

Total No. of Printed Pages—4

**HS/XII/Sc/Bio-Bot/19**

**2 0 1 9**

**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.

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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

( 3 )

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.  $\frac{1}{2} \times 2 = 1$
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

( 4 )

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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