

## **SECTION - A**

- Q. 1.** How does mycorrhiza act as a biofertilizer? **1**
- Q. 2.** What is meant by double fertilization in plants? **1**
- Q. 3.** Mention any two characteristics of mammalian teeth. **1**
- Q. 4.** Define inspiratory reserve volume. **1**
- Q. 5.** What does the term Savanna imply? **1**

## **SECTION - B**

- Q. 6.** What is hepatic portal vein? Give its significance. **2**
- Q. 7.** List any four ways how the application of auxins can be found useful.
- Q. 8.** Explain with the help of two examples how the pyramid of numbers and the pyramid of biomass can look inverted.
- Q. 9.** What is meant by biomass energy? What is its importance? **2**
- Q. 10.** At a rural health centre a nursing mother is given an immunisation schedule for DPT-Hib to be given to the baby. What are the diseases the child will be protected against? **2**
- Or
- Which kind of immunity, active or passive, is provided by vaccination? Name the disease against which protection is provided by BCG vaccine.
- Q. 11.** A certain tree is believed to be releasing oxygen during night time. Do you believe in the truthfulness of this statement? Justify your answer by giving the reason. **2**
- Q. 12.** How is the foetus with Rh-positive blood affected if the mother is Rh-negative? **2**
- Q. 13.** Give two differences other than colour between red and white muscles. **2**
- Q. 14.** What are biopesticides? Mention their two advantages. **2**
- Q. 15.** How does the absorption and loss of potassium ions in the guard cells bring about the opening and closing of stomata? **2**

## **SECTION - C**

- Q. 16.** What is meant by symbiotic nitrogen fixation? Elaborate your answer with an example. How does leghaemoglobin protect the nitrogenase? **3**

**Q. 17.** What is the principle of MRI? How is it useful in medical diagnosis? **3**

**Q. 18.** Describe briefly the main steps of glycolysis from triose phosphate onwards. Highlight the reactions which release energy. **3**

**Q. 19.** Draw a diagram to show the path followed by the nerve impulse from the receptor to the effector in a spinal reflex arc. Label any six parts. **3**

**Q. 20.** What is meant by ozone shield? What is its significance? How is it affected by CFCs and ozone depleting substances? **3**

Or

Explain the phenomenon of biological magnification by giving one example.

**Q. 21.** Explain the meaning and the basis of inbreeding depression. **3**

**Q. 22.** It was diagnosed by a specialist that the immune mechanism of the body of a patient has been suppressed. Name the disease the patient has been suffering from and the microbe responsible for it. Which part of the immune system does it affect and in what manner? **3**

**Q. 23.** Mention the two salient features of the 'programmed senescence theory of ageing. What other name could you give to programmed cell death? **3**

**Q. 24.** Describe how the Loop of Henle helps in concentrating the urine in terrestrial mammals. **3**

**Q. 25.** (a) What is meant by ecological succession? Explain how it occurs.

(b) What properties distinguish a pioneer community from a climax community? **3**

#### **SECTION - D**

**Q. 26.** What is menstruation? What are the specific actions of FSH, LH, estrogens and progesterone in the menstrual cycle? **5**

Or

Where does spermatogenesis take place? Describe the stages of the process.

**Q. 27.** Name the cell organelles involved in photorespiration. Explain the mechanism of this process. **5**

**Q. 28.** Describe the sequence of events which occur in the cardiac cycle in humans. Where and how are the sounds "lubb" and "dubb" produced in the heart during this cycle?

**5**