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BP 304 T

Roll No. of candidate | | | | | | | | | |

2021

B.Pharm. 3rd Semester (Regular) Examination

PHARMACEUTICAL ENGINEERING THEORY

(New Regulation)

(w.e.f. 2017-18)

Full Marks – 75   Time – Three hours

The figures in the margin indicate full marks
for the questions.

1. Choose the most appropriate alternative for the following multiple choice questions :

    Answer *all* questions :   (20 × 1 = 20)

    (i) Which one of the following bodies radiates maximum amount of energy at a given temperature?

    (a) Grey body

    (b) Black body

    (c) Light grey body

    (d) Polished black body

    (ii) Thermolabile substances cannot be dried using

    (a) Drum dryer

    (b) Lyophilizer

    (c) Spray dryer

    (d) Tray dryer

[Turn over

(iii) Tumbling as a mechanism is seen in:

    (a) Fluidised mixer

    (b) Ribbon blender

    (c) Sigma blender

    (d) V-cone blender

(iv) In drying, once material reaches equilibrium moisture content, the rate of drying becomes

    (a) High   (b) Low

    (c) Zero   (d) None of the above

(v) Convective mixing is also known as

    (a) Diffusive mixing   (b) Macro mixing

    (c) Micro mixing   (d) Shear mixing

(vi) Which one of these is not crystalline form

    (a) Hydrates   (b) Amorphous

    (c) Polymorphs   (d) Pseudomorphs

(vii) Silverson mixer is used for preparation of

    (a) Elixir   (b) Emulsion

    (c) Mouth wash   (d) Syrup

(viii) Filtration is called clarification when percent w/v solids is:

    (a) 0.01   (b) 0.1

    (c) 1.0   (d) 10.0

(ix) According to Fourier's Law, conduction of heat through a metal wall is:

    (a) Inversely proportional to temp difference

    (b) Proportional to area of metal wall

    (c) Proportional to the thickness of the wall

    (d) Proportional to weight of metal wall

(x) Metal that makes stainless steel corrosion resistant

    (a) Chromium and nickel

    (b) Copper and selenium

    (c) Tantalum and molybdenum

    (d) Titanium and niobium

(xi) Nominal size of aperture means

    (a) Area of mesh as percentage

    (b) Distance between two adjacent wires

    (c) Number of meshes per linear length

    (d) None of the above

(xii) Number of necks in Claisen flask is

    (a) Four

    (b) One

    (c) Three

    (d) Two

(xiii) In distillation, applying vacuum causes the boiling point of the liquid to:

    (a) Decrease   (b) Decrease and then increase

    (c) Increase   (d) Remain unchanged

(xiv) Reynolds number depends on one of the following factors

    (a) Roughness of the pipe   (b) Surface area of the pipe

    (c) Viscosity of the liquid   (d) Volume of the liquid

(xv) Which one of the following equipment is an example of heat transfer by radiation?

    (a) Hot Air Oven   (b) Incubator

    (c) Microwave oven   (d) Refrigerator

(xvi) Diffusive Convective mixing is also known as

    (a) Convective mixing   (b) Macro mixing

    (c) Micro mixing   (d) Shear mixing

(xvii) Which of the following is correct according to Stefan-Boltzmann law?

    (a) $q = bAT$ (b) $q = bAT^2$

    (c) $q = bAT^3$ (d) $q = bAT^4$

(xviii) Which one is NOT a flow meter?

    (a) Orifice meter   (b) Venturi meter

    (c) Manometer   (d) Pilot tub

(xix) Soft Glass is also known as:

(a) Potash glass   (b) Soda glass

(c) Jena glass   (d) Pyrex glass

(xx) The theories of filtration is NOT described by :

(a) Poiseuille's equation   (b) Darcy's equation

(c) Bernoulli's equation   (d) Kozeny-Carman equation

2. Answer any *seven* questions : $(7 \times 5 = 35)$

(a) Write about the construction and working of ball mill.

(b) What is corrosion? Mention the factors that influence the rate of corrosion.

(c) What is filtration? Write about the factors influencing filtration process.

(d) Define Drying. Explain the theory of drying.

(e) Explain the construction and working of fractional distillation.

(f) Write the application of size separation. Mention the official standards of powders according to the IP 1996.

(g) Write the principle, construction and working of Super centrifuge.

(h) What are the mechanisms of heat flow? Write about black body and grey body.

(i) Define mixing of solids. Write the mechanism and applications of mixing.

3. Answer any *two* questions : $(2 \times 10 = 20)$

(a) What is drying? Explain the construction of Fluidised bed dryer? Write its advantages and disadvantages.

(b) Derive the Bernoulli's equation stating the assumptions.

(c) Derive the Fourier's Law for conduction of heat through a metal wall.

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