UNIVERSITY OF JAFFNA
BACHELOR OF PHARMACY
THIRD YEAR FIRST SEMESTER EXAMINATION – February 2017
PHAPT 3153 PHARMACEUTICAL TECHNOLOGY

Date: 23.02.2017. **Time: 03 Hours**

ANSWER ALL EIGHT QUESTIONS.
Answer Part A and Part B in separate answer books.

Part A

1.

1.1 Explain the steps involved in the freeze drying process. (30 marks)
1.2 Enumerate advantages of freeze drying. (20 marks)
1.3 Describe the working principle of fluidized bed dryer. (50 marks)

2. Describe the

2.1 types of fire extinguishers. (60 marks)
2.2 role of stainless steel in the construction of pharmaceutical plant. (40 marks)

3.

3.1 List the advantages of size reduction process in the development of pharmaceutical formulations. (30 marks)
3.2 Describe the mechanism of mixing of powders. (20 marks)
3.3 Describe the events in sequence that occur during compression of granules into intact tablet. (50 marks)

4.

4.1 Explain the basic qualities of packages. (25 marks)
4.2 Briefly describe the mechanism of crystallization process. (30 marks)
4.3 Describe the working principle of spray dryer. (45 marks)

5. Write an account on

5.1 long tube evaporators. (50 marks)
5.2 theory of extraction of herbal drugs. (30 marks)
5.3 cyclone separator. (20 marks)

Part B

6.

6.1 Describe briefly the different ways of heat transfer mechanism with examples. (45 Marks)

6.2 Define "black body" in heat transfer. (15 Marks)

6.3

6.3.1 Give the first law of thermodynamics. (10 Marks)

6.3.2 The temperature of three moles of a monatomic ideal gas is reduced from 227 °C to 27 °C by two different methods. In the first method 5000 J of heat flows into the gas, while in the second method, 1200 J of heat flows into it. Find the change in the internal energy and the work done by the gas in each case. (You may use the universal constant $R=8.31 Jmol^{-1}K^{-1}$) (30 Marks)

7.

7.1 Define Bernoulli's equation in fluid flow and give the conditions for its applications. (20 Marks)

7.2 A U tube manometer containing mercury is connected to a nozzle of horizontal water tunnel that discharges the water to the atmosphere. The area ratio of horizontal water tunnel is $A_1/A_2=4$, where A_1 is the area of the larger diameter end and A_2 is the area at nozzle to the atmosphere. For a given operational conditions the height difference in the manometer is 9.0 cm.

7.2.1 Find the pressure difference between the ends of the water tunnel. (10 Marks)

7.2.2 Find the average water velocity at the nozzle.
(You may use the density of water and mercury which are1000 kg/m^3 and 13600 kg/m^3 respectively and g=10 N/kg). (40 Marks)

7.3 List the wet corrosion prevention methods. (30 Marks)

8.

8.1 Define Darcy's law in filtration. (10 Marks)

8.2 Briefly explain how factors affect the rate of filtration. (40 Marks)

8.3 List the advantages and disadvantages of the rotary filter. (30 Marks)

8.4 Briefly describe the functions of filter aid and give its features. (20 Marks)

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