Total No. of Printed Pages—4

HS/XII/Sc/Bio-Bot/19

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BIO-BOTANY

(Theory)

Full Marks : 35

Time : 1½ 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 4 questions (Nos. **1– 4**) of *1* mark each and is multiple-choice type.

Group—B consists of 4 questions (Nos. **5–8**) of *1* mark each, very short-answer type, to be answered in *1* sentence each.

Group—C consists of 4 questions (Nos. **9–12**) of *2* marks each, short-answer type–I, to be answered in *20–30* words each.

Group—D consists of 3 questions (Nos. **13**–**15**) of *3* marks each, with one alternative from the same unit, short-answer type–II, to be answered in *30–40* words each.

Group—E consists of 2 questions (Nos. **16** and **17**) of *5* marks each, with one alternative for each question, long-answer type, to be answered in *70–80* words each.

GROUP—A

Choose and write the correct answer for the following : 1×4=4

1. Sporopollenin occurs in the wall of

(a) egg cell

(b) pollen grain

(c) synergids

(d) antipodal cells

2. Which of the following is required as inducer for the expression of lac operon?

(a) Lactose

(b) Galactose

(c) Glucose

(d) Lactose and galactose

3. Emasculation is the process of removal of

(a) stigma

(b) stamen

(c) carpel

(d) petals

4. A grazing food chain cannot begin in the absence of

(a) carnivores

(b) herbivores

(c) producers

(d) decomposers

GROUP—B

5. Write two important characteristics of anemophilous flowers. ½×2=1

6. Define heterosis. 1

7. Define totipotency. 1

8. What are mutagens? 1

GROUP—C

9. What are transgenic plants? Give two examples. 1+1=2

10. What is biogas? Name the principal organism involved in its production. 1+1=2

11. Define symbiosis. Give two examples. 1+1=2

12. Name the bacterium responsible for the large holes seen in 'Swiss cheese'. What are those holes due to? 1+1=2

GROUP—D

13. Draw a well-labelled diagram of an angiospermic ovule showing porogamous type of pollen germination. 3

14. What are complementary genes? Explain with the help of an example. 1+2=3

15. Give an account of the production of human insulin in transgenic organism. 3

Or

Write the technique of plant tissue culture. 3

GROUP—E

16. Define transcription. Explain the process of transcription in bacteria with suitable diagram. 1+3+1=5

Or

Explain the chromosomal theory of inheritance. 5

17. Briefly explain the biotic components of an ecosystem. 5

Or

What are ecological pyramids? Describe briefly different types of ecological pyramids with suitable diagrams. 1+3+1=5

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