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**XII BIOLOGY TERM -2**

**Pre-board Feb, 2022**

**Time -2 hr**

**MM.. 35**

**NOTE – All questions are compulsory.**

There is no overall choice, however internal choice is there.

Section A has Question no 1 to 6 carrying 2 marks each.

Section B has Question no 7 to 12 carrying 3 marks each.

Section C has Question no 13 carrying 5 marks.

**Section – A**

**Q1. A) Expand PMNL and write their role.**

**B) Which kind of immunity is responsible for graft rejection? Why?**

**Q2. Sometimes patient is exposed to small doses of allergens, why? What kind of drugs are used to cure this problem?**

**Q3. What are biological response modifiers? Describe with an example.**

**Q4. What are baculoviruses? Write it's significance in IPM.**

**Q5. In a pond there are 40 lotus plants last year and through reproduction 8 new plants are added while 4 new plants were transferred from other pond. Calculate the birth rate?**

**Q6. Write two reasons why kangaroo rat is able to live under desert conditions?**

## Section-B

Q7. Explain and show the stages in the life cycle of Plasmodium only through well labelled diagram. 3M

Q8. A) How nicotine affects our body? 1M

B) How is smack obtained chemically? 2M

Q9. Show diagrammatically the steps in the formation of recombinant DNA by the action of restriction endorsed nuclease enzyme - EcoR1. 3M

Q10. A) Define recombinant protein. 1M

B) Describe how a bacterial cell is made competent for transformation with recombinant DNA? 2M

Q11. Write three points responsible for stability of a biological community. 3M

Q12. Describe species area relationship in brief and draw graph also along with equation. 3M

## Section-C

Q13. Some strains of *Bacillus thuringiensis* produce toxic proteins that kill certain insects such as lepidopterans (order), eg, tobacco budworm, armyworm, Coleopterans (order) eg, beetles, dipterans, eg, flies and mosquitoes, etc. *B. thuringiensis* forms protein crystals during a particular phase of their growth. These crystals contain a toxic insecticidal protein. Specific Bt toxin genes were isolated from *Bacillus thuringiensis* and incorporated into several crop plants such as cotton. The choice of gene depends upon the crop and the targeted pest, as most Bt toxins are insect group specific. The toxin is coded by a gene cry1Ac named cry. There are a no of them, for example, the proteins encoded by the genes cry1Ac and cry2Ab control the cotton bollworms and that of cry1Ab control corn borer.

Answer the following

- Why Bt gene is named so?
- Why crystals of Bt toxin produced by some bacteria do not kill the bacteria itself?
- Write the significance of Bt gene and explain with an example it's application.