Library
Pharmaceutical Technology
Brainware University
Barasat, Kolkata 700125

BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Pharm-2020/B.Pharm-2021/B.Pharm-2022/B.Pharm-2023
Course Name – Pharmaceutical Engineering
Course Code - BP304T
(Semester III)

Full Marks : 75 **Time : 3:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 20=20

1. *Choose the correct alternative from the following :*

(i) Identify the correct option, on which reynolds number depends on-
a) Roughness of the pipe b) Surface area of the pipe
c) Viscosity of the liquid d) Volume of the liquid

(ii) Identify the type of flow for which the velocity distribution of a fluid in a pipe is parabolic.
a) Non- uniform laminar flow b) Non- uniform turbulent flow
c) Uniform laminar flow d) Uniform turbulent flow

(iii) If, within a pipe, laminar flow has a centre line velocity of 0.1 m/s, select the average velocity.
a) 5 cm/s b) 10 cm/s
c) 15 cm/s d) 20 cm/s

(iv) Select the portion of pipe, in which the flow of liquid is high.
a) At actual surface of pipe wall b) Central portion
c) Near the pipe wall d) Transition region

(v) Name the factor of fluid flow, on which the inertial forces depend on.
a) Mass b) Mass & velocity
c) Mass, velocity and density d) Mass, velocity, density & viscosity

(vi) Name the following instrument for which, measurement of time of flow is important for the determination of fluid flow.
a) Displacement meter b) Orifice meter
c) Rotameter d) Venturi meter

(vii) Name the correct option from the following that indicates direct reading of fluid flow.
a) Orifice meter b) Pilot tube
c) Rotameter d) Venturi meter

(viii) Name the one from the following options, that uses a thin plate for the measurement of flow of fluids.

a) Orifice meter
b) Pilot tube
c) Displacement meter
d) Venturi meter

(ix) From the following, select the option which contains a single tapered section for the measurement of flow of fluids.

a) Orifice meter
b) Pilot tube
c) Rota meter
d) Venturi meter

(x) In flow of fluids, select the option that can describe the principles of energy conservation.

a) Bernoulli's theorem
b) Reynolds number
c) Kick's theory
d) Rittinger's theory

(xi) Recognise the option which is not considered as energy loss.

a) Friction losses
b) Resistance losses
c) Enlargement losses
d) Losses in fittings

(xii) Name the equipment which is used for sieve analysis.

a) Alpine airjet sieve
b) Cyclone separator
c) Rotex screen
d) Shaking screen

(xiii) Indicate the disadvantage of sieve shaker method.

a) Attrition
b) Capacity limited
c) Expensive
d) Tedious

(xiv) Identify the option which is not a purpose of size reduction.

a) Physical stability
b) Increased dissolution rate
c) Increased absorption
d) Improved particle density

(xv) According to Fourier's law, if thickness increases, predict the heat transfer rate.

a) Will remain same
b) Increase
c) Decrease
d) Initially increase, then decrease

(xvi) Heat transfer rate per unit area, can be related to which of the following term?

a) Thermal diffusivity
b) Thermal conductivity
c) Heat flux
d) Heat transfer co-efficient

(xvii) Relate the option which is associated with mean free path.

a) Fractional distillation
b) Molecular distillation
c) Steam distillation
d) Azeotropic distillation

(xviii) Predict the type of evaporator that gives porous product on evaporation.

a) Film evaporator
b) Multiple effect evaporator
c) Open pan evaporator
d) Vacuum evaporator

(xix) In climbing film evaporator, predict the common disadvantage.

a) Boiling point of liquid
b) Droplet formation
c) Entrainment of liquid
d) Film formation

(xx) A liquid is predicted to boil, when its vapour pressure is _____ to the atmospheric pressure.

a) Less
b) More
c) Equal
d) Does not depend on vapour pressure

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Group-B

(Short Answer Type Questions) 5 x 7=35

2. Describe the construction and working of silverson emulsifier. (5)

3. Describe the mechanism of size reduction. (5)

4. Briefly describe about the working and construction about plate and frame filter press. (5)

5. Briefly discuss the mechanism of mixing. (5)
6. Write briefly about the pitot tube with diagram. (5)

7. Explain the principle, working and construction of sigma blade mixer. (5)

OR

Explain the construction and working of bag filter. (5)

8. Explain the principle, construction, advantages and disadvantages of seidtz filter. (5)

OR

Explain working and construction of spray dryer with diagram. (5)

Group-C

(Long Answer Type Questions) 10 x 2=20

9. Definition and application of size reduction along with principle and working of hammer mill. (10)

10. Define centrifugation along with applications and write a note on non-perforated basket centrifuge with diagram. (10)

OR

Define mixing along with mechanism of solid mixing. (10)

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