PHB Education

Government Exam and D. Pharm Exit Exam Preparation Questions Bank

Subject: *Pharmaceutics*

Chapter 5 : *Size Separation*

Section 1: *Introduction to Size Separation*

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1. Size separation is also called —

   A) Sifting

   B) Sieving

   C) Grading

   D) All of the above

   Answer: D) All of the above

2. The purpose of size separation is to obtain —

   A) Uniform particle size

   B) Color variation

   C) Different drug tastes

   D) Drug solubility

   Answer: A) Uniform particle size

3. Size separation is commonly used after —

   A) Mixing

   B) Size reduction

   C) Drying

   D) Sterilization

   Answer: B) Size reduction

4. Size separation is based on —

   A) Particle size

   B) Density

   C) Magnetic property

   D) Temperature

   Answer: A) Particle size

5. The process of separating particles based on their size using sieves is known as —

   A) Sieving

   B) Grinding

   C) Milling

   D) Compression

   Answer: A) Sieving

6. Sieving is a type of —

A) Mechanical operation

B) Chemical process

C) Biological process

D) None

Answer: A) Mechanical operation

7. The efficiency of size separation depends on —

A) Load on sieve

B) Sieve mesh size

C) Time of sieving

D) All of the above

Answer: D) All of the above

8. The main equipment used for size separation is —

A) Sieve shaker

B) Cyclone separator

C) Elutriator

D) All of the above

Answer: D) All of the above

9. The purpose of sieving is to —

A) Separate particles by size

B) Mix powders

C) Dry powders

D) Heat powders

Answer: A) Separate particles by size

10. Size separation is also known as —

A) Classification

B) Extraction

C) Precipitation

D) Drying

Answer: A) Classification

Section 2: Official Standards for Powders

11. **Pharmacopoeias** classify powders based on —

A) Sieve size

B) Density

C) Shape

D) Weight

Answer: A) Sieve size

12. Official standards for powders are given in —

A) Indian Pharmacopoeia

B) British Pharmacopoeia

C) USP

D) All of the above

Answer: D) All of the above

13. **Coarse powder** passes through —

A) Sieve No. 10

B) Sieve No. 22

C) Sieve No. 44

D) Sieve No. 85

Answer: A) Sieve No. 10

14. **Moderately coarse powder** passes through —

A) Sieve No. 22

B) Sieve No. 30

C) Sieve No. 40

D) Sieve No. 44

Answer: A) Sieve No. 22

15. **Moderately fine powder** passes through —

A) Sieve No. 44

B) Sieve No. 60

C) Sieve No. 85

D) Sieve No. 120

Answer: A) Sieve No. 44

16. **Fine powder** passes through —

A) Sieve No. 85

B) Sieve No. 60

C) Sieve No. 120

D) Sieve No. 10

Answer: B) Sieve No. 60

17. **Very fine powder** passes through —

A) Sieve No. 85

B) Sieve No. 120

C) Sieve No. 200

D) Sieve No. 300

Answer: B) Sieve No. 120

18. **Microfine powder** is also called —

A) Micronized powder

B) Coarse powder

C) Granule

D) Fine powder

Answer: A) Micronized powder

19. **Granules** are larger than —

A) Powders

B) Crystals

C) Tablets

D) Pellets

Answer: A) Powders

20. The term "Sieve Number" indicates —

A) Number of openings per linear inch

B) Size of opening

C) Thickness of sieve

D) Weight of sieve

Answer: A) Number of openings per linear inch

Section 3: *Sieves and Their Standards*

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21. Indian Standard Sieves (ISS) are based on —

A) British Standard Sieves (BSS)

B) American Standard Sieves (ASTM)

C) German Standard

D) ISO

Answer: A) British Standard Sieves (BSS)

22. **Sieve number** is inversely proportional to —

A) Mesh size

B) Aperture size

C) Thickness

D) Surface area

Answer: B) Aperture size

23. The **U.S. Standard sieve number** system is given by —

A) ASTM

B) ISO

C) WHO

D) FDA

Answer: A) ASTM

24. **Mesh** means —

A) Number of openings per inch

B) Diameter of particles

C) Surface area

D) None

Answer: A) Number of openings per inch

25. The **sieve shaker** provides —

A) Vibratory motion

B) Rotary motion

C) Gyratory motion

D) All of the above

Answer: D) All of the above

26. Sieve apertures are usually made of —

A) Brass

B) Bronze

C) Stainless steel

D) All of the above

Answer: D) All of the above

27. The **sieve frame** is usually made of —

A) Brass or wood

B) Iron

C) Plastic

D) Aluminum only

Answer: A) Brass or wood

28. The sieve series used in India is based on —

A) IS:460

B) IP:202

C) BP:505

D) USP:301

Answer: A) IS:460

29. **Sieve analysis** is a method to —

A) Measure particle size distribution

B) Dry powder

C) Mix powders

D) Measure powder density

Answer: A) Measure particle size distribution

30. Sieves are arranged in order of —

A) Decreasing aperture size

B) Increasing aperture size

C) Random order

D) Mesh thickness

Answer: A) Decreasing aperture size

Section 4: Sieving Method

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31. The **sieving method** separates particles based on —

A) Size

B) Density

C) Color

D) Shape

Answer: A) Size

32. The **top sieve** retains —

A) Largest particles

B) Smallest particles

C) Medium particles

D) None

Answer: A) Largest particles

33. The **bottom sieve** collects —

A) Finer particles

B) Coarser particles

C) Irregular particles

D) Heavy particles

Answer: A) Finer particles

34. The **time of sieving** depends on —

A) Material load

B) Particle shape

C) Vibration speed

D) All of the above

Answer: D) All of the above

35. **Sieving** can be performed —

A) Wet

B) Dry

C) Both

D) None

Answer: C) Both

36. The **wet sieving method** is used for —

A) Fine particles

B) Sticky powders

C) Both A and B

D) Coarse powders

Answer: C) Both A and B

37. The **sieve shaker** gives —

A) Uniform motion

B) Random motion

C) Irregular vibration

D) None

Answer: A) Uniform motion

38. The **cumulative weight fraction** helps in —

A) Particle size distribution curves

B) Density measurement

C) Flow test

D) Moisture content

Answer: A) Particle size distribution curves

39. **Sieve blinding** occurs when —

A) Holes are blocked

B) Powder sticks to sieve

C) Both A and B

D) None

Answer: C) Both A and B

40. **Sieving efficiency** is improved by —

A) Brushing

B) Ultrasonic vibration

C) Shaking

D) All of the above

Answer: D) All of the above

Section 5: *Cyclone Separator*

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41. Cyclone separator works on —

    A) Centrifugal force

    B) Gravity

    C) Impact

    D) Compression

    Answer: A) Centrifugal force

42. Cyclone separator is used for —

    A) Gas–solid separation

    B) Liquid–liquid separation

    C) Solid–solid separation

    D) None

    Answer: A) Gas–solid separation

43. The shape of cyclone separator is —

    A) Conical

    B) Cylindrical

    C) Spherical

    D) Cuboidal

    Answer: A) Conical

44. The **dust-laden air** enters cyclone separator —

    A) Tangentially

    B) Perpendicularly

    C) Vertically

    D) From top only

    Answer: A) Tangentially

45. In cyclone separator, **heavy particles** —

    A) Move toward wall

    B) Move to center

    C) Float in air

    D) Exit with air

    Answer: A) Move toward wall

46. **Fine particles** in a cyclone separator —

A) Escape through the top outlet

B) Settle at bottom

C) Stick to wall

D) Get trapped in filter

Answer: A) Escape through the top outlet

47. Cyclone separators are used in —

A) Dust removal systems

B) Powder collection

C) Air purification

D) All of the above

Answer: D) All of the above

48. The **efficiency** of cyclone separator depends on —

A) Particle size

B) Air velocity

C) Design of cone

D) All of the above

Answer: D) All of the above

49. The **main principle** of cyclone separator is —

A) Centrifugal action

B) Filtration

C) Adsorption

D) Sedimentation

Answer: A) Centrifugal action

50. Cyclone separators are **not suitable** for —

A) Very fine particles (<5 μm)

B) Coarse dusts

C) Powders

D) Granules

Answer: A) Very fine particles (<5 μm)

Section 6: Air Separator

51. Air separator works on the principle of —

A) Centrifugal force

B) Air drag and gravity

C) Impact

D) Compression

Answer: B) Air drag and gravity

52. The air separator is used to separate —

A) Fine from coarse particles

B) Liquids from gases

C) Gases from solids

D) None

Answer: A) Fine from coarse particles

53. The separation in air separator depends on —

A) Particle size and density

B) Color

C) Shape

D) Odor

Answer: A) Particle size and density

54. In an air separator, **fine particles** are carried by —

A) Air stream

B) Centrifugal action

C) Magnetic field

D) Filter

Answer: A) Air stream

55. **Coarse particles** in air separator —

A) Fall down

B) Stay suspended

C) Stick to walls

D) Pass with air

Answer: A) Fall down

56. Air separator is also called —

A) Classifier

B) Collector

C) Mixer

D) Feeder

Answer: A) Classifier

57. Air separators are commonly used in —

A) Cement industry

B) Pharmaceutical industry

C) Powder coating

D) All of the above

Answer: D) All of the above

58. The **air velocity** in an air separator should be —

A) Optimum for separation

B) Maximum

C) Minimum

D) None

Answer: A) Optimum for separation

59. **Efficiency** of air separator depends on —

A) Air flow rate

B) Particle size

C) Geometry

D) All of the above

Answer: D) All of the above

60. Air separators are **not suitable** for —

A) Sticky powders

B) Dry powders

C) Coarse particles

D) None

Answer: A) Sticky powders

Section 7: Elutriation Method

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61. The **Elutriation method** separates particles based on —

A) Size and density

B) Color

C) Shape

D) Texture

Answer: A) Size and density

62. Elutriation involves the use of —

A) Fluid (air or water)

B) Heat

C) Vacuum

D) Electricity

Answer: A) Fluid (air or water)

63. In elutriation, the **fluid velocity** is adjusted so that —

A) Small particles rise, large fall

B) Large particles rise

C) Both settle together

D) None

Answer: A) Small particles rise, large fall

64. The **terminal velocity** is —

A) Velocity at which particles remain suspended

B) Minimum settling speed

C) Maximum air velocity

D) None

Answer: A) Velocity at which particles remain suspended

65. Elutriation method is a type of —

A) Fluid classification

B) Filtration

C) Mixing

D) Crushing

Answer: A) Fluid classification

66. Elutriation column is generally —

A) Vertical

B) Horizontal

C) Conical

D) Spherical

Answer: A) Vertical

67. In elutriation, **finer particles** —

A) Rise with fluid

B) Fall rapidly

C) Settle first

D) Stick to walls

Answer: A) Rise with fluid

68. Elutriation is used for —

A) Classification of powders

B) Drying powders

C) Heating powders

D) Mixing liquids

Answer: A) Classification of powders

69. The **fluid used** in elutriation may be —

A) Air or water

B) Steam

C) Oil

D) Alcohol

Answer: A) Air or water

70. Elutriation is **not suitable** for —

A) Sticky powders

B) Granules

C) Dusts

D) Fine particles

Answer: A) Sticky powders

Section 8: *Applications and General Concepts*

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71. Size separation helps to obtain —

A) Uniform granules for tableting

B) Even coating

C) Proper dissolution

D) All of the above

Answer: D) All of the above

72. It ensures —

A) Uniform mixing

B) Controlled drug release

C) Quality assurance

D) All of the above

Answer: D) All of the above

73. Sieving is generally carried out for —

A) Dry powders

B) Liquids

C) Gases

D) Semisolids

Answer: A) Dry powders

74. **Air classifier** is another name for —

A) Air separator

B) Cyclone separator

C) Elutriator

D) None

Answer: A) Air separator

75. The **main principle** in cyclone and air separator is —

A) Centrifugal action

B) Shearing

C) Cutting

D) Impact

Answer: A) Centrifugal action

76. **Particle size analysis** is important in —

A) Tablets and suspensions

B) Emulsions

C) Aerosols

D) All of the above

Answer: D) All of the above

77. The **sieving method** gives —

A) Weight distribution

B) Size range

C) Mean diameter

D) All of the above

Answer: D) All of the above

78. **Wet sieving** is useful when —

A) Fine particles tend to agglomerate

B) Powders are hydrophobic

C) Powders are coarse

D) Powders are volatile

Answer: A) Fine particles tend to agglomerate

79. The **percentage weight retained** helps to —

A) Determine particle size distribution

B) Measure density

C) Measure moisture

D) Determine hardness

Answer: A) Determine particle size distribution

80. **Size reduction** and **size separation** are —

A) Complementary processes

B) Independent processes

C) Unrelated

D) Random

Answer: A) Complementary processes

Section 9: *Advantages and Limitations*

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81. Advantage of sieving —

    A) Simple method

    B) Quick and cheap

    C) Reliable for dry powders

    D) All of the above

    Answer: D) All of the above

82. Limitation of sieving —

    A) Not suitable for <44 μm particles

    B) Mesh clogging

    C) Time-consuming

    D) All of the above

    Answer: D) All of the above

83. Advantage of cyclone separator —

    A) No moving parts

    B) Easy maintenance

    C) Handles large volume of gas

    D) All of the above

    Answer: D) All of the above

84. Limitation of cyclone separator —

    A) Low efficiency for fine dust

    B) Large space required

    C) Pressure drop

    D) All of the above

    Answer: D) All of the above

85. Advantage of air separator —

    A) Adjustable air velocity

    B) Dry method

    C) Continuous operation

    D) All of the above

    Answer: D) All of the above

86. Limitation of air separator —

A) Not for sticky materials

B) Needs precise air control

C) Complex setup

D) All of the above

Answer: D) All of the above

87. Advantage of elutriation —

A) High accuracy

B) Simple principle

C) No mechanical parts

D) All of the above

Answer: D) All of the above

88. Limitation of elutriation —

A) Time-consuming

B) For small-scale use

C) Requires fluid medium

D) All of the above

Answer: D) All of the above

89. Sieve clogging can be reduced by —

A) Using ultrasonics

B) Cleaning regularly

C) Using air jets

D) All of the above

Answer: D) All of the above

90. The **mesh number** increases when —

A) Aperture decreases

B) Aperture increases

C) Frame size increases

D) None

Answer: A) Aperture decreases

Section 10: *Miscellaneous*

91. Size separation is important for —

A) Uniform mixing

B) Tablet uniformity

C) Content uniformity

D) All of the above

Answer: D) All of the above

92. In elutriation, particle movement depends on —

A) Terminal velocity

B) Particle shape

C) Fluid density

D) All of the above

Answer: D) All of the above

93. Cyclone separator is used for —

A) Dust collection

B) Powder drying

C) Sterilization

D) Granulation

Answer: A) Dust collection

94. Sieve analysis gives —

A) Cumulative percentage weight

B) Median size

C) Mean size

D) All of the above

Answer: D) All of the above

95. Elutriation is a —

A) Fluid classification technique

B) Screening method

C) Mixing process

D) Milling technique

Answer: A) Fluid classification technique

96. Sieves are calibrated by —

A) Optical method

B) Standard spheres

C) Micrometer

D) All of the above

Answer: D) All of the above

97. **Standard sieves** are prepared by —

A) Wire cloth

B) Perforated metal

C) Electroforming

D) All of the above

Answer: D) All of the above

98. The **cyclone separator** efficiency is low for —

A) Particles below 5 μm

B) Particles 10–50 μm

C) Coarse powders

D) Granules

Answer: A) Particles below 5 μm

99. **Sieve No. 44** corresponds to —

A) 355 μm aperture

B) 150 μm aperture

C) 500 μm aperture

D) 250 μm aperture

Answer: B) 150 μm aperture

100. Size separation ensures —

A) Uniform product quality

B) Improved process efficiency

C) Compliance with pharmacopeial standards

D) All of the above

Answer: D) All of the above