Code No: BP304T **PCI** SET - 1

II B. Pharmacy I Semester Regular/Supplementary Examinations, February/March - 2022

PHARMACEUTICAL ENGINEERING

Time: 3 hours Max. Marks: 75

Note: 1. Question paper consists of three parts (**Part-I**, **Part-II & Part-III)**
2. Answer ALL (Multiple Choice) Questions from **Part-I**
3. Answer any **TWO** Questions from **Part-II**
4. Answer any **SEVEN** Questions from **Part-III**

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PART –I

1. i) Ideally the drying should be done to a level of (1M)
(a) EMC (b) CMC (c) FMC (d) Zero moisture content

ii) Freeze drying works on the principle of (1M)
(a) Evaporation of water
(b) Sublimation of water from ice phase to gas phase
(c) Liquefaction of ice to water
(d) Heating at the freezing temperature of water

iii) The most efficient heat exchange between the particles and flowing air occurs in the (1M)
(a) Tray dryer (b) Spray dryer
(c) Fluidized bed dryer (d) Rotary dryer

iv) Reynold's number (Re) for streamline flow of a fluid is (1M)
(a) <0.2 (b) >0.2 (c) <0.8 (d) >0.8

v) Following is not the mechanism of size reduction (1M)
(a) Impact and attrition (b) Cutting
(c) Bruising (d) Elutriation

vi) For effective operation of ball mill the ball charge (1M)
(% volume of mill filled by the balls) should be
(a) 60–70% (b) 30–50% (c) <30% (d) >50%

vii) Critical speed of the ball mill is the speed at which (1M)
(a) Balls begin to centrifuge with the mill
(b) Balls cascade over one another
(c) Balls are carried up the sides and fall freely onto material
(d) Balls start tumbling

viii) Total 100 squares in a 1 inch2 area is termed (1M)
(a) 100 mesh sieve (b) 10 mesh sieve
(c) 20 mesh sieve (d) 25 mesh sieve

ix) Filter aids may be applied by (1M)
(a) Precoating technique (b) Body-mix technique
(c) Both (d) None

x) Integrity tests are intended for following filters: (1M)
(a) Leaf filters (b) Drum filters
(c) Membrane filters (d) Edge filters

xi) The equation describing the factors affecting the rate of filtration is (1M)
(a) Darcy's equation (b) Dalton's equation
(c) Stokes' equation (d) None

xii) Hammer mill works by following principle: (1M)
(a) Impact (b) Attrition (c) Compression (d) None
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xiii) Following laws are used to predict energy requirements for comminuting process. (1M)
(a) Rittinger's law (b) Kick's law (c)Bond's law (d) All

xiv) Following is/are dimensionless number(s) (1M)
(a) Reynold's number (b) Power number
(c) Mass transfer number (d) All

xv) Which one is called as coarse powder? (1M)
(a) All particles must pass through sieve no 10
(b) All particles must pass through sieve no 22
(c) All particles must pass through sieve no 44
(d) All particles must pass through sieve no 85

xvi) Which of these is not mechanism of size separation? (1M)
(a) Agitation (b) Brushing
(c) Centrifugation (d) All of the above

xvii) Cyclone separator works on the principle (1M)
(a) Centrifugation (b) Agitation (c) Vibration (d) Gyration

xviii) U-tube manometer is used to measure the pressure of a... (1M)
(a) Gas (b) Liquid (c) Gas as well as liquid (d) None

xix) Inclined single column manometer is useful for which the pressure (1M)
(a) Small (b) Medium (c) High (d) None

xx) In Reynolds number the letter μ denotes (1M)
(a) Kinetic viscosity (b) Absolute viscosity
(c) Coefficient of friction (d) None

PART –II

2. a) What is Reynold's number and explain its significance. (5M)
   b) Describe the factors affecting size reduction. (5M)

3. a) State about mechanisms of size separation. (5M)
   b) Write the construction and working of double cone blender. (5M)

4. a) Explain Fouriers law in detail. (5M)
   b) Write the methodology of simple distillation. (5M)

PART -III

5 Explain about the rate of drying curve. (5M)

6 Write in brief the working and uses of sigma blade mixer. (5M)

7 Discuss the theories and factors affecting filtration. (5M)

8 What is centrifugation? Explain in detail the objectives and uses of centrifugation. (5M)

9 Add a note on ferrous and non ferrous metals for construction. (5M)

10 Explain in detail rotary drum filter. (5M)

11 Write about the details of solid-solid mixing. (5M)

12 Explain the economy of multiple effect evaporator. (5M)

13 Mention different types of manometers. (5M)