Seat No: _____ **Enrollment No:_____**

PARUL UNIVERSITY
FACULTY OF PHARMACY
B.Pharm Winter 2019-20 Examination

Semester: 3 **Date:25/11/2019**
Subject Code: 08101204 **Time:02:00 am to 05: 00 pm**
Subject Name: Pharmaceutical Engineering **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. What is Material balance? Explain the principle by the example of a tie substance. Give its significance in pharmacy.
2. Derive equations for heat transfer by conduction when compound resistance arranged in series and parallel.
3. What is Fluid flow? Explain the principle, construction, working and applications of Orificemeter with labeled diagram.

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

1. Discuss about Fuels and Combustion.
2. Write a note on Dimensional analysis.
3. Comment on "Reynold's number is significant to find a type of flow". Explain the experiment with labeled diagram.
4. Explain the function of Heat exchangers with a note on Tubular Heat exchangers.
5. Define steam and write about steam as a heating medium.
6. What is the principle of Mass transfer? What is the influence of mass transfer on unit operation?
7. Discuss on liquid handling systems.
8. Which type of conveyers are used for handling of solid material?
9. Discuss the factors affecting selection of material of pharmaceutical plant construction.

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

1. Explain in brief about Radiation type of Heat transfer.
2. Define and classify corrosion.
3. What is manometer? Give examples.
4. What do you mean by Energy balance?
5. Explain the function of steam trap.
6. Enlist different types of valves.
7. Draw a labeled diagram explaining Bernoulli's theorem for total energy balance.
8. Brief on store design in pharmaceutical industry.
9. What is unit operation?
10. Enlist different types of metals used in pharmaceutical plant construction.