

**PRE-BOARD EXAMINATION, JAN -2018**  
**BIOLOGY**

Class : XII

SET-B

Max. Marks: 70

Date :

Duration : 3 Hrs

**GENERAL INSTRUCTIONS:**

1. All questions are compulsory.
2. The question paper consists of five sections A, B, C, D and E. Section-A contains 5 questions of 1 mark each, Section B is of 5 questions of 2 marks each, Section C has 12 questions of 3 marks each whereas Section D is of 1 question of 4 marks and Section E has 3 questions of 5 marks each.
3. There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.
4. Wherever necessary, the diagrams drawn should be neat and properly labelled.

**SECTION-A**

1. How the constant internal environment is beneficial to organisms?
2. State the role of bone marrow in human immunity.
3. What are the objectives of RCH ?
4. Draw the structure of t-RNA adapter molecule for codon UUU.
5. Write the similarity between the flippers of penguins and dolphins. What do you infer from the above with reference to evolution?

**SECTION-B**

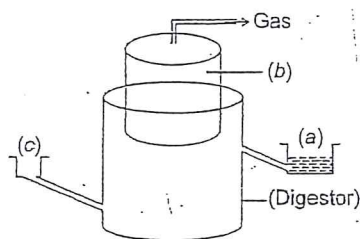
6. Draw a simplified model of phosphorus cycle in a terrestrial ecosystem.

OR

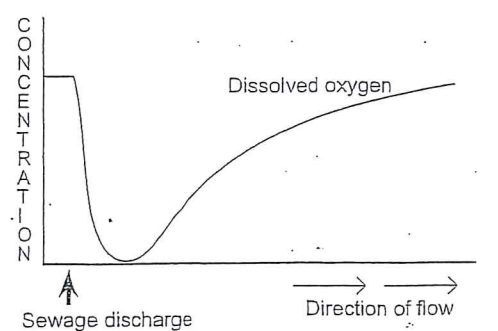
- Name the pioneer species on a bare rock. How do they help in establishing the next type of vegetation? Show the succession of plants in xerophytic habitat until it reaches climax community.
7. In pea plants, the colour of the flower is either violet or white, whereas human skin colour many gradations. Explain by giving reasons how it is possible?
  8. What are the various components of the nutrient medium used for propagation of an explant in micro-propagation.
  9. How does the culturing of spirulina solve the food problem of the growing population?
  10. a) Mention any two asexual reproductive structures with an example each.  
b) Define heterogametes.

## SECTION-C

11. How can transgenic animals proved to be beneficial in
- Production of biological products
  - Chemical safety testing
  - Vaccine safety
12. The given diagram is that of a typical biogas plant. Explain the events occurring in a biogas plant. Identify 'a', 'b' and 'c'.

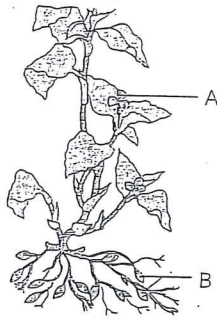


13. Name and describe the technique that helps in separation and isolation of DNA fragments.
14. In the biosphere immense biological diversity at all levels of biological organization. Explain any two levels of biodiversity.
15. a) Draw a schematic labelled sketch of a scrubber.  
b) Study the graph given below. Explain how oxygen concentration is affected in the river when sewage is discharged in to it.



16. Why is DNA considered a better heredity material than RNA?
17. Evolution is change in a gene frequencies in a population in response to changes in the environment in a time scale of years and not centuries. Justify this reference to DDT. How does the theory of Hugo de Vries support this?

18. a) Identify the type of flowers shown in A and B.

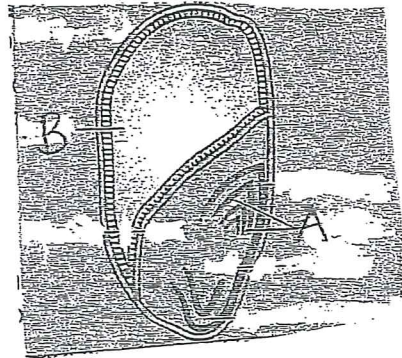


b) The flower of brinjal is referred to as chasmogamous, while that of beans is cleistogamous. How are they different from each other?

OR

Why embryo sac is generally referred to as monosporic? Explain with diagrams

19. a) How are ground nut seeds different from maize seeds with respect to endosperms?  
 b) In the given figure of monocot seed label A and B. State the function of each of the labelled part.



20. a) Name the plant source of ganja. How does it affect the body of the abusers?  
 b) How does the moderate and high dosage of cocaine affect the human body.  
 c) List the harmful effects caused by the drug abuse.
21. a) How does ECoRI differ from an exonuclease?  
 b) What is the role of primer in PCR.
22. a) In a pond, there were 40 fishes, out of these 4 fishes died within one year. Calculate the death rate of fishes.  
 b) How is diapause different from aestivation?

### SECTION D

23. Kudangulam, a small coastal town in the south Tamil nadu has been in the news recently for some time as there have been protest against establishing a nuclear power plant.
- a) What in your opinion can be the advantages of such power plants?
  - b) Enlist the arguments (disadvantages ) the native people have against the power plant.
  - c) In case of an accidental leakage of radioactive substances, what will be the consequences faced by the human beings and other life forms.
  - d) What values are evinced by the protestors?

### SECTION E

24. a) Draw the diagram of the sectional view of a human ovum after ovulation.  
 b) During the reproductive cycle of a human female when, where and how does a placenta develops?

OR

Explain the ovarian and uterine events that occur during a menstrual cycle in a human female under the influence of pituitary and ovarian hormones with the help of a diagrammatic representation.

25. a) Explain the process of charging of t-RNA. Why is it essential in translation?  
 b) Explain the role of satellite DNA in finger printing.

OR

Explain the process of protein synthesis from processed mRNA with the help of a diagram.

26. a) Name the category of microbes occurring naturally in sewage and making it less pollution during the treatment.  
 b) Explain the different steps involved in the secondary treatment of sewage.

OR

- a) How do Anabaena and mycorrhiza act as biofertilisers?
- b) Why do farmers prefer biofertilisers to chemical fertilisers these days? Explain.
- c) Write the significant role of the genus Nucleopolyhedro virus in an ecological sensitive area.

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