0049

THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF PHARMACY
ACADEMIC YEAR 2019/2020 – SEMSETER I

BACHELOR OF PHARMACY HONOURS
BPU3232 – PHARMACEUTICS III - LEVEL 5
FINAL EXAMINATION
DURATION: THREE HOURS

DATE: 22ND SEPTEMBER 2020 **TIME: 1.30 PM- 4.30 PM**

Index No.....

Part – B (40 marks)

1.

1.1. Briefly explain three (03) different types of measurements of humidity. (03 marks)

I. .....

.....

II. .....

.....

III. .....

.....

1.2 List two (02) methods of controlling drying rate of drum drier. (02 marks)

I. .....

II. .....

1.3 Briefly explain the term 'convective drying' (03 marks)

.....

.....

.....

.....

.....

.....

1.4 List four (04) factors which need to be considered in choosing of an equipment for drying. (02 marks)

I. .....

II. .....

III. .....

IV. .....

Index No.....

2.

2.1. State three (03) types of mixtures based on mixing behavior. (03 marks)

I. .....

II. .....

III. .....

2.2. Briefly describe the effect of particle size in powder segregation. (03 marks)

.....

.....

.....

.....

.....

.....

2.3. State four (04) methods to reduce powder segregation. (02 marks)

I. .....

II. .....

III. .....

IV. .....

2.4. State four (04) mechanisms involved in liquid-liquid mixing. (02 marks)

I. .....

II. .....

III. .....

IV. .....

Index No.....

3.

3.1. List two (02) mechanisms of heat transfer. (01 mark)

I. .....

II. .....

3.2. Briefly explain the characteristics of heating exchangers. (03 marks)

.....

.....

.....

.....

.....

.....

3.3. Calculate the rate of heat transfer through a flat copper plate of 100 mm tall, 150 mm wide and 25 mm thick. The surface temperatures are 100 $^{\circ}$C and 50 $^{\circ}$C. Thermal Conductivity (k) of copper is 385 W/mK. (03 marks)

.....

.....

.....

.....

.....

.....

3.4. State three (03) methods used to increase filtration rate. (03 marks)

I. .....

II. .....

III. .....

IV. .....

Index No.....

4.

4.1. According to Reynold's equation, state four (04) factors that influence fluid flow.

(02 marks)

I. .....

II. .....

III. .....

IV. .....

4.2. Briefly explain three (03) types of fluid flow explained by Reynolds experiment.

(03 marks)

I. .....

.....

II. .....

.....

III. .....

.....

4.3. Briefly explain differences of crystalline and amorphous solids. (04 marks)

.....

.....

.....

.....

.....

.....

.....

4.4. State two (02) methods to achieve supersaturation. (01 mark)

I. .....

II. .....

Index No.....

Part – C (30 marks)

1.

1.1. State four (04) factors affecting the rate of evaporation. (02marks)

1.2. Answer the following questions with regards to hammer mill.

1.2.1. Name four (04) parts of the machine. (02 marks)

1.2.2. Explain the principle/s of size reduction process of the above machine. (02 marks)

1.2.3. List two (02) factors that determine the size and shape of the milled particles obtained by the above machine. (02 marks)

1.3.

1.3.1. State two (02) methods used for particle separation. (01 mark)

1.3.2. Briefly explain agitation method used for particle separation. (02 marks)

1.4. Explain the mechanism of settling chamber machine used for size separation. (04 marks)

2.

2.1. List four (04) colligative properties of a solution. (02 marks)

2.2. State the Raoult's law. (02 marks)

2.3. A liquid mixture is consists of two (02) components, namely, A and B. Mole fraction of A in this liquid mixture is 0.8. The mixture is distilled at temperature of 60 $^{\circ}$C. The vapour pressures exert by A and B in their pure state at 60 $^{\circ}$C is 10 atm and 30 atm respectively. Assuming this mixture follow Raoult's law, answer the following.

2.3.1. Calculate partial pressure (P_A) exerted by A. (01 mark)

2.3.2. Calculate partial pressure (P_B) exerted by B. (01 mark)

2.3.3. Calculate mole fractions of A and B in the vapor. (01 mark)

2.3.4. Which compound has the lower boiling point? Explain your answer. (02 marks)

2.4. Briefly describe the following,

2.4.1. Efflorescence

2.4.2. Deliquescence

2.4.3. Exsiccation (06 marks)