

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.

(2)

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 : $1 \times 5 = 5$

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)

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

(4)

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

(5)

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. $1\frac{1}{2}+1\frac{1}{2}=3$
23. Define restriction enzyme. Why is it so called? Give one example. 1+1+1=3

(6)

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

(7)

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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