

2015  
**BOTANY**  
Paper : 301

**MICROBIOLOGY AND PLANT PATHOLOGY**

Full Marks : 80

Time : 3 hours

*The figures in the margin indicate full marks for the questions*

1. Answer the following questions:
  - i) Define coliform bacteria? (1)
  - ii) Define opsonization? (1)
  - iii) What is food spoilage? Name two organisms responsible for food spoilage. (1)
  - iv) What are growth factors? Why are they essential for the growth of micro-organisms? (2)
  - v) What are the major types of fermented milk products. (2)
2. Distinguish between : (any two) (2x2=4) .
  - i) Endergonic and exergonic reactions
  - ii) Macrophages and Nutriophil
  - iii) Selective media and Enriched media
3. Write short notes: (any two) (3x2=6)
  - i) Chemical control agents

( 1 )

**P.T.O.**

- ii) Pasteurization
- iii) Effect of  $P^H$  and temperature on growth of micro-organisms

4. Answer the following : (any three)

- i) What are pure cultures and why are they important? Describe how streak plates and pour plates are prepared? (2+3=5)
- ii) Describe briefly alcoholic, lactic acid and mixed acid fermentations. Distinguish between homolactic acid fermentation and hetero lactic acid fermentation. (3+2=5)
- iii) Role of micro organisms in Nitrogen cycle. (5)
- iv) Industrial production of organic acids. (5)

5. Answer the following: (any two)

- i) What is oxygenic and anoxygenic photosynthesis? What is reverse electron flow? Describe the mechanism of light reaction found in Purple non sulphur Bacterial ? (2+2+5=9)
- ii) What is bacterial conjugation? Describe how F<sup>+</sup> and F<sup>-</sup> and Hfr conjugation proceed citing its mechanism and the final result. (2+7=9)
- iii) What are the different types of T-cells? Distinguish between T cells and B cells with respect to their formation, structure and roles in the immune response. (3+6=9)

6. Write explanatory notes: (any four) (5x4=20)

- a. Integrated pest management
- b. Disease Triangle

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- c. Symptomatology
- d. Microbial toxins
- e. Horizontal and vertical resistance

7. Answer the following: (any one)

- 1. Discuss the various stages of entry process of pathogen into host organisms? What are the physiological effects on diseased plants? (5+5=10)
- 2. Describe about the structural and biochemical defense mechanism in plants. (5+5=10)

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