Brilliant Public School

Seepat Road Bahatarai, Bilaspur (C.G.)
Pre-Board-I, 2017-18
Class –XII
Subject – Biology

Time: 3:00 Hrs. M.M. 70
Date: 04.12.2017 Monday

General Instructions:

- All questions are compulsory.
- The question paper consists of four sections A, B, C,D and E. Section A contains 5 questions of 1 mark each, section B has 5 questions of 2 marks each, section C is of 12 questions of 3 marks each, section D contains one question of 4 marks and section E has 3 questions of 5 marks each.
- There is overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the questions of 5 marks. A student has to attempt only one of the alternatives in such questions
- Wherever necessary, the diagrams drawn should be neat and properly labeled.

SECTION-A

1. A bilobed, dithecous anther has 100 microspore mother cells per microsporangium. How many male gametophytes this anther can produce?

2. Mention two functions of codon AUG?

3. What is it that prevents a child to suffer from a disease he /she is vaccinated against? Give one reason.

4. Why is the enzyme cellulase used for isolating genetic material from plant cells but not from animal cells?

5. Give the scientific term for organism who can tolerate a narrow range of temperature and who can tolerate wide range of salt concentration.

SECTION-B

6. A moss plant produces a large number of antherozoids but few egg cells .Why?

OR

Mention the reason for the difference in the ploidy of zygote and primary endosperm nucleus of an angiosperm?

7. How does an electrostatic precipitator work to remove the particulate pollutants released from the thermal power plant?

8. Legumes fertilize the soils but cereals do not. Comment on the statement.

9. Name the host and the site where the following occurs in the life cycle of malarial parasite:

   a) Formation of gametocytes

   b) Fusion of gametocytes.

10. Honey collection improves when beehives are kept in crop fields during the flowering season. Explain.

SECTION-C

11. Parturition is induced by a complex neuro endocritic mechanism. How?

12. Describe the initiation process of transcription in bacteria.

13. Explain convergent and divergent evolution with the help of one example each.

14. Name the type of human cell, HIV attacks on its entry into the body. Explain the events that occur in the cell which further lead to cause immuno deficiency syndrome.

15. How does RNA interference help in developing resistance in tobacco plant against nematode infection?

16. Draw a longitudinal section of post pollinated pistil showing entry of pollen tube into mature embryo sac. Label the various parts.

OR

Draw a labeled sectional view of seminiferous tubule of human testes.

17. What are the hot spots of biodiversity? Is there any such area in India?

18. In F. Griffith's experiment, how did the nonvirulent strain of Streptococcus pneumonia become virulent? Explain.

19. What are Mendelian disorders? Give examples and identify the type of analysis which is done to prevent such disorders.

20. What is difference between BOD and COD? What is the effect of higher BOD on the level of dissolved oxygen and sensitive organisms in water bodies?

21. Which genes are responsible for keeping a check on cotton boll worms and which ones on corn borers?

22. a) What is the role of PCR technique?
b) Name the organism from which DNA polymerase is extracted for PCR.
c) What is special about this enzyme?

SECTION-D

23. A youth in his twenties met with an accident and succumbed to the injuries. His parents agreed to donate his organs. So, their
(a) List any two essential clinical steps to be undertaken before any organ transplant.
(b) Why is the transplant rejected sometimes?
(c) What views would you share with your health club members to promote organ donation?

SECTION-E

24. "Incompatibility is a natural barrier in the fusion of gametes." Justify the statement.

OR

Explain the various phases of menstrual cycle. Give the diagrammatic representation of various events during a menstrual cycle.

25. a) How are Mendelian inheritance, polygenic inheritance and pleiotrophy different from each other?
b) Explain polygenic inheritance pattern with the help of a suitable example.

OR

a) Draw a labeled diagram of a "replication fork" showing the polarity. Why does DNA replication occur within such 'forks'?
b) Name two enzyme involved in the process of DNA replication, along with their properties.

26. a) Define biomagnification.

b) Which chemicals have been reported to cause it?

c) How does it lead to decrease in bird population?

d) Why Eichhornia is called "terror of Bengal"?

OR

Discuss the ozone layer and its depletion in the stratosphere.

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