

**R09**

Code: 9A23303

B.Tech II Year I Semester (R09) Supplementary Examinations June 2017

**FLUID FLOW IN BIOPROCESSES**

(Biotechnology)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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- 1 Write in brief on applications of momentum transfer and convective mass transfer in bioprocessing.
- 2 Explain the following:
  - (a) Ideal gas law.
  - (b) Concept of mass.
- 3 Outline different properties of fluid. Add a note on fluid statics.
- 4 Write short notes on:
  - (a) Non-Newtonian fluids.
  - (b) Rheological properties of fluid.
- 5 Give a concise note on:
  - (a) Hagen-Poiseuille equation.
  - (b) Flow of compressible fluids.
- 6 Define and explain the following:
  - (a) Motion of particles through fluids.
  - (b) Friction in flow through solid beds.
- 7 Discuss in brief about:
  - (a) Simple U tube differential manometer.
  - (b) Orifice meter.
- 8 Explain the following:
  - (a) Peristaltic pumps.
  - (b) Calculation of pump horse power.

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