

PRE-BOARD EXAMINATION, JAN -2018
BIOLOGY

Class : XII

SET-A

Max. Marks: 70

Date :

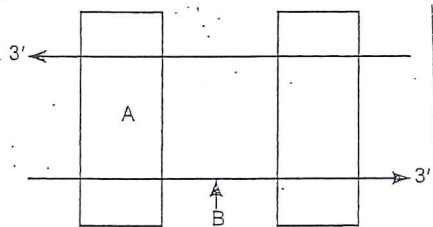
Duration : 3 Hrs

GENERAL INSTRUCTIONS:

- All questions are compulsory.
- 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.
- 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.
- Wherever necessary, the diagrams drawn should be neat and properly labelled.

SECTION-A

- Name two hormones that are constituents of contraceptive pills.
- Name the parts A and B of the transcription unit given below.



- Write the similarity between the eye of octopus and of mammals. What do you infer from the above with reference to evolution?
- How the constant internal environment is beneficial to organisms?
- State the role of lymph nodes in the human body.

SECTION-B

- Write the importance of biofortification. Mention the contribution of Indian Agricultural Research Institute towards it.
- Describe the procedure the scientists followed to recover the healthy sugarcane plants from a diseased one.
- Explain with the help of figures any two age pyramids represented by a human population.

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.

9. 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?
10. a) Mention any two asexual reproductive structures with an example each.
b) Define isogametes.

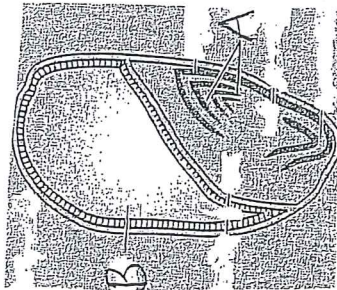
SECTION-C

11. How does the megaspore mother cell develop into 7-celled, 8-nucleated embryo sac in an angiosperm?

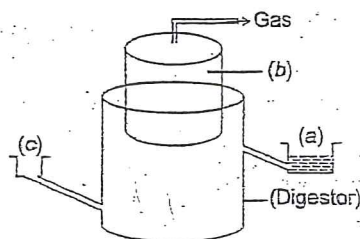
OR

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

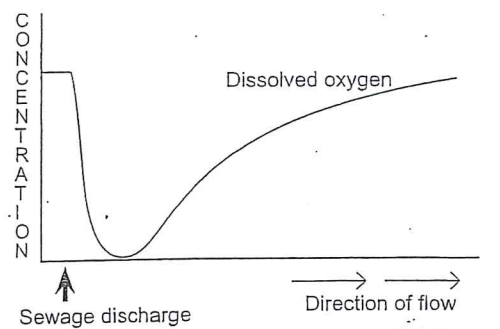
12. a) How are pea seeds different from castor seeds with respect to endosperms?
b) In the given figure of monocot seed label A and B. State the function of each of the labelled part.



13. a) Name a drug used as an effective sedative and pain killer.
b) How does the moderate and high dosage of cocaine affect the human body.
c) List the harmful effects caused by the drug abuse.
14. a) How does ECoRI differ from an exonuclease?
b) What is the role of primers in PCR.
15. How can transgenic animals proved to be beneficial in
 - a) Production of biological products
 - b) Chemical safety testing
 - c) Vaccine safety
16. The given diagram is that of a typical biogas plant. Explain the events occurring in a biogas plant. Identify 'a', 'b' and 'c'.



17. Name and describe the technique that helps in separation and isolation of DNA fragments.
18. In the biosphere immense biological diversity at all levels of biological organization. Explain any two levels of biodiversity.
19. 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.



20. Explain the role of RNA polymerase in transcription in bacteria.
21. 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?
22. a) In a pond, there were 24 lotus plants. 8 new plants were added by reproduction in one year. Calculate the birth rate of the lotus plants.
b) How is diapause different from hibernation?

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.
- What in your opinion can be the advantages of such power plants?
 - Enlist the arguments (dis advantages) the native people have against the power plant.
 - In case of an accidental leakage of radioactive substances, what will be the consequences faced by the human beings and other life forms.
 - What values are evinced by the protestors?

SECTION E

24. a) Explain the process of charging of tRNA. 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.

25. 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.
26. 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.

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