PG Even Semester Examination, May 2025

LIFE SCIENCE & BIOINFORMATICS

4th Semester

Course No. : LS - 653 (B)

(Plant Biology - II)

Full Marks : 70

Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

(Answer all questions)

1. With the help of suitable diagram describe the process of DNA methylation. Write the role of DNA methylation in regulation of gene expression with example. [8+6=14]

OR

2. Describe the mechanism involved in post-transcriptional and post-translational events with suitable model. [7+7=14]

3. Differentiate between monogenic and polygenic traits. With the help of suitable example describe the process of inheritance of polygenic traits. Add a note on heritability. [2+8+4=14]

OR

(Turn Over)

4. Explain Hardy -Weinberg Law with an example. Discuss the process of self-incompatibility in plant. What is genetic drift? [6+6+2=14]

5. Write notes on following: [2x7=14]
   (a) Metabolomics
   (b) Next-generation Sequencing

OR

6. Discuss the fundamentals and applications of following [4+10=14]
   (a) Multiplex PCR
   (b) Real-time PCR

7. Define anti-sense RNA. Discuss the steps involved in production of transgenic plant citing one example. [2+12=14]

OR

8. Write note on following: [2x7=14]
   (a) Artificial seed
   (b) Golden rice

9. What is molecular docking? Discuss the role of molecular docking in computer aided drug designing. Add a note on QSAR. [2+7+5=14]

OR

10. Write notes on following: [2x7=14]
   (a) ADME/Tox
   (b) Lipinsky role of five

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