

**FINAL YEAR UNIVERSITY EXAMINATION 2019-2020**

**Final Year B. Pharm. Semester VIII**

**SUBJECT-BPH\_C\_802\_T-Pharmaceutics IV**

**MULTIPLE CHOICE QUESTIONS: QUESTION BANK**

1. A high efficiency air filter
  - a. HEPA filter
  - b. Diluent
  - c. Final filter
  - d. Web filter
  
2. Movement of particles in a solution through permeable membranes
  - a. Filter
  - b. Dialysis
  - c. Flow rate
  - d. Anhydrous
  
3. The rate (in ml/hour or ml/minute) at which the solution is administered to the patient
  - a. Gauge
  - b. Coring
  - c. Diluent
  - d. Flow rate
  
4. Chemicals produced by microorganisms that can cause fever reactions in patients
  - a. Bacteria
  - b. Viuruses
  - c. Pyrogens
  - d. Microorganisms
  
5. When a solution has a lesser osmolarity than that of blood

- a. Hypotonic
  - b. Hypertonic
  - c. Isotonic
  - d. Tonic
6. What percentage of NaCl is isotonic with eyes
- a. 0.5%
  - b. 0.9
  - c. 1.9
  - d. 5
7. What percentage of boric acid seems to be isotonic with eyes
- a. 0.9
  - b. 1.9
  - c. 0.5
  - d. 2.9
8. WFI contains bacteriostatic agents when in containers of
- a. 100ml of less
  - b. 30ml of less
  - c. 50ml of less
  - d. 10ml of less
9. Which of the following used as enteric resin in microencapsulation
- a. stearic acid
  - b. PVA
  - c. Cellulose acetate phthalate
  - d. Ethyl cellulose
10. Which of the following is not used as thickening agent in ophthalmic products
- a. Methyl cellulose

- b. CMC
- c. Ethyl cellulose
- d. PEG

11. Which of the following surfactant prefer in ophthalmic due to less irritation?

- a. ionic
- b. cationic
- c. amphoteric
- d. Nonionic

12. Which of the following is TRUE:

- a. Rabbit pyrogen test is quantitative biologic test
- b. Pyrogenic effect is high with IM compared to IV injection
- c. Greater danger of pyrogens exists in LVP's than SVP's
- d. LAL test is in vivo test

13. Powdered glass test challenges the leaching potential of:

- a. Exterior structure of glass
- b. Plastic containers
- c. Interior structure of glass
- d. Intact surface of glass

14. According to IP, the preparation pass the Rabbit Pyrogen test if:

- a. The group of three rabbits does not exceed  $0.6^{\circ}\text{C}$
- b. The group of three rabbits does not exceed  $1.4^{\circ}\text{C}$  and if the response of individual rabbit is less than  $0.3^{\circ}\text{C}$
- c. The group of three rabbits does not exceed  $1.4^{\circ}\text{C}$  and if the response of individual rabbit is less than  $0.6^{\circ}\text{C}$
- d. The group of six rabbits does not exceed  $1.4^{\circ}\text{C}$  and if the response of individual rabbit is less than  $0.6^{\circ}\text{C}$

15. As per USP which of the following is correct

- a. WFI should contains NMT 1000 ppm of solids
- b. WFI should contains NMT 100 ppm of solids
- c. WFI should contains NMT 10 ppm of solids
- d. WFI should contains NMT 1 ppm of solids

16. Cryoprotectants or Lyoprotectants used in freeze dried parenteral products

- a. Mannitol
- b. Starch
- c. Magnesium stearate
- d. PVP

17. Freeze dried injectable products have to be reconstituted with \_\_\_\_\_ to form solution or suspension for administration

- a. Sterile Water for Injection
- b. Water for Injection
- c. Purified water
- d. Boiling water

18. HEPA filters have capacity to retain particles is as small as \_\_\_\_\_ size of particles with efficiency \_\_\_\_\_

- a. 3  $\mu\text{m}$ , 99.97%
- b. 0.03  $\mu\text{m}$ , 99.9%
- c. 0.003  $\mu\text{m}$ , 99.97%
- d. 0.3  $\mu\text{m}$ , 99.99%

19. Which amongst following is the easy to prepare ophthalmic dosage form.

- a. suspension
- b. ointment
- c. solution
- d. gel

20. Non-swellable water insoluble polymer

- a. Ethyl cellulose
- b. HPMC
- c. Carbopol
- d. Polycarbophil

21. Particle size of microcapsules is

- a. 10-5000 micron
- b. 5000- 10000 micron
- c. 10000-12000 micron
- d. 15000-30000 micron

22. In case of pan coating method of microencapsulation, core is in the form of

- a. suspension
- b. solid
- C. emulsion
- d. liquid

23. The building(s) used for the factory shall obey the conditions laid down in the Factories Act,

- a. 1945
- b. 1948
- c. 1947
- d. 1946

24. Prospective validation done when there is a \_\_\_\_\_ in the manufacturing process

- a. consistency
- b. change
- c. uniformity
- d. similarity

25. Which component is a primary requirement of osmotically active drug delivery system?

- a. lubricant
- b. osmotically active salt
- c. disintegrant
- d. low density polymer

26. Topical drug delivery systems are used for treating

- a. local infections
- b. diabetes
- c. hypertension
- d. hypotension

27. Ocular inserts have following feature:

- a. blurred vision
- b. low bioavailability
- c. sticking of eyelids
- d. Increased retention

28. Approach used in colon targeted drug delivery system includes

- a. prodrug
- b. floating polymers
- c. low density polymers
- d. soluble salt

29. In the equation  $\log C = \log C_0 - Kt/2.303$ , what does  $C_0$  stand for \_\_\_\_\_

- a. Plasma drug concentration after 60 min of i.v. injection
- b. Plasma drug concentration after 15 min of i.v. injection
- c. Plasma drug concentration after 30 min of i.v. injection
- d. Plasma drug concentration immediately after i.v. injection

30. The i.v. bolus dosage is 500mg and the plasma drug concentration is 0.8 mg/ml. What should be the volume of distribution?

- a. 625 mg/ml
- b. 625 l
- c. 625 ml

d. 16 mg/ml

31. The acceptable limits of osmolarity with respect to tonicity for parenteral solutions are

- a. 250- 269 mosm/L
- b. 278 – 328 mosm/L
- c. 329-350 mosm/L
- d. 240 -260 mosm/L

32. Trehalose, mannitol, dextrans are examples of ----- used in parenterals

- a. Preservatives
- b. Buffers
- c. Cryoprotectants
- d. Vehicles

33. Infusions, irrigating solutions, dialyzing fluids are examples of

1. Small volume parenterals
2. Lyophilized parenterals
3. Parenterals for intravenous administration
4. Large volume parenterals

34. The sequential steps involved in freeze drying of parenterals are

1. Freezing, Vacuum Drying, Sublimation
2. Vacuum Drying, Freezing, Sublimation
3. Freezing, Sublimation, Vacuum Drying
4. Sublimation, Vacuum Drying , Freezing

35. The recommended particle size of dispersed active pharmaceutical ingredient in ophthalmic suspension is

1. More than 10 microns
2. Not more than 10 microns
3. Not more than 5 microns
4. Not more than 20 microns



36. Grade A aseptic area used for manufacturing of ophthalmic solutions prepared by membrane filtration comprises of :

1. Not more than 100 particles per cubic meter of size 0.5 microns
2. Not more than 100 particles per cubic foot of size 0.5 microns
3. Not more than 1000 particles per cubic foot of size 0.5 microns
4. Not more than 1000 particles per cubic meter of size 0.5 microns

37. The recommended limits for number of subvisible particles in ophthalmic solutions by light obscuration test as per USP are:

1. Particles of size  $\geq 10$  microns : 50 per ml and  $\geq 25$  microns : 5 per mL
2. Particles of size  $\geq 20$  microns : 50 per ml and  $\geq 50$  microns : 5 per mL
3. Particles of size  $\geq 50$  microns : 50 per ml and  $\geq 100$  microns : 5 per mL
4. Particles of size  $\geq 20$  microns : 50 per ml and  $\geq 100$  microns : 5 per mL

38. ----- are materials used for primary packaging of ophthalmic products

1. Polypropylene, low density polyethylene, high impact polystyrene
2. Polyvinyl chloride, Polyvinylidene chloride, high impact polystyrene
3. Polyvinyl chloride, Polypropylene, low density polyethylene
4. Polyvinyl chloride, high impact polystyrene, polypropylene

39. Some of the common examples of ophthalmic ointment bases are

1. Lanolin, cetostearyl alcohol, beeswax
2. Mineral oil, petrolatum, lanolin
3. Beeswax, petrolatum, mineral oil
4. Beeswax, cetostearyl alcohol, lanolin

40. The drug of elimination half lifeupto ----- is an ideal candidate for sustained release dosage forms

1. 2 – 8 hours
2. 6- 10 hours

3. Less than 2 hours
4. More than 8 hours

41. Hydroxypropyl methyl cellulose, Xanthan gum, Hydroxy ethyl cellulose are some of the examples of polymers used in

1. Reservoir dissolution controlled systems
2. Reservoir diffusion controlled systems
3. Matrix dissolution controlled systems
4. Matrix diffusion controlled systems

42. The formula for calculation loading dose in sustained release dosage forms is

1.  $C_{ss}V_d / F$
2.  $C_{ss}K_e T / F$
3.  $C_{ss}V_d K_e / F$
4.  $C_{ss}V_d K_e / T F$

43. The mechanism of drug release from reservoir dissolution controlled systems is by

1. Slow dissolution of coating material
2. Swelling of coating material
3. Slow dissolution and swelling of coating material
4. Swelling and erosion of coating material

44. The steps in sequence involved in microencapsulation by coacervation are

1. Phase separation, rigidization and deposition
2. Deposition, rigidization and phase separation
3. Phase separation, deposition and rigidization
4. Rigidization, deposition, phase separation

45. The process variables that affect quality of microencapsulated product prepared by Wurster technique are

1. Density

2. Particle size
3. Velocity of atomization air
4. Density, particle size, velocity of atomization air, inlet and outlet temperature

46. Spermaceti and Glyceryl stearate are examples of ----- used as coating materials in microencapsulation are

1. Water soluble resins
2. Water insoluble resins
3. Waxes
4. Gums

47. Prospective validation is carried out during

1. During development stage of pharmaceutical product
2. After launch of pharmaceutical product
3. During development and after launch of pharmaceutical product
4. During routine production batches

48. Pilot plant studies are done before taking full scale validation batches in order to

1. To optimize the manufacturing process conditions at plant level
2. To confirm the suitability of equipments used for manufacturing
3. To confirm the consistency of quality of product manufactured at plant level
4. To optimize the manufacturing process conditions, confirm suitability of equipments, consistency of quality of products manufactured at plant level

49. Octagonal blender, roller compactor and double rotary compression machines are the equipments required for tablet manufacture by

1. Wet granulation
2. Direct compression
3. Dry granulation
4. Wet and Dry Granulation

50. The equipment used in improving the consistency of cream is

1. Propeller mixer
2. planetary mixer
3. triple roller mill
4. Anchor agitator

51. Operational qualification of equipment

1. After installation and repair
2. During installation
3. After repair
4. Before installation

52. Absolute bioavailability of drug is measured by comparing AUC of drug

1. Given by oral route to that by topical route
2. Given by oral route to that by rectal route
3. Given by oral route to that by subcutaneous route
4. Given by oral route to that by intravenous route

53. Pharmacokinetics study involve

1. Therapeutic drug monitoring
2. Optimizing dosing strategies
3. Validating safety evaluation parameters
4. Therapeutic drug monitoring, optimizing dosing strategies, validating safety evaluation parameters

54. The pharmacokinetic parameters for drug administered as IV bolus following one compartment open model are

1.  $V_d$ , CL and AUC
2.  $T_{max}$ , CL and AUC
3.  $C_{max}$ , CL and AUC
4.  $C_{max}$ ,  $T_{max}$ , CL

55. The equation that best fits the plasma level time curve of azlocillin after an i.v. bolus dose of 2000 mg (assuming one-compartment kinetics) is:  $C = 143 e^{-0.87t}$ . What will be its apparent volume of distribution?
1. 12 liters
  2. 8 liters
  3. 10 liters
  4. 14 liters
56. The equation that best fits the plasma level time curve of azlocillin after an i.v. bolus dose of 2000 mg (assuming one-compartment kinetics) is:  $C = 143 e^{-0.87t}$ . What will be its Elimination  $t_{1/2}$  of the drug?
1. 1.2 hours
  2. 0.8 hours
  3. 1.4 hours
  4. 0.6 hours
57. ----- is used as Ophthalmic diagnostic agent.
1. Fluorescein Sodium
  2. Methyl Paraben
  3. Benalkonium Chloride
  4. Murexide
58. One of the following is used as a pH dependant controlled release excipient.
1. Carnauba wax
  2. Hydroxy propyl methyl cellulose phthalate
  3. Methyl cellulose
  4. Glyceryl monostearate
59. A new drug delivery system which is composed of phospholipids form a multilamellar concentric bilayer vesicles with aqueous media is

1. Prodrugs
2. Liposomes
3. Osmotic Pumps
4. Nanoparticles

60. The Sterility test of Liquid involves:

1. Colorimetric Assay
2. Guinea Pigs Assay
3. Culturing in the fluid thioglycollate medium
4. HPLC assay

61. Freezing point depression is the function of

1. No. of particles in the solution
2. Quantity of solution
3. Emulsifying agent
4. Colour

62. Bacterial endotoxin test is used to determine:

1. The amount of Pyrogens
2. The level of Pyrogens from Gram negative bacteria
3. The level of bacterial endotoxin from Gram negative bacteria
4. The level of bacterial endotoxin from Gram positive bacteria.

63. Suspension & oily injection can be administered through:

1. intravenous
2. intraarterial
3. intramuscular
4. intraspinal

64. Vitamin C is antioxidant because it is

1. Acting as reducing agent

2. Acting as blocking agent
3. Acting as complexing agent
4. Acting as sequestering agent

65. In Rotating Basket Apparatus for dissolution studies, Basket of mesh size used -----

1. 22 mesh
2. 30 mesh
3. 35 mesh
4. 40 mesh

66. For preparations intended for parenteral administration USP 24 requires the use of ---- as pharmaceutical aid except.

1. Water for injection
2. Sterile water for injection
3. Bacteriostatic water for injection
4. Purified water

67. The DOP test is used for checking the efficiency of

1. HEPA filter
2. Membrane Filter
3. Asbestos filter
4. Water filter

68. Non ionic surfactant vesicles related to:

1. Liposomes
2. Niosomes
3. Nanoparticles
4. PEGylated Liposome

69. The solution instilled as eye drops into ocular cavity may disappear from the Precorneal area of the eye by which of the following routes:

1. Nasolacrimal drainage

2. Tear Turnover
3. Corneal absorption
4. Nasolacrimal drainage, tear turnover, corneal absorption & conjunctival uptake

70. Which layer is the major rate limiting barrier for permeation of hydrophilic drugs across the cornea?

1. Endothelial barrier
2. Stroma
3. Epithelial barrier
4. Endothelial barrier and Epithelial Barrier

71. One of the organism given below is used as biological indicator in IP for ethylene oxide sterilization. Choose the correct one:

1. Bacillus stearothermophilus
2. Spores of Bacillus subtilis ✓
3. Spores of Bacillus cereus
4. spores of Bacillus stearothermophilus

72. The rate of drug release from dissolution controlled release system does not depend on the following parameters:

- a. Law of dissolution
- b. Surface area
- c. Diffusion Coefficient
- d. Diffusion layer thickness

73. Which of the following statement is False :

1. Drugs that are metabolized before absorption can show increased bioavailability from sustained release formulation.
2. Compound with very low solubility ( $< 0.01$  mg/ml) are will inherently be sustained in GI tract.



3. Compounds that are unstable in small intestine may demonstrate decreased bioavailability when administered from sustained release dosage form.
4. Increase concentration at absorption site will increase the rate of absorption & bioavailability when given by oral SR formulation.

74. All the following viscosity builders have been used in ophthalmic solutions except

1. Veegum
2. Methyl Cellulose
3. Polyethylene Glycol
4. polyvinyl alcohol

75. The characteristic of an active transport process include all the following except:

1. Active transport moves drug molecules against concentration gradient
2. Follows Ficks First law of diffusion
3. It required energy
4. Active transport of drug molecules may be saturated at high concentrations

76. The passage of drug molecules from region of higher concentration to lower concentration is known as:

1. Facillitated Transport
2. carrier mediated transport
3. Simple diffusion or Passive Transport
4. Pinocytosis

77. The rate of drug dissolution from tablet is given by:

- a. Henderson Haselbatch equation
- b. Ficks First Law
- c. Noyes & Whitney equation
- d. Higuchi equation

78. Lecithin is a type of surface active agent;

- a. Anionic
- b. Cationic
- c. Nonionic
- d. Ampholytic

79. Which of the following statement is false:

- a. Sesame oil is preferred oil for most of the official injections in oil
- b. Water miscible solvents used in parenteral formulations include glycerine, ethyl alcohol, propylene glycol
- c. Water for injection must be stored at Room Temp if it is to be held for 24 hrs.
- d. Inert gases purging improves product integrity of Oxygen sensitive materials