Short Answer Type Questions – I

[2 marks]

Q. 1 What is compensation point?

Ans. When the rate of photosynthesis is equal to rate of respiration, it is called as compensation point. The rate of liberation of O_2 during photosynthesis is equal to the rate of liberation of CO_2 during respiration. Thus, there is no net uptake of gases from the environment. Compensation point is usually reached at dusk and dawn and on a cloudy day.

Q. 2. What happens to visible light of the sun when it falls on chlorophyll?

Ans. Visible light of the sun consists of seven colours-violet, indigo, blue, green, yellow, orange and red. Out of these lights of different wavelengths, chlorophyll absorbs mainly blue, violet, red and orange lights but does not absorb the green light. It is due to the reflection of green light by chlorophyll of the plants that the plants look green in colour.

Q. 3. How does water affect the rate of photosynthesis in plants?

Ans. Water controls the opening and closing of stomata. The deficiency of water causes stomata to open very little or it may even remain dosed. Therefore, CO2 (required as a raw material for photosynthesis) cannot enter into the leaves and thus lack of water slows down the rate of photosynthesis.

Q. 4. What is peptic ulcer? How is peptic ulcer caused?

Ans. An ulcer on the inner membrane lining of the stomach is called peptic ulcer. Peptic ulcer is caused by the high acidity of gastric juice secretions.

Q. 5. How does respiration occur in the leaves?

Ans. Leaves have tiny openings on their lower surface called stomata. The exchange of gases takes place through the stomata by the process of diffusion.

Q. 6. What is ascent of sap?

Ans. Absorbed water from the soil also contains dissolved minerals (nitrates, phosphates, etc.) and hence it is called sap. This sap moves upwards due to the 'transpiration pull' developed in the xylem elements. Thus, transportation of sap from roots to the leaves at the top is called ascent of sap.

Q. 7. What is transpiration pull?

Ans. Water in the mesophyll cells of leaves (cells located below the stomata) is in contact with water or sap in xylem of leaf petiole, stem and root. This water evaporates by the process of transpiration. Thus, due to transpiration water is pulled upward which creates an upward suction force called 'transpiration pull'.

Q. 8. What is root pressure?

Ans. It is a pressure developed in the xylem due to metabolic activity of the root cells. It is a hydrostatic pressure developed in the root system that pumps the water or sap in the root xylem.

Q. 9. What is the role of intercostal muscles in respiration and where are these found?

Ans. Intercostal muscles are found in between the ribs. Their contraction and relaxation changes the volume of thoracic cavity so that air can enter and leave the lungs.

Q. 10. State the function of Bowman's capsule and glomerulus.

Ans. Bowman's capsule and glomerulus have semipermeable walls. The glomerulus, is a tuft of capillaries contained in Bowman's capsule. The water and dissolved substances (wastes and useful) are filtered into the Bowman's capsule and from here they are filtered into the tubule. Thus, both the structures act as filtering apparatus.

Q. 11. What happens to glucose which enters the nephron along with the filtrate?

Ans. Glucose along with filtrate runs down through the long renal tubule by the action of cilia. Glucose amino acids, salts, etc., are reabsorbed by the tubular cells and then secreted into the capillary blood cells by diffusion.

Q. 12. Write down the functions of lymph nodes.

Ans. Functions of lymph nodes are:
(i) Lymph nodes produce and maintain the lymphocytes of blood. These are only found in the mammals.
(ii) Lymph nodes filter the blood and remove poisonous and foreign substances, e.g., bacteria debris, etc.

Q. 13. Why is cigarette smoking injurious to health?

Ans. During smoking, the cigarette fumes make the walls of alveoli very thin which causes rupturing of alveoli. This reduces the surface area for gaseous exchange in lungs. To make up for the reduced gaseous exchange, the heart has to pump more blood. This over-burdening of the heart may cause heart failure.

Q. 14. State the function of epiglottis.

Ans. At the top of the trachea (or wind pipe) there is a flap of cartilage called epiglottis. The function of epiglottis is to cover the mouth of trachea (or wind pipe) when we swallow food so that the food may not enter the trachea (or wind pipe).

Q. 15. Why are white blood corpuscles called soldiers of the body?

Ans. White blood corpuscles engulf (phagocytose) the foreign matter (bacteria, dust and other foreign material) entering the body, and are hence called soldiers. They produce antibodies against antigens, and antitoxins against toxins.

Q. 16 Name the parts of the body responsible for excretion in
(i) Amoeba
(ii) Earthworm.

Ans. (i) Amoeba: Contractile vacuole
(ii) Earthworm: Nephridia

Q. 17. What happens to the rate of breathing during vigorous exercise and why?

Ans. During vigorous exercise, our body requires more energy and for this purpose more oxygen is needed, so the rate of breathing is increased. Oxygen intake rate increases by about 20 to 25 times.

Q.18. How do the guard cells regulate opening and closing of stomatal pores?

Ans. The swelling of guard cells due to absorption of water causes opening of stomatal pores while shrinking of guard cells closes the pores. Opening and closing of stomata occurs due to turgor changes in guard cells. When guard cells are turgid, stomatal pore is open while in flaccid conditions, the stomatal aperture closes.

Q. 19. Two green plants are kept separately in oxygen-free containers, one in the dark and the other in continuous light. Which one will live longer? Give reasons.

Ans. Plant kept in continuous light will live longer. Because it will be able to produce oxygen required for its respiration by the process of photosynthesis

Q. 20. In each of the following situations what happens to the rate of photosynthesis?
(i) Cloudy days **(ii) No rainfall in the area**
(iii) Good manuring in the area **(iv) Stomata get blocked due to dust**
Ans. (i) Decreases (ii) Decreases
(iii) Increases (iv) Decreases

Q. 21. Name the energy currency in the living organisms. When and where is it produced?

Ans. Adenosine triphosphate (ATP) produced during respiration in living organisms and also during photosynthesis in plants.

Q. 22. Match the terms in column (A) with those in column (B):

Column A	**Column B**
(i) Trypsin	(a) Pancreas
(ii) Amylase	(b) Liver
(iii) Bile	(c) Gastric glands
(iv) Pepsin	(d) Saliva

Ans. (i) – (a); (ii) – (d);
(iii) – (b); (iv) – (c)

Q. 23. Explain the statement, "Bile does not contain any enzyme but it is essential for digestion.'

Ans. Bile does not contain any enzyme but it is essential for digestion because bile is alkaline and contain salts which helps to emulsify the fat present in the food. So, the bile perform two functions:
(a) The food coming from the stomach is acidic and has to be made alkaline for the pancreatic enzymes to act.
(b) The bile salts breakdown the fat present in the food into smaller globules. This increases the efficiency of enzymes in the small intestine to digest the food effectively.