REV-01
MMB/01/05

2025/05

SET A

M.Sc. MICROBIOLOGY
SECOND SEMESTER (REPEAT)
MICROBIAL GENOMICS
MMB-203

[USE OMR FOR OBJECTIVE PART]

Duration: 1.30 hrs. **Full Marks: 35**

Time: 15 min. **Marks: 10**

(Objective)

1X10=10

Choose the correct answer from the following:

1. Boyer & Cohen performed experiments on
   a. AFLP
   b. RAPD
   c. Recombination of plasmids
   d. Genome mapping

2. In AFLP, after the restriction digestion of DNA, what is the next major step?
   a. Direct PCR amplification
   b. Ligation of adaptors to restriction fragments
   c. Gel electrophoresis
   d. DNA sequencing

3. The order of genetic markers and relative distances between them is measured by
   a. Linkage Maps
   b. Cytogenetic Maps
   c. Physical Maps
   d. FISH

4. In DGGE, DNA fragments are separated based on:
   a. Size differences only
   b. Charge differences only
   c. Chemical labelling
   d. Sequence-dependent melting behavior

5. Which of the following best describes the structure of a typical bacterial chromosome?
   a. Linear double-stranded DNA
   b. Circular double-stranded DNA
   c. Single-stranded circular DNA
   d. RNA molecule

6. In humans, 1 cM represents how many kilo base pairs of DNA?
   a. 1900 kbp
   b. 2000 kbp
   c. 1000 kpp
   d. 3000 kbp

7. Which one of the following is Restriction endonuclease Type III?
   a. A single enzyme with 3 subunits
   b. A single enzyme with 2 subunits
   c. 2 different enzymes cleave the sequence
   d. A single enzyme with 4 subunits

8. pBR322 is a type of
   a. Vector
   b. Cosmid
   c. YAC
   d. BAC

9. The fusion of plasma membrane by using electric pulses is known as
   a. Electroporation
   b. Electrofection
   c. Electroconjuction
   d. Electrocution

10. The size of foreign insert DNAs for Yeast chromosome with host *S. cerevisiae* is
   a. 5 – 25 kb
   b. 100 – 300 kb
   c. 25 – 45 kb
   d. 200 – 2000 kb

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Descriptive

Time : 1 hrs. 15 min. Marks : 25

[Answer question no.1 & any two (2) from the rest]

1. Give a detailed explanation on the basic principle of recombinant DNA technology. 5

2. **Write short notes on** 5+5 = 10
   a) DNA libraries
   b) Metagenomics

3. **Write short notes on** 5+5 = 10
   a) RAPD
   b) AFLP

4. Explain the proteomics classification and type of proteomics workflow. 10

5. Explain in detail the principle and procedure whole genome shotgun sequencing with diagram. 10

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