UNIVERSITY OF JAFFNA, SRI LANKA
FACULTY OF ALLIED HEALTH SCIENCES
THIRD YEAR FIRST SEMESTER EXAMINATION IN BPharmHons - 2023
PHAPT 3112 PHARMACEUTICAL TECHNOLOGY I

Date: 25.11.2024 **Time: 02 Hours**

Answer All Six Questions

Answer Part A & B in separate answer books.

Part A

1.

1.1	**1.1.1** List the factors that affect the mixing of powders.	**(15 Marks)**
	1.1.2 List the mixers that are used for liquid mixing.	**(15 Marks)**
	1.1.3 Briefly explain the mixer that is used for mixing viscous liquids.	**(30 Marks)**
1.2	Give the advantages and disadvantages of continuous cold extraction.	**(40 Marks)**

2. Explain the working principle of

2.1	colloidal mill	**(30 Marks)**
2.2	climbing film evaporator	**(40 Marks)**
2.3	ball mill	**(30 Marks)**

3.

3.1	Briefly describe the characteristics of the product obtained by	
	3.1.1 freeze drying.	**(20 Marks)**
	3.1.2 spray drying process.	**(20 Marks)**
3.2	Explain the different theories for the formation of the bond between particles during compression of the powder bed.	**(40 Marks)**
3.3	List the pharmaceutical applications of the crystallization process.	**(20 Marks)**

4. Write an account on

4.1	stainless steel.	**(60 Marks)**
4.2	fire detectors.	**(40 Marks)**

Part B

5.

5.1	List the necessary requirements involved in designing a fermenter.	**(30 Marks)**
5.2	Briefly describe the different methods that are used in the prevention of wet corrosion.	**(30 Marks)**
5.3	Distinguish between stream line flow and turbulent flow based on the Reynolds' experiment.	**(20 Marks)**
5.4	A water jet is moving horizontally with a velocity of 12.0 m/s through a pipe with 6.0 cm diameter. Find the kinetic energy of water jet in a second. (Density of water is 1000 kg/m3)	**(20 Marks)**

6.

6.1	**6.1.1** Define relative humidity.	**(10 Marks)**
	6.1.2 Determine the amount of water vapour present in a volume of 2.0 m3 container when the relative humidity of air and saturation vapour pressure of water vapour of air were 60% and 3.6 kPa respectively at 270 C. (Assume that the universal gas constant R is 8.314 J/mol/K and molecular weight of water is 18.0 g).	**(30 Marks)**
6.2	**6.2.1** State the second law of thermo dynamics.	**(10 Marks)**
	6.2.2 Briefly describe the working principle of a refrigerator.	**(15 Marks)**
	6.2.3 State the heat energy related equation between hot and cold reservoir in a refrigerator.	**(10 Marks)**
	6.2.4 A heat engine rejects the amount of heat energy to the cold reservoir. The amount of heat energy was two times of the work of engine. Estimate the efficiency of engine.	**(25 Marks)**