

PARUL UNIVERSITY
FACULTY OF PHARMACY
B.Pharm. Winter 2018-19 Examination

Semester: 3
Subject Code: 08101204
Subject Name: Pharmaceutical Engineering

Date: 13/12/2018
Time: 10:00 am to 1:00 pm
Total Marks: 75

Instructions:

1. Figures to the right indicate full marks.
2. Make suitable assumptions wherever necessary.

Q.1 Essay type Questions. (Any 2 out of 3) (10 marks each) (20)

1. Define Stoichiometry. Briefly explain the principle of material balance taking the example of a tie substance and discuss the significance of it in pharmacy.
2. Define Energy balance. Derive Bernoulli's equation with labeled diagram. Give applications of Bernoulli's theorem in Fluid flow.
3. Describe Fourier's law. Derive equation for heat transfer by conduction when compound resistance arranged in series.

Q.2 Short Essay type Questions. (Any 7 out of 9) (5 marks each) (35)

1. Explain dimensional formulae with appropriate example.
2. Define fluid flow. Explain working principle of simple manometer with neat diagram.
3. Explain the different types of flow by Reynolds experiment. Give applications of Reynolds number
4. Define and classify steam trap. Explain any one in detail.
5. Write a note on Tubular heater with a labelled diagram.
6. Explain principle of mass transfer. Write a short note on mass transfer in gases.
7. Describe in brief, with diagrams, various pumps used for transportation of sterile liquids.
8. Write a note on pneumatic conveyor with labeled diagram.
9. Define corrosion. Classify the types of corrosion. How will you prevent galvanic corrosion?

Q.3 Answer in short. (2 marks each) (20)

1. Discuss Dimensional Analysis, its advantages and disadvantages.
2. Give the importance of pharmaceutical engineering in the field of pharmacy.
3. Draw a neat and labeled diagram of Orifice meter.
4. Describe Dalton's law of additive pressure.
5. State and explain Stefan-Boltzmann law of heat radiation.
6. Give factors affecting transfer of mass from solid to a fluid.
7. Enlist the factors influencing the selection of materials for pharmaceutical plant construction.
8. What is a valve? What are its basic components?
9. Draw a neat and clean diagram of Globe valve.
10. Classify the transportation system for solids.