COURSE CODE (CREDITS): 20MS1BT114 (2)

MAX. MARKS: 35

COURSE NAME: MICROBIOLOGY

COURSE INSTRUCTORS: Dr. Rahul Shrivastava

MAX. TIME: 2 Hours

Note: (a) All questions are compulsory. (b)Marks are indicated against each question in square brackets.

Q1. Provide diagrammatic representation, explanation and details of the output cells produced, for conjugation episodes between following cell types: **[8]**
  a. F+ (plus) and F+ (plus)
  b. F- (minus) and F- (minus)
  c. F+ (plus) and F- (minus)
  d. F' (prime) and F- (minus)

Q2. With reference to Laboratory Biosafety in a Microbiology Laboratory, write notes with examples on the following: **[4 + 4 = 8]**
  i. Biosafety Levels of organism
  ii. Biological Safety Cabinets

Q3. Differentiate between the following with suitable diagrams to support your answer: **[4 + 4 = 8]**
  I. Lytic and Lysogenic cycle of viral multiplication
  II. Generalized and Specialized transduction

Q4. A. What are Biofertilizers? **[1 X 5 = 5]**

B. How can Biofertilizers be used to supply one or more plant nutrients essential for growth of plants?

C. What is strain selection?

D. Draw a flowchart for preparation of biofertilizers at industrial scale.

E. What are the important criteria for a strain to be used as biofertilizer?

Q5. Write Short Notes on: **(ANY TWO)** **[3 X 2 = 6]**
  a) Primary barriers and PPE
  b) Plasmids
  c) Transformation in Bacteria