

**UNIVERSITY OF JAFFNA, SRI LANKA**  
**FACULTY OF ALLIED HEALTH SCIENCES**  
**THIRD YEAR FIRST SEMESTER EXAMINATION IN BPharmHons - 2022**  
**PHAPT 3153 PHARMACEUTICAL TECHNOLOGY**

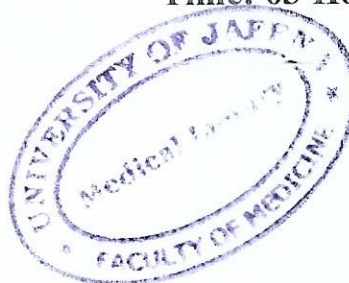
**Date: 18.12.2023**

**Time: 03 Hours**

Answer All Eight Questions

Answer Part A & B in separate answer books.

Part A



1.
  - 1.1
    - 1.1.1 List the three (03) equipment used in mixing of semisolids. (15 Marks)
    - 1.1.2 Explain the stages involved in the mixing of insoluble solids and liquid. (40 Marks)
  - 1.2 Explain the different stages involved in the formation of crystals (45 Marks)
  
2.
  - 2.1 Write down the working principle of climbing film evaporator. (45 Marks)
  - 2.2
    - 2.2.1 Briefly explain the different stages involved in the spray drying process. (45 Marks)
    - 2.2.2 Give three (03) substances that are dried by spray dryer. (10 Marks)
  
3. Briefly describe the different
  - 3.1 stages involved in the compression of solid particles. (35 Marks)
  - 3.2 types of granular mechanisms in the formation of granules. (65 Marks)
  
4. Explain the working principle of
  - 4.1 fluid energy mill (50 Marks)
  - 4.2 cyclone separator (50 Marks)
  
5. Write an account on
  - 5.1 qualities of pharmaceutical packaging. (50 Marks)
  - 5.2 hazards caused by chemicals in industry. (50 Marks)

## Part B

- 6.
- 6.1 Define rate of filtration using Darcy's law. (10 Marks)
  - 6.2 Briefly explain how factors affect the rate of filtration? (30 Marks)
  - 6.3 Write down the working principle and advantages of rotary filter. (40 Marks)
  - 6.4 List the material used in the filter medium. (20 Marks)
- 7.
- 7.1 Drive a relationship for flow velocity ( $V_1$ ) of a Venturi meter in terms of  $P_1$ ,  $P_2$ ,  $A_1$ ,  $A_2$  and  $\rho$ . ( $P_1$  and  $P_2$  are the pressures in pipe and  $A_1$  and  $A_2$  are the cross sectional areas of pipe in different locations.  $\rho$  is density of the fluid) (25 Marks)
  - 7.2 Flow velocity of water is measured by Venturi meter which has two main diameters such as 3cm and 1cm. Pressure difference was measured using manometer as 18 mmHg. Determine the flow velocity of water. (20 Marks)  
(Density of water and mercury are  $1000 \text{ kg/m}^3$  and  $13600 \text{ kg/m}^3$  respectively)
  - 7.3 Fluid flow through the pipe was studied using Reynolds apparatus. Briefly describe the followings.
    - 7.3.1 Velocity difference across the fluid layers in the tube (30 Marks)
    - 7.3.2 Formation of boundary layers in the tube (25 Marks)
- 8.
- 8.1 8.1.1 Distinguish between fermenter and bioreactor. (15 Marks)
  - 8.1 8.1.2 List the steps involved in complete cycle of fermentation. (25 Marks)
  - 8.1 8.1.3 State the factors that affect the fermentation process. (20 Marks)
  - 8.2 Write short note on vapour absorption refrigerator. (40 Marks)

