BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – B.Pharm-2020/B.Pharm-2021/B.Pharm-2022
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) 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

(iv) Select the appropriate sieve number through which all the particles of fine powders must pass.

a) 22 b) 44
c) 85 c) 120

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

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

(vi) Indicate the disadvantage of sieve shaker method.

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

(vii) Recognize the following term that is used to describe the material remaining on the given screening surface.

a) Medium size material b) Minus material
c) Neutral material d) Plus material

(viii) Identify the right option that acts as the major mechanism for size separation in cyclone separator.

a) Adhesive force
b) Centrifugal force
c) Cohesive force
d) Shearing force

(ix) Identify the operational speed of ball mill from the given options.

a) Low speed
b) High speed
c) Optimum speed
d) Very low speed

(x) Identify the nature of the pharmaceutical powders from the following options.

a) Monodisperse
b) Bidisperse
c) Tridisperse
d) Polydisperse

(xi) 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

(xii) Select the reason of size separation in a sieve shaker.

a) Particle size
b) Particle shape
c) Particle density
d) Volume of the powder

(xiii) Select the correct option from the following, that does not affect the process of size reduction of solids.

a) Hardness
b) Stickiness
c) Viscosity
d) Abrasiveness

(xiv) Select the following theory which suggests that energy required in size reduction is proportional to the new surface area produced.

a) Rittinger's theory
b) Bond's theory
c) Kick's theory
d) Walker's theory

(xv) Identify the option that is considered as a major loss in fluid flow.

a) Frictional loss
b) Inlet loss
c) Exit loss
d) Shock loss

(xvi) Predict the material which Rotameter is made up of-

a) Glass
b) Tin
c) Plastic
d) Wood

(xvii) Identify the mill that produces finer particles.

a) Ball mill
b) Fluid energy mill
c) Hammer mill
d) Cutter mill

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

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

(xix) 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

(xx) Choose the evaporator, in which, formation of vapour film is assisted by gravitational force.

a) Climbing film evaporator
b) Falling film evaporator
c) Horizontal film evaporator
d) Multiple effect evaporator

Group-B

(Short Answer Type Questions) 5 x 7=35

2. With a neat diagram explain the principle, construction and working of fluidized bed dryer. (5)

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

4. Describe about the sedimentation centrifuge. (5)
5. Write a note on corrosion and its prevention. (5)
6. Explain working and construction of spray dryer with diagram. (5)

7. Explain the construction and working forced circulation evaporator. (5)

OR

Write briefly about the flash distillation. (5)

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

OR

Explain the various pharmaceutical application of filtration. (5)

Group-C

(Long Answer Type Questions) 10 x 2=20

9. Describe principle, working, construction and advanatges of steam distillation. (10)

10. Explain the theories of drying. (10)

OR

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

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