

## **SECTION - A**

- Q. 1.** Where are the pigments forming the photosystem located in the chloroplasts? **1**
- Q. 2.** What does “leg” in leghaemoglobin refer to? Why is this pigment called oxygen-scavenger? **1**
- Q. 3.** Name the category of regeneration, which involves the repatterning of the whole body from small fragments. Name one animal in which it occurs. **1**
- Q. 4.** Name the antifreeze compounds that help the fishes living in Antarctica in seawater even at temperature below 0<sup>0</sup> C. **1**
- Q. 5.** What is tissue-typing in organ transplantation in humans? **1**

## **SECTIONS - B**

- Q. 6.** What is oxidative decarboxylation of pyruvic acid? When does it occur? **2**
- Q. 7.** A person is suffering from calcium deficiency in spite of taking a calcium rich diet. Explain how this condition may have occurred. **2**
- Q. 8.** What is chloride shift? Explain. **2**
- Q. 9.** How are the two heart sounds produced during cardiac cycle? Which one of these is of longer duration? **2**
- Q. 10.** Mention any two differences between auxetic growth and multiplicative growth. **2**
- Q. 11.** Give the collective term for chemicals such as hyaluronidase and acrosin. Where are they contained? Give the function of any one of them. **2**
- Q. 12.** Name the two basic types of competition found amongst organisms. Which one these is more intense and why? **2**
- Q. 13.** What does the term biodiversity refer to? Mention any two factors which pose threat to bio-diversity. **2**
- Q. 14.** What is acne? How is acne considered the commonest problem of almost all adolescents? **2**
- Q. 15.** Define mutation. List the three way in which mutations can arise. **2**

Or

How is mutation breeding carried out for developing crop varieties?

## SECTION - C

**Q. 16.** What is thermal stratification in deep water bodies? Mention one advantage of autumn and spring turnover. How are organisms living in temperate lakes benefited by it? **3**

**Q. 17.** Which one gas is most abundant out of the four common greenhouse gases? Discuss the effect of this gas on the growth of plants. **3**

**Q. 18.** What is a transgenic crop? State two advantages of the technique involved in the production of transgenic crops over breeding activities. **3**

**Q. 19.** Enumerate three properties of cancer cells, which distinguish them from normal cells. **3**

**Q. 20.** A sperm has just fertilised a human egg in the fallopian tube. Trace the events that the fertilised egg will undergo up to the implantation of the blastocyst in the uterus. **3**

**Q. 21.** Draw a diagram of the L.S. of a mature angiospermic (anatropous) ovule. Label any six parts. **3**

Or

Draw a diagram of the transverse section of an angiosperm anther. Label any six parts.

**Q. 22.** How are myelinated axons more efficient than the non-myelinated axons for the conduction of nerve impulses? **3**

**Q. 23.** Why is viviparity considered advantageous to the vertebrates that lay shelled eggs? **3**

**Q. 24.** What causes wilting and drooping of leaves during a hot summer afternoon? Explain. **3**

**Q. 25.** State three criteria of essentiality of an element in plant nutrition. **3**

## SECTION - D

**Q. 26.** Describe the biosynthetic phase of photosynthesis. **5**

Or

What is oxidative phosphorylation? Explain the same with the help of a flow-chart.

**Q. 27.** List any five hormones secreted by the adenohypophysis (anterior pituitary). Mention the principal action of each hormone and its target organ. **5**

Or

Name a gland in humans acting both as an endocrine and exocrine, mention the three endocrine secretions from this gland giving two principal actions each secretion.

**Q. 28.** What is meant by Ozone shield? Name two ozone-depleting substances. How are the ozone-depleting substances affecting the ozone shield? Write one damaging effect of ozone-depletion on humans and plants respectively. **5**

Or

List any four factors which determine the amount of dissolved oxygen in water. Explain in brief the harmful effects of nitrate, fluoride and arsenic salts in ground water, on humans.