Total No. of Printed Pages—7

HS/XII/Sc/Bio/NC/20

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BIOLOGY

(New Course)

Full Marks : 70

Time : 3 hours

General Instructions :

(i) Write all the answers in the Answer Script.

(ii) Attempt all Parts of a Group serially in one place.

(iii) *All* questions are compulsory.

(iv) The figures in the margin indicate full marks for the questions.

(v) This question paper consists of 5 (five) Groups—A, B, C, D and E.

Group—A consists of 5 questions (Multiple-choice type). Each question (Q. Nos. **1–5**) carries *1* mark.

Group—B consists of 5 questions (Very short-answer type). Each question (Q. Nos. **6–10**) carries *1* mark and to be answered in one sentence.

Group—C consists of 6 questions (Short-answer type–I). Each question (Q. Nos. **11–16**) carries *2* marks and to be answered in *20–30* words.

Group—D consists of 11 questions (Short-answer type–II). Each question (Q. Nos. **17–27**) carries *3* marks and to be answered in *30–40* words.

Group—E consists of 3 questions (Long-answer type). Each question (Q. Nos. **28–30**) carries *5* marks with alternatives to be answered in *60–80* words.

GROUP—A

Choose and write the correct answer of the following : 1×5=5

1. A typical angiospermic embryo sac at maturity is eight-nucleate and

(a) one-celled

(b) four-celled

(c) seven-celled

(d) eight-celled

2. Which of the following causes biomagnification?

(a) SO_2 and CO_2

(b) CO_2 and NO_2

(c) Mercury and DDT

(d) Methane and CO_2

3. Variety of beaks of finches that Darwin found in Galapagos islands was due to

(a) adaptive radiation

(b) convergent evolution

(c) genetic drift

(d) artificial selection

4. Elephantiasis is a disease caused by

(a) *Ascaris*

(b) *Wuchereria*

(c) *Taenia*

(d) *Plasmodium*

5. DNA sequences that code for protein are known as

(a) introns

(b) exons

(c) control regions

(d) intervening sequences

GROUP—B

6. What are the characters of flowers pollinated by insects? 1

7. Define biofertilizers. 1

8. State what 'standing crop' of a trophic level represents. 1

9. What is an endemic species? 1

10. Define inbreeding. 1

GROUP—C

11. Give the diagrammatic representation of the process of spermatogenesis. 2

12. What is the full form of PCR? State its one use in biotechnology. 1+1=2

13. Define greenhouse effect. Name the greenhouse gases. 1+1=2

14. Mention the objectives of biofortification. 2

15. What are the benefits of genetically modified crops? 2

16. Define triple fusion. What is the product of this process? 1+1=2

GROUP—D

17. Write a short note on apomixis. 3

18. List three main differences between DNA and RNA. 3

19. Describe the process involved in the conversion of milk into curd. 3

20. What essential features must be present in a cloning vehicle? 3

21. Explain mutualism giving suitable examples. 3

22. What are the major causes of loss of biodiversity? Describe any one of them. 1½+1½=3

23. Define restriction enzyme. Why is it so called? Give one example. 1+1+1=3

24. Draw a well-labelled diagram of an antibody. 3

25. What is tumour? Differentiate between benign and malignant tumour. 1+2=3

26. Mention some important features of Human Genome Project (HGP). 3

27. What is natural method of contraception? Briefly describe any one method. 1+2=3

Or

What are the advantages of tissue culture? 3

GROUP—E

28. Define fertilization. Where does this process take place in female body? Describe the process of fertilization in human body. 5

Or

State Mendel's law of independent assortment. Describe the law with an appropriate dihybrid cross. 1+4=5

29. What is water pollution? What are its causes? State some of the effects of water pollution on environment. 1+4=5

Or

Explain the flow of energy in an ecosystem with the help of a diagram. 5

30. Discuss *lac* operon model with the help of a diagram. 5

Or

Give the salient features of genetic code. 5

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