

Q.P. Code :11786

[Time: 2 ½ Hours]

[Marks:60]

Please check whether you have got the right question paper.

- N.B:
1. **All five questions are compulsory.**
 2. **All questions carry equal marks.**
 3. Illustrate wherever necessary.

Q.1 What are small RNA molecules? Discuss their properties and the mechanism by which they mediate RNA Interference. **12**

OR

Q.1 a. What are inteins? Describe the mechanism by which they are processed. **6**

Q.1 b. What is the effect of light on regulation of gene expression in plants? **6**

Q.2 Write in detail about methods used for gene transfer in bacteria. **12**

OR

Q.2 Which is the different mammalian viral expression systems used for producing recombinant protein? **12**

Q.3 Describe various cell based assays used to study the function of genes. **12**

OR

Q.3 a. What is Y chromosome typing? State its significance. **6**

Q.3 b. Describe any one method for the analysis of a Transcriptome. **6**

Q.4 a. What is qPCR and what role does it play in diagnostics? Explain with examples. **6**

Q.4 b. How is chemical optimization of lead structures done? **6**

OR

Q.4 Discuss in brief four diagnostic methods used to detect molecular variation. **12**

Q.5 Write short notes on **any three** of the following: **12**

- a) Gene loss
- b) Ultrasonication
- c) Minisatellite analysis
- d) Optical FISH
- e) Compound libraries
- f) Northern Blot
