PHB Education

Government Exam and D. Pharm Exit Exam Preparation Questions Bank

Subject: Pharmaceutics

Chapter 8 : Drying

Section 1: Introduction to Drying

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1. Drying is a process of removing _____ from a substance.
   a) Solvent
   b) Water or moisture
   c) Air
   d) Heat
   → **b**
2. The main purpose of drying is to:
   a) Increase weight
   b) Reduce moisture content
   c) Increase viscosity
   d) Decrease solubility
   → **b**
3. Drying is a type of _____ process.
   a) Physical
   b) Chemical
   c) Biological
   d) Mechanical
   → **a**
4. In pharmaceutics, drying is used to:
   a) Preserve the product
   b) Enhance stability
   c) Facilitate powder formation
   d) All of these
   → **d**
5. The product after drying is called:
   a) Dried product
   b) Moist product
   c) Residue
   d) Slurry
   → **a**

6. Drying helps to prevent:
   a) Microbial growth
   b) Moisture-induced degradation
   c) Both a and b
   d) None
   → **c**
7. Drying is considered a _____ operation in pharmaceutics.
   a) Unit
   b) Bulk
   c) Thermal
   d) None
   → **a**
8. The material before drying is called:
   a) Wet solid
   b) Dry solid
   c) Solution
   d) None
   → **a**
9. The energy required for drying is usually supplied as:
   a) Heat
   b) Pressure
   c) Light
   d) Sound
   → **a**
10. Drying can be used as a method of:
    a) Sterilization
    b) Concentration
    c) Preservation
    d) Both b and c
    → **d**

Section 2: Theory of Drying

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11. The process of drying involves:
    a) Heat transfer and mass transfer
    b) Only heat transfer

c) Only mass transfer

d) None

→ **a**

12. During drying, moisture moves from:

a) Surface to interior

b) Interior to surface

c) Air to solid

d) None

→ **b**

13. The drying rate depends on:

a) Temperature

b) Air velocity

c) Humidity

d) All of these

→ **d**

14. The rate of drying is initially _____.

a) Constant

b) Decreasing

c) Increasing

d) Zero

→ **a**

15. The drying curve has two major periods:

a) Constant rate and falling rate period

b) Rising and constant period

c) Falling and increasing period

d) None

→ **a**

16. During the constant rate period, moisture is removed from the:

a) Surface

b) Core

c) Pores

d) Both a and b

→ **a**

17. During the falling rate period, drying depends on:

a) Internal diffusion

b) Surface evaporation

c) Air flow

d) Pressure

→ **a**

18. The constant rate period ends when:

a) Surface becomes dry

b) Air velocity drops

c) Product melts

d) None

→ **a**

19. Critical moisture content refers to:

a) Moisture where constant rate ends

b) Total water content

c) Free water content

d) None

→ **a**

20. Equilibrium moisture content is:

a) Moisture content where drying stops

b) Initial water content

c) Maximum water content

d) None

→ **a**

Section 3: Types of Dryers

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21. Dryers are classified based on:

a) Mode of heat transfer

b) Nature of feed

c) Method of operation

d) All of these

→ **d**

22. Based on mode of heat transfer, dryers are:

a) Conduction, convection, radiation

b) Diffusion, evaporation, condensation

c) Mechanical, thermal, optical

d) None

→ **a**

23. Tray dryer works on:
    a) Convection
    b) Conduction
    c) Radiation
    d) Filtration
    → **a**
24. Rotary dryer works on:
    a) Convection
    b) Conduction
    c) Radiation
    d) Both a and b
    → **a**
25. Drum dryer works on:
    a) Conduction
    b) Convection
    c) Radiation
    d) Diffusion
    → **a**
26. Spray dryer is suitable for:
    a) Liquids and slurries
    b) Powders only
    c) Solids
    d) None
    → **a**
27. Fluidized bed dryer works on:
    a) Convection
    b) Conduction
    c) Radiation
    d) Diffusion
    → **a**
28. Freeze dryer is also called:
    a) Lyophilizer
    b) Sublimator
    c) Condenser
    d) None
    → **a**

29. Tunnel dryer is used for:
    a) Continuous drying
    b) Batch drying
    c) Laboratory drying
    d) None
    → **a**
30. Vacuum dryer is suitable for:
    a) Heat-sensitive materials
    b) Metals
    c) Glass
    d) None
    → **a**

Section 4: Freeze-Drying (Lyophilization)

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31. Freeze drying is a process of:
    a) Removing water by sublimation
    b) Boiling
    c) Condensation
    d) Melting
    → **a**
32. The principle of freeze-drying is:
    a) Sublimation of ice
    b) Evaporation of water
    c) Adsorption
    d) Diffusion
    → **a**
33. In freeze drying, the material is first:
    a) Frozen
    b) Boiled
    c) Crystallized
    d) Melted
    → **a**
34. The frozen water in the product is removed by:
    a) Sublimation under vacuum
    b) Boiling under pressure

c) Melting at high temperature

d) None

→ **a**

35. Freeze drying is useful for:

a) Heat-sensitive materials

b) Insoluble materials

c) Metallic substances

d) None

→ **a**

36. Example of product prepared by freeze drying:

a) Vaccines

b) Syrups

c) Tablets

d) Ointments

→ **a**

37. Main advantage of freeze drying:

a) Retains biological activity

b) Rapid and cheap

c) Easy for solids only

d) None

→ **a**

38. Limitation of freeze drying:

a) Expensive and time-consuming

b) Rapid and simple

c) Inexpensive

d) None

→ **a**

39. Freeze drying is carried out at:

a) Low temperature and low pressure

b) High temperature

c) Room temperature

d) High humidity

→ **a**

40. Freeze drying removes:

a) Bound water

b) Free water (ice)

c) Both

d) None

→ **b**

Section 5: Fluidized Bed Dryer (FBD)

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41. Principle of FBD:
    a) Hot air is passed through powder to fluidize particles
    b) Heat conduction
    c) Radiation
    d) Diffusion
    → **a**
42. FBD operates by:
    a) Convection heat transfer
    b) Conduction
    c) Diffusion
    d) Radiation
    → **a**
43. In FBD, the air is introduced through:
    a) Perforated bottom plate
    b) Side pipe
    c) Top vent
    d) None
    → **a**
44. The hot air makes the solid particles behave like:
    a) A fluid
    b) A solid mass
    c) A gel
    d) None
    → **a**
45. The drying efficiency in FBD depends on:
    a) Air temperature
    b) Air velocity
    c) Particle size
    d) All of these
    → **d**

46. FBD is suitable for:

a) Granules and powders

b) Liquids

c) Suspensions

d) Pastes

→ **a**

47. Advantage of FBD:

a) Rapid drying

b) Uniform drying

c) Less time

d) All of these

→ **d**

48. Limitation of FBD:

a) Fine powders may blow out

b) Not for sticky materials

c) Both a and b

d) None

→ **c**

49. FBD is commonly used in:

a) Drying of granules before tablet compression

b) Sterilization

c) Mixing

d) Coating

→ **a**

50. FBD works under:

a) Atmospheric pressure

b) High vacuum

c) High pressure

d) None

→ **a**

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