

Duration: 2.5 hours

Total marks: 60

N.B. All questions are compulsory
Numbers to the right indicate marks
Draw neat labelled diagram wherever necessary

Q.1 Answer any four of the following

16

- a What is the Mantoux test? Explain in brief.
- b Explain the process of cap snatching in Influenza virus.
- c Justify: Salmonellosis must be treated in time for fast recovery.
- d How is *Shigella spp.* classified?
- e Write a short note on Tetanus toxin.
- f What is Normal flora? Explain using suitable examples.
- g Justify: Botulism is caused by a food borne pathogen.
- h Explain the useful and harmful microorganisms using suitable examples.

Q.2 Answer any four of the following

16

- a Define the following i) Differentiation ii) Redifferentiation
- b Define cell lines and give it types.
- c Write a note on the culture medium used for plant tissue culture.
- d Write a note on organ culture performed in plant tissue culture.
- e Describe the sterilization procedure during Plant tissue culture.
- f Describe the production of monoclonal antibodies.
- g What is cell suspension culture and give its two types?
- h Explain the various equipments used during animal tissue culture.

Q.3 Answer any four of the following

16

- a Explain the Working mechanism of Continuous stirred tank fermenter with a diagram.
- b Explain the following:
 - 1. Fermenter pots.
 - 2. Impeller
- c Explain the steps involved in SCP (Single Cell Protein) production.
- d Explain the disadvantages of Fluidised bed reactors.

- e Explain the steps involved in Wine production.
- f Explain the following:
 1. Solvent and substrate method of enzyme stabilisation.
 2. Sparger.
- g What is the role of fermenter? state the requirement needed for the design of the fermenter.
- h Explain the enzyme immobilization techniques.

Q.4 Answer any six of the following

12

- a What are lytic viruses?
- b Explain what is Ghon focus?
- c Explain the significance of VMCs in TMV.
- d What are peplomers?
- e Define the terms i) Explant and ii) Competency
- f Give Characteristics of continuous cell lines.
- g State advantages of the micropropagation technique.
- h Write principle of root culture technique used in plant tissue culture
- i Explain the principle of enzyme engineering.
- j Explain the enzyme stabilisation by salts and chemical modification.
- k State the advantages of Enzyme immobilisation.
- l Explain parts of typical fermenters with suitable diagram.
