

## 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.** The functions of bile are listed below. Pick out the false statement.

- (a) Bile neutralises the acidic traces of food
- (b) It provides an alkaline medium for the intestinal proteases
- (c) It contains a lipase
- (d) Its salts emulsify fats

**Ans.** (c)

**Q. 2.** A woman is a sickle cell carrier. What is true of the inheritance of this genetic disorder in this woman?

- (a) It is a sex-linked trait
- (b) Her mother could be normal and her father could be a carrier
- (c) Both the parents should be suffering from the sickle cell anaemia
- (d) Both the parents could be normal (neither suffer nor carrier)

**Ans.** (a)

**Q. 3.** Muscular rigidity, lockjaw and painful spasm are main symptoms of

- (a) Tuberculosis
- (b) Cholera
- (c) Tetanus
- (d) Chicken pox

**Ans.** (c)

**Q. 4.** One of the plants bearing inflorescence showing dichasial cyme is

- (a) Mustard
- (b) Banana
- (c) Coriander
- (d) Jasmine

**Ans.** (d)

**Q. 5.** The tetraploid ancestor of the modern wheat is

- (a) *Triticum monococcum*
- (b) *Triticum durum*
- (c) *Aegilops speltoides*
- (d) *Aegilops squarrosa*

**Ans.** (a)

**Q. 6.** Some plants close their stomata to conserve water under severe drought conditions. Name the phytohormone that helps them to do so.

**Q. 8.** Name the cells that synthesise collagen.

## **SECTION - B**

Q. Nos. 9-18 are of short answer type carrying 2 marks each. Answer them in approximately 20-30 words each.

**Q. 10.** Describe the role of potassium ions in the opening and closing of stomata.

**Q. 11.** Explain the scientific reason for growing a leguminous crop like groundnut prior to a cereal crop.

**Q. 12.** Why is a mammalian heart referred to a myogenic?

**Q. 14.** Mention the modified function of:

- (a) tap root of radish
- (b) axillary bud of grapevine

**Q. 17.** Why do some herbaceous plants have hydathodes? Under what conditions do they help the plants?

**Q. 18.** A pigeon and a cat 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.** Test tube baby is a boon to a Woman who cannot conceive normally Explain the procedure involved **3**

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

**Q. 24.** Why does our body temperature rise when infected. How does moderate fever help in body defence?

**Q. 25.** What is meant by a portal vein? Name the two portal veins in the human body Specify the function of any one of them

**Q. 26.** Two claimant fathers filed a case against a lady, claiming to be the father of her only daughter. How could this case be settled Identifying the real biological father?

**Q. 27.** Draw a vertical section of the human eye and label any six of those parts only through which the light rays pass and fall on the retina.

Or

Draw a simple diagram of a human nephron. Label any six parts.

## SECTION - D

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

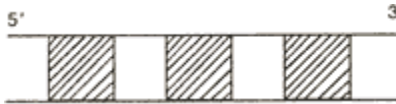
**Q. 28.** (a) Schematically represent non-cyclic photophosphorylation in Angiosperms, giving nil the components  
(b) Why is the process called non-cyclic?

**Q. 29.** (a) Draw a labelled sketch of a myelinated neuron showing one motor end plate.  
(b) Name the mode of nerve impulse conduction along a myelinated nerve fibre.  
(c) Besides blood, what else supplies nutrients to the neurons in the brain?

Or

(a) Draw an electron microscopic view of a mammalian sperm. Label any six internal structures of the sperm.  
(b) Mention the function of any one part in the head and middle piece of the sperm.

**Q. 30.** Illustrated below is a DNA segment which constitutes a gene:



(a) Will the whole gene be transcribed into RNA primarily? State “yes” or “no”.  
(b) Name the shaded and the unshaded parts of the gene.  
(c) Explain how these genes express.  
(d) How is this gene different from prokaryotic gene in its expression?

Or

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

(a) What should be the phenotypes of the flies the geneticist should select if he wanted to perform a reciprocal cross? Represent the reciprocal c showing the phenotypes and genotypes of the selected flies and their progeny.

(b) What is established through the results of a reciprocal cross with reference to the inheritance of a trait in general?