PART A

BOTANY

TIME :1 HOUR

COOL OFF TIME :10 MINUTES

1. By observing the relationship between the first pair and fill up the blanks.
   a) Conidia : Penicillium
      Gemmule: ..... (1/2)

   b) Hisardale : Cross breeding

      Mule : ..... (1/2) **{ 1}**

2. Expand the term MOET **{1}**

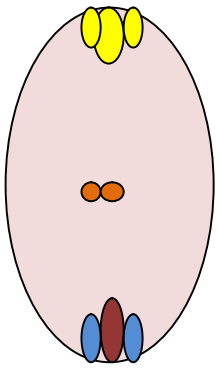
3. With its very large population of vehicular traffic, Delhi leads the country in its levels of air-pollution.In the 1990s, Delhi ranked fourth among the 41 most polluted cities of the world.

   What initiative was taken to reduce vehicular pollution there? {**1**}

4. Plant breeding is the purposeful manipulation of plant species in order to create desired plant types .Draw the flow chart of the sequential steps in plant breeding {**1** ½}

5. The male gametes are usually produced in large number than female gametes.Justify the statement.Give reason. {**1**½}

6. The given picture is the diagrammatic representation of the female gametopyte of flowering plants.
a)Identify the nuclei involved in double fertilization (1 ½)
b)Name the products of double fertilization (½) {**2**}



7. Given are some of the commonly seen flowers. Vallisneria,Paddy, Sun flower.

a)Name the pollinating agents in these plants. 1 ½

b)Mention any one adaptation of each flower. 1 ½ **{ 3}**

8.Biotechnology has various application in medicine .

a)Which biotechnological application is used to cure heriditory disease (1)

b) Explain how the method is applied for curing ADA deficiency? (1) **{2}**

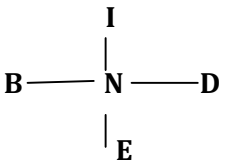
9. Bt Cotton is a well known example of application of biotechnology in agriculture

Bt cotton reduces the use of pesticides.Explain **{2}**

10. Given below is the diagrammatic representation of population density.

a) Expand I,B,N,D,E (1)

b) Write the equation to find out population density. (1) **{2}**



11.Fig species are pollinated by wasp.

a) Identify the type of interaction (½)

b) Explain the characteristic features of that interaction. (1 ½) **{2}**

12. Ecological pyramid indicating the number of organisms is called pyramid of number.

a)Construct a pyramid of number with the following organisms.Snake, Frog,Grass,Peacock,grasshopper. (1)

b) How is this different from the pyramid of number of a large tree acting as an ecosystem. (1) **{2}**

13. The gradual and fairly predictable change in the species composition of a given area is called ecological succession. Write the different seral stages of hydrarch succession. **{2}**

14. Increased level of Co2 results increase in global temperature . Explain any two remedial measures taken for checking global warming. **{2}**

15. Polluted waterbodies are rich in algal growth.

a) What is the reason behind this. (1/2)

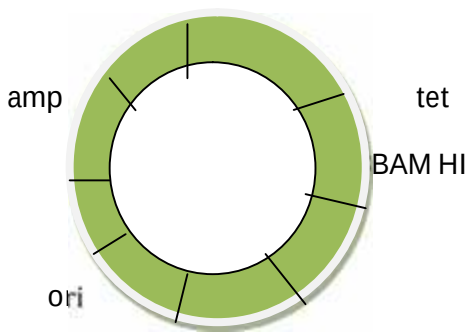
b) Name the phenomenon (1/2) {**1**}

16. The given picture shows the cloning vector pBR 322.

a) Explain the terms ori,amp. (1)

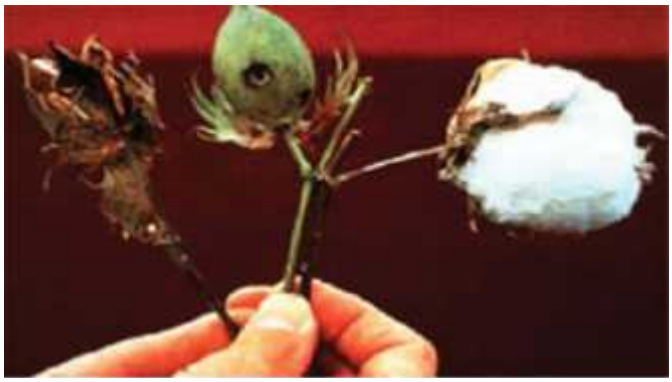
b)Give the significance of each term. (1)

b) What are the feature necessary for a good cloning vector. (2) {**4**}



OR

The figure given below shows a cotton plant with fully mature cotton boll and one destroyed by boll worm.



a) What is Bt cotton.How is it different from normal cotton plant? (1)
b) Name the bacteria from which the gene is taken? (1)
c) Name the gene (1)

d)Explain how the toxin works in the body of boll worm (1) {4}

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