Solution

LIFE PROCESSES TP 5

Class 10 - Science

Section A

1. **(d)** Water level will not rise in bent tube and CO_2 will not be absorbed

   Explanation: The rise in the level of water indicates that CO_2 is produced by germinating seeds during respiration. Actually, the germinating seeds respire and produce CO_2, which is absorbed by the KOH solution. This creates a vacuum in the conical flask. The air present in the bent glass tube moves into the conical flask. This pulls the water in the bent tube further up.
   So, if a student puts germinating seeds into the conical flask and misses to put KOH solution in a hanging test tube then the water level will not rise in a bent tube and CO_2 will not be absorbed.

2. **(c)** Brush
   Explanation: To avoid damage of the peel, we generally used brush.

3. **(d)** Germinating gram seeds
   Explanation: Germinating seeds respire actively at a faster rate. Germinating gram seeds produce CO_2 gas.

4. **(c)** A is true but R is false.
   Explanation: 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.
   A is true but R is false.

5. **(b)** B and C
   Explanation: Stomatal pore does not have nucleus.

6. **(c)** They have thick elastic walls without valves inside, blood flows under high pressure and carry blood away from the heart to different parts of the body
   Explanation: They have thick elastic walls without valves inside, blood flows under high pressure and carry blood away from the heart to different parts of the body.

7. **(c)** swollen in both
   Explanation: Solution in both A and B are hypotonic to raisins and hence they swell.

8. State True or False:

   (i) **(a)** True
   Explanation: True

9. Fill in the blanks:

   (i) 1. sphygmomanometer

Section B

10. (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)

11.

Artery	Vein
An artery carries blood from the heart to different organs of the body.	A vein collects blood from different organs of the body and brings it back to the heart.
Blood flows under great pressure.	Blood flows under less pressure.
It has a thick muscular wall.	Wall is thin
It is non-collapsible	It is collapsible.
It contains oxygenated blood (exception pulmonary	It contains deoxygenated blood (Exception pulmonary vein)

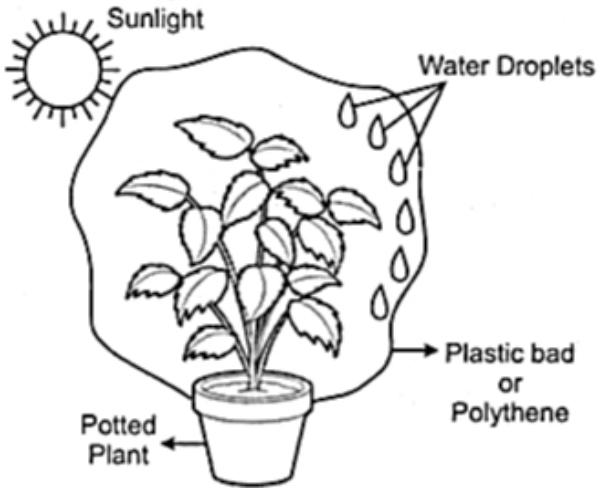
artery).	
Valves are absent.	Valves are present.
Mostly deep seated.	Mostly superficial.

12. Loss of excess water from the leaves of plants with the help of stomata is called as transpiration.

Transpiration Experiment

Material Required:

A potted plant, A polythene, Tape.



i. Take a potted plant and enclose the leaves of the plant with a big plastic or polythene bag.
ii. Now keep the plant in sunlight for two hours.
iii. After sometime you will observe the water droplets on the polythene sheet.
iv. It depicts the loss of water from the leaves of the plant depicting transpiration.

13. i. The blood with wastes is coming from a vein.
ii. (c) Kidneys

Section C

14. Yes, an experiment set-up by using two-head bottle, water reservior, germinating seed, lime water, beaker and delivery tube.

15. i. The urea content is higher in structure B, whereas the concentration of useful components such as glucose is low. This shows that the kidney performs the function of filtration. It filters out useful substances, e.g. glucose, amino acids into the blood, while throwing out nitrogenous waste, e.g. urea and urine.
ii. There would be glucose in B as without insulin, blood glucose would not be converted to glycogen for storage. The kidney attempts to reduce the blood glucose level by excreting it in urine.The glucose in digested food is absorbed by the intestinal cells into the bloodstream, and is carried by blood to all the cells in the body. However, glucose cannot enter the cells alone. It needs assistance from insulin to penetrate the cell walls

16. If plant is releasing carbon dioxide and taking in oxygen during the day, it means that respiration is happening in plant. But it does not mean that photosynthesis is not happening. Carbon dioxide released after respiration comes out of stomata. For photosynthesis, the plant takes in carbon dioxide from atmosphere. In other words, plant does not depend on respiration for carbon dioxide for photosynthesis.

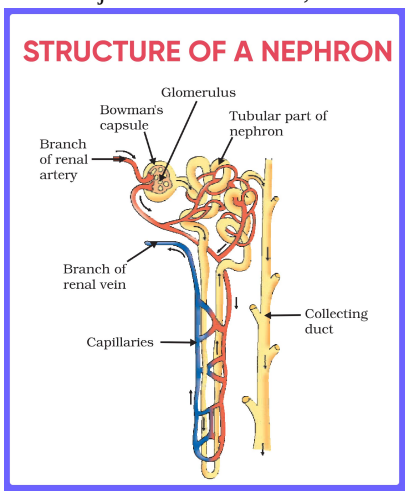
Section D

17. i. (d) Ingestion → Digestion → Absorption → Assimilation
ii. (a) Cystic duct
iii. (a) A and B
iv. (b) They increase the surface area for absorption of food
v. (c) Fats

Section E

18. i. Basic filtration in the kidney is like in the lungs, is a cluster of very thin-walled blood capillaries. Each capillary cluster in the kidney is associated with the cup-shaped end of a tube that collects the filtered urine. Each kidney has large numbers of these filtration units called nephrons packed close together. Some substances in the initial filtrate, such as glucose, amino acids, salts

and a major amount of water, are selectively re-absorbed as the urine flows along the tube.



ii. The amount of water reabsorbed by nephron depends on two major factors: (i) The amount of excess water present in the body. (ii) The amount of dissolved waste to be excreted out of the body.

19. **Carbohydrate Digestion:** Digestion of carbohydrates starts with a buccal cavity where salivary enzymes break down the starch into simple sugar molecules. Other sugar molecules are breakdown to glucose in a small intestine.
Protein digestion: Proteins are partially digested by pepsin secreted by gastric glands present in the stomach. Then Pancreatic juice secrets trypsin and chymotrypsin enzymes in the small intestine where complete digestion of proteins takes place.
Fat Digestion: Fats are digested in the small intestine. Bile juice present in the liver emulsifies the fat which breaks fats into small globules. These small fat globules are converted into glycerol and fatty acids by the Lipase enzyme.