heart does oxygen rich blood first enter ?
(A) Right atrium (B) Right ventricle
(C) Left ventricle (D) Left atrium
- Q.22** Which chamber of the heart has the thickest muscular walls ?
(A) Right atrium (B) Left atrium
(C) Right ventricle (D) Left ventricle
- Q.23** The tricuspid valve occurs between the -
(A) Right auricle and right ventricle
(B) Pulmonary aorta & Left ventricle
(C) Cortico-systemic aorta and left ventricle
(D) Left ventricle & Right auricle
- Q.24** Which one of the following is called pace maker of the heart ?
(A) SA node (B) AV node
(C) Bundle of His (D) AV septum
- Q.25** The colour of lymph is -
(A) White (B) Yellow
(C) Colourless (D) Milky

EXERCISE # 2

A. Very Short Answer Type Questions

- Q.1 What is transportation ?
- Q.2 Define circulatory system.
- Q.3 What is life span of RBC ?
- Q.4 What is the function of blood platelets ?
- Q.5 List components of blood.
- Q.6 Define serum.
- Q.7 Name the valves at auriculoventricular apertures.
- Q.8 Name the blood vessels which carry deoxygenated blood to (a) Lungs (b) Heart.
- Q.9 Define double circulation.
- Q.10 What is transpiration ?
- Q.11 Name the constituent cells of xylem.
- Q.12 What are tracheary elements ?

B. Short Answer Type Questions

- Q.13 Enumerate the functions of transportation in human.
- Q.14 Enumerate the various modes of transportation.
- Q.15 Describe the structure and function of blood cell ?
- Q.16 Write a note on arteries ?
- Q.17 Distinguish an artery from a vein.
- Q.18 Explain what is double circulation.
- Q.19 Write the note on xylem.
- Q.20 Write the differences between xylem and phloem.
- Q.21 How will you define transpiration ?

C. Long Answer Type Questions

- Q.22 Describe the structure and functioning of heart with the help of a diagram.
- Q.23 What are components of blood and what are the functions of each ?
- Q.24 Explain the blood group in human.
- Q.25 Write the functions of blood.

EXERCISE # 1

A. Single Choice Type Questions

- Q.1** Useful materials filtered out in nephric filtrate are mostly reabsorbed in the area of -
 (A) Bowman's capsule
 (B) Distal convoluted tubule
 (C) Loop of Henle
 (D) Proximal convoluted tubule
- Q.2** Contractile vacuole of *Amoeba* takes part in -
 (A) Locomotion
 (B) Digestion of food
 (C) Ingestion of food
 (D) Osmoregulation
- Q.3** Tannins are deposited in -
 (A) Bark (B) Old xylem
 (C) Sieve tubes (D) Both A and B
- Q.4** Every plant cell has a dump for waste products. It is -
 (A) Cytoplasm (B) Central vacuole
 (C) Golgi apparatus (D) Lysosome
- Q.5** Basic filtration unit of kidney is -
 (A) Ureter (B) Glomerulus
 (C) Urethra (D) Collecting tubule
- Q.6** Dilution of concentration of urine is determined by availability of -
 (A) Hormone thyroxine
 (B) Hormone thymosine
 (C) Hormone ADH
 (D) Both A and B
- Q.7** Excretion means -
 (A) Removal of substances present in excess
 (B) Formation of those substances that have some role in the body
 (C) Removal of such substances that have never been part of the body
 (D) All of the above
- Q.8** Ureotelic animals are those that eliminate the nitrogenous wastes predominately in the form of -
 (A) Uric acid (B) Ammonia
 (C) Amino acids (D) Urea
- Q.9** A mammal excretes nitrogen in the form of -
 (A) Ammonium ions (B) Amino acids
 (C) Urea (D) Uric acid
- Q.10** Which one of the following sets of animals produces the same substances as their chief excretory product ?
 (A) Cockroach, camel and lizard
 (B) Man, dog and camel
 (C) Amoeba, ant and antelope
 (D) Fowl, fish and frog
- Q.11** A Malpighian tubule empties urine into the
 (A) Gut (B) Coelom
 (C) Lymph (D) Ureters
- Q.12** Kidneys are not only organs of excretion. Their work is supplemented by -
 (A) Liver (B) Heart
 (C) Large intestine (D) Skin
- Q.13** The conversion of protein waste, the ammonia into urea occurs mainly in -
 (A) Kidney (B) Lungs
 (C) Liver (D) Intestine
- Q.14** The Bowman's capsule functions as a
 (A) Filter
 (B) Suction pump
 (C) Egestion
 (D) All of the above
- Q.15** Which of the following is the part of kidney ?
 (A) Pelvis (B) Ileum
 (C) Fibula (D) Henle loop
- Q.16** The basic unit of a vertebrate kidney is the -
 (A) Ureter
 (B) Nephron
 (C) Malpighian tubule
 (D) Islets of langerhans
- Q.17** Excess of water in urine resulting from kidney failure is known as -
 (A) Ureotelic
 (B) Uricotelic
 (C) Diabetes Malitus
 (D) Diabetes insipidus

EXERCISE # 2

A. Very Short Answer Type Questions

- Q.1 Define excretion ?
- Q.2 What are waste products ?
- Q.3 What is excretory system ?
- Q.4 What is the function of ADH ?
- Q.5 What is unit of human kidney ?
- Q.6 What is glomerulus ?
- Q.7 Name the components of a Malpighian capsule.
- Q.8 Name the structure which absorb glucose in nephron.
- Q.9 Define micturition.
- Q.10 What is Bowman's capsule ?
- Q.11 Name a waste product of plants which is used as medicine.
- Q.12 Where is urine stored in the body ?
- Q.13 Write the name of membrane of vacuole.

B. Short Answer Type Questions

- Q.14 Enumerate functions of kidney.
- Q.15 Name the various waste products produced in human beings.
- Q.16 Name the different waste products by plants.
- Q.17 How are plants able to manage their waste products ?
- Q.18 Write a short note on ultra filtration.
- Q.19 Write a short note on secretion.

Q.20 Describe the mechanism of urine formation.

Q.21 Describe the mechanism by which human beings are able to regulate the concentration of urine.

C. Long Answer Type Questions

Q.22 Describe the various components of urinary system of man.

Q.23 Explain the structure of nephron with the help of a labelled diagram.

Q.24 Draw a diagram of the human urinary system and label in it
(i) Kidney (ii) Ureter (iii) Urinary bladder
(iv) Urethra.