

SECTION - A

Q. Nos. 1-8 are of very short answer type carrying 1 mark each. Of these the first five questions are of multiple choice type which have to be answered simply as A, B, C or D. The remaining questions have to be answered in approximately 1—20 words each.

Q. 1. Pick out the monoecious plant from the following:

- (a) Coccinia
- (b) Mulberry
- (c) Cucumber (cucurbit)
- (d) Date-palm

Ans. (c)

Q. 2. Diabetes mellitus is explained below in four statements. Pick out the false statement

- (a) Failure of Insulin secretion produces this disease
- (b) Blood sugar is lower than the renal threshold for glucose
- (c) Glucose appears in the urine
- (d) Thirst is enhanced due to urinary loss of water

Ans. (b)

Q. 3. A boy has the blood group AB. What is true of the inheritance of this blood group in his case?

- (a) His parents should be one with O group and the other with B group
- (b) His parents should be one with O group and the other with A group
- (c) Both his parents should be with B group
- (d) His father should be with A group and mother with B group.

Ans. (d)

Q. 4. The descendant of Colewort is

- (a) beet root
- (b) carrot
- (c) cabbage
- (d) radish

Ans. (b)

Q. 5. Fever, cough, sputum containing blood, pain in the chest and loss of body weight are symptoms of

- (a) Typhoid
- (b) Cholera
- (c) Tuberculosis
- (d) Tetanus

Ans. (c)

Q. 6. In some germinating seeds, enzymes mobilise nutrients in the cotyledons. Name the phytohormone that stimulates the production of such enzymes.

Q. 8. Name the enzyme that catalyses the formation of carbonic acid in erythrocytes.

SECTION - B

Q. Nos. 9-18 are of short answer type carrying 2 marks each. Answer them in approximately 20 words each

Q. 10. Differentiate between transpiration and guttation. Name the morphological parts related with these two processes.

Q. 11. Explain the scientific reason for growing *Azolla pinnata* in a rice field.

Q. 12. Name the first germ layer that gets differentiated from the inner mass of cells of the mammalian blastula. Name any one organ developed from this germ layer.

Q. 14. Mention the function of
(a) Underground stem of ginger
(b) Axillary bud of citrus

Q. 17. How does gravitational water differ from capillary water in the soil? Which one of these is available to the plant?

Q. 18. An aquarium fish and a pigeon were fed on protein diet. In what different forms would they excrete their nitrogenous wastes? Why do they excrete so differently?

SECTION - C

Q. Nos. 19-27 are of short answer type carrying 3 marks each. Only one of these questions (Q. 27) based on drawing skill has internal choice. Answer the rest in approximately 30-50 words each.

Q. 19. What for is amniocentesis performed? Explain the procedure.

Q. 22. What are LDL and HDL? Which one of them is harmful and how?

Q. 24. Expand MRI How is this technique superior to CT scan?

Q. 25. In which organ are Leydig cells and Sertoli cells located? Differentiate between these cells with reference to their location in the organ and their functions.

Q. 26. The police department could obtain a bunch of hair from the gripped hand of a murdered man. There were two persons suspected in this criminal case. How will the forensic department give a clue to the actual criminal? Explain the technique

Q. 27. Draw a labelled diagram of a portion of sectional view of retina showing its basic structure (No description is required).

Or

Draw a labelled diagrammatic sketch of the human alimentary canal below the level of the common bile duct opening into the duodenum (No description is required)

SECTION - D

Q. Nos. 28-30 are long answer type carrying 5 marks each. Q. Nos. 29 and 30 have internal choice. Answer these questions in approximately 80-120 words each.

Q. 28. (a) Schematically represent the various steps in cyclic photophosphorylation in Angiosperms.

(b) What is the function of carotenoids in the leaves?

(c) Hydrilla, a submerged green plant is supplied with sunlight and labelled $C^{18}O_2$. In which compound will this heavier O_2 appear as a result of photosynthesis?

Q. 29. (a) Draw the LS. of human heart showing the internal structure. Label the parts of the left side of the heart and the blood vessels that enter and leave the chambers of the same side.

(b) What is the significance of the remnants of sinus venosus in the mammalian heart?

Or

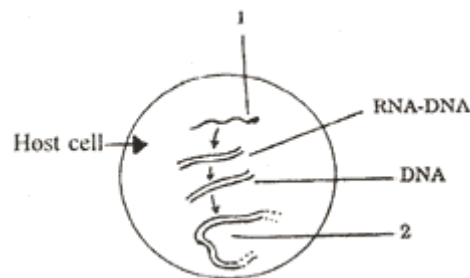
(a) Draw a labelled diagram of a human ovum just released by the mature Graafian follicle.

(b) Why is this ovum called alecithal?

(c) Where is this ovum fertilised under normal conditions?

(d) What is the role of Graafian follicle if the ovum is fertilised?

Q. 30. The diagram below illustrates the attack of a virus on a host cell.



(a) Name the parts numbered 1 and 2.

(b) Describe the functions performed by the part no. 1 on its entry into the host cell.

(c) What are such viruses called?

(d) Name any two human diseases caused by such viruses.

Or

A geneticist was tracing the inheritance of eye-colour in *Drosophila* flies. He crossed a red eyed male with a white eyed female.

(a) Represent this cross showing the phenotypes and genotypes of the parents and the progeny.

(b) What is the normal eye colour in these flies? Give its mutant form.

(c) What is the inference drawn from the inheritance of the eye colour based on the observation of this cross?