

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech (Biotechnology) (Sem.-4)

TRANSPORT PHENOMENON

Subject Code : BT-208

Paper ID : [A0660]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Describe briefly :

- a) Mass transfer
- b) Heat transfer
- c) Mass diffusivity
- d) Dimensionless groups
- e) Mathematical modelling
- f) Viscosity
- g) Transport of momentum
- h) $K_L a$
- i) Thermal conductivity
- j) Modes of heat transfer

SECTION-B

2. Describe the Newton's law of viscosity.
3. Describe briefly thermal conductivity and mass diffusivity.
4. What do you understand from heat and mass in laminar flow? Describe briefly.
5. Describe briefly Fourier's law of heat conduction.
6. Describe briefly momentum, heat and mass transfer analogies.

SECTION-C

7. Discuss analogy between momentum, heat and mass transfer with respect to transport mechanism.
8. Discuss the development of mathematical models of transport processes through shell momentum balance.
9. Explain briefly inter-phase transport of momentum, heat and mass and dimensionless correlation for each of them.