

## BIOLOGY - 2006

### SECTION - A

- Q. 1. What prevents collapsing of our trachea during breathing? (1)
- Q. 2. What advantage does the sea anemone get in the sea anemone-hermit crab facultative mutualism? Give an alternative term for this kind of mutualism.(1)
- Q. 3. Name the nitrogenous waste excreted in the larval and adult stages of frog respectively.(1)
- Q. 4. In a wheat field, some broad-leaved weeds were found by a farmer. Which phytohormone can be used to eradicate them? (1)
- Q. 5. Correct the statement given below with respect to brazzein:  
“Brazzein is a high calorie carbohydrate.”

### SECTION - B

- Q. 6. What is reverse osmosis? Give its one application. (2)
- Q. 7. Which two heart sounds are heard through the stethoscope when placed on the chest? When are these sounds produced respectively? (2)
- Q. 8. How is polyspermy prevented in humans? (2)
- Q. 9. Write the full form of ELISA? Give example of the clinical application of ELISA test. (2)
- Q. 10. What is fermentation? Name any two organic compounds produced in this process. (2)

Or

What is glycolysis? Name the two monosaccharides which readily enter the glycolytic pathway. (2)

- Q. 11. Draw a diagrammatic sketch of the microscopic view of a mammalian sperm and label any four parts in it. (2)
- Q. 12. Name the location and function of Meibomian glands in the human eye. (2)
- Q. 13. What would happen to the successive trophic levels in the pyramid of energy if the rate of reproduction of phytoplankton was slowed down? Suggest two factors, which could cause such a reduction in phytoplankton reproduction. (2)
- Q. 14. What is cryopreservation? Give its one use. (2)  
Commercial significance of cryopreservation is related to preservation of fishes, meat and other foods.
- Q. 15. What is meant by total fertility rate? How does it differ from replacement level? (2)

### SECTION - C

- Q. 16. What is agamospermy? How is agamospermy different from parthenogenesis and parthenocarp? (3)
- Q. 17.

---

Other Educational Websites:

<http://studentsuvidha.in/>

<http://studentsuvidha.in/forum/>

- i. How can haploid plants be raised in the laboratory?
- ii. Name the plant first used in India to produce haploid plants.
- iii. Can haploid plants raise their own progeny? Give reason. (3)

**Q. 18.** What is the law of limiting factors? How would the rate of photosynthesis be affected if the soil water becomes limiting? Explain. (3)

**Q. 19.** Give information as asked about the following mineral nutrients in plants: (3)

- a. Iron:
  - i. it is a constituent of—,

- ii. its one typical deficiency symptom.
- b. Zinc:
  - i. the group of enzymes it activates,
  - ii. it is needed for the synthesis of -.
- c. Phosphorus:
  - i. the form in which it is absorbed from the soil,
  - ii. its deficiency effect on seed germination.

**Q. 20.** What is the role of calcium ions, troponin and F-Actin during contraction in striated muscles of humans? (3)

**Or**

Explain giving one example of each, the three types of joints in human skeleton, based on the capacity of movement. (3)

**Q. 21.** A patient was complaining of frequent urination, excessive thirst, hunger, and tiredness. His fasting blood glucose level was found higher than 130 mg/dl on two occasions. (3)

- i. Name the disease.
- ii. Give the root cause of this disease.
- iii. Explain why the blood glucose level is higher than '130 mg/dl.

**Q. 22.** Name and explain any three adaptations of mangroves to the conditions prevailing in the Sunderbans (West Bengal) ` (3)

**Q. 23.** What is eutrophication? Explain its consequences on the life of plants and animals living in such waters. Why is oxygen depletion in a eutrophicated water-body faster at night than during the day? (3)

**Q. 24.**

- i. What is a vaccine. Give an example of a vaccine produced by recombinant DNA technology?
- ii. Name the disease against which DTP vaccination develops immunity. (3)

**Q. 25.** Define senescence Explain the 'programmed senescence theory' of ageing. (3)

## SECTION - D

**Q. 26.** Explain the process of Crassulacean acid metabolism. How is it advantageous to plants? (4)

**Or**

Explain the major steps in Krebs cycle. Why is this cycle also called citric acid cycle?

**Q. 27.** What is sustainable agriculture? Explain the contribution of biopesticides and biofertilisers in sustainable agriculture. (5)

**Or**

What is electrocardiography? What is meant by P-Q interval and S -T interval in electrocardiography? Mention two medical applications of this technique. (5)

---

**Other Educational Websites:**

<http://studentsuvidha.in/>

<http://studentsuvidha.in/forum/>

**Q. 28.**

- i. Draw a section of the microscopic structure of human retina and label any six parts in it.
- ii. Name the structure that determines the eye colour in humans. What is the normal function of this structure?
- iii. Name the point of sharpest vision and the point of no vision in human eye. **(5)**

**Or**

- i. Draw the basic structure of a neural synapse and label the following parts in it Presynaptic

<http://studentsuvidha.in/>

- cell, Postsynaptic cell, Vesicles, Neurotransmitter, Receptor, Synaptic cleft.
- ii. Give any two differences between chemical synapses and electrical synapses. (5)

---

Other Educational Websites:

<http://studentsuvidha.in/>

<http://studentsuvidha.in/forum/>