

The Assam Royal Global University, Guwahati

Royal School of Pharmacy

B. Pharmacy III Semester

Semester End Examination, January 2022

Course Title : Pharmaceutical Engineering

Course Code : PHR232C304

Time: 3 Hours

Maximum Marks: 75

Note: Attempt all questions as per instructions given.

The figures in the right-hand margin indicate marks.

Section – A

1. Attempt **all** questions. (Maximum word limit 50) **2.5 x 8**
- a. Write the significance of Reynold's number
 - b. State the various official grades of powder
 - c. Write the mechanisms of heat transfer with a suitable example
 - d. State few differences between evaporation and other drying process.
 - e. Define equilibrium moisture content (EMC).
 - f. State two differences between solid mixing and liquid mixing.
 - g. Define filter aids with example.
 - h. What is ultracentrifugation? What are its uses?

Section – B

2. Attempt **any one** of the following: **13 x 1**
- a. State Bernoulli's theorem and write its applications. Derive the equation for calculating the pressure difference between layers of liquids using simple manometer.
 - b. What is comminution? Write the mechanism of size reduction. Write the principle, construction, working, uses, merit and demerits of ball mill and fluid energy mill.
3. Attempt **any two** of the following: **7 x 2**
- a. State Fourier's law. Derive Fourier's law for heat conduction through a metal wall.
 - b. Write a note on various factors influencing evaporation with few applications.
 - c. What distillation process? Write the principle and methodology of fractional distillation
4. Attempt **any two** of the following: **7 x 2**
- a. Define EMC. Write the principle, construction, working, uses, merit and demerits of freeze dryer.
 - b. Write down the various factors affecting mixing of products. Write a short note on double cone blender.
 - c. Write the objectives of drying. Explain the principle, construction, working, uses, merits and demerits of drum dryer
5. Attempt **any two** of the following: **7 x 2**
- a. What is centrifugation? Describe the theory of centrifugation.
 - b. Describe the mechanisms of filtration. Write a note on filter leaf.
 - c. Write note on theories of corrosion