

**M. SC. (MEDICAL BIOTECHNOLOGY) SEM-II (CHOICE  
BASED CREDIT SYSTEM) : WINTER - 2017  
SUBJECT : rDNA IN MEDICINE**

Day      Wednesday  
Date     01/11/2017

**W-2017-1052**

Time    10.00 AM TO 01.00 PM  
Max. Marks : 60

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**N.B.:**

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
  - 2) Answers to both the sections should be written in **SEPARATE** answer books.
  - 3) Draw neat and labeled diagrams **WHEREVER** necessary.
  - 4) Figures to the right indicate **FULL** marks.
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**SECTION – I**

- Q.1** Answer **ANY TWO** of the following: **[10]**
- a) What are expression vectors? How are they used to maximize recombinant protein production? Explain with the help of suitable diagram.
  - b) With the help of suitable diagram explain different methods of DNA labelling.
  - c) Explain different methods of transcript analysis.
- Q.2** Compare and contrast the following: **[10]**
- a) Genomic library and cDNA library.
  - b)  $\lambda$  insertion vectors and  $\lambda$  replacement vectors.
  - c) Class I and class II restriction enzymes.
  - d) Different yeast vectors.
- Q.3** Write short notes on the following: **[10]**
- a) Fluorescence in situ hybridization
  - b) Vectors for protein purification
  - c) Restriction mapping
  - d) Yeast two hybrid system
- Q.4** Explain in detail: **[10]**
- a) Different methods of blunt end ligation.
  - b) What is a genomic library? What are different methods for construction of genomic library?

**SECTION – II**

- Q.5** a) What is the principle of PCR? Explain with suitable diagram. Add a note on real time PCR. **[05]**  
b) What is the principle of Sanger's method of sequencing? Explain with suitable diagram. **[05]**
- Q.6** Explain in detail the principle of following techniques: **[10]**
- a) SSCP      b) DGGE      c) RFLP      d) ASA      e) PTT
- Q.7** With the help of suitable diagram explain in detail different techniques of: **[10]**
- a) Site directed mutagenesis.
  - b) Gene therapy.
- Q.8** Write short notes on the following: **[10]**
- a) Disease models
  - b) Micro RNA
  - c) Applications of gene silencing techniques
  - d) Viral vectors for gene cloning in mammalian cells

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