

## Final Year B. Pharm (Sem VIII) 2019-20

## BPH\_E\_811\_T–Novel Drug Delivery Systems

## Practice Question Bank

1. A spherical solid lipid particle prepared from physiological lipid, dispersed in water or in aqueous surfactant solution.
  - a. Solid lipid nanoparticle
  - b. Liposome
  - c. Niosome
  - d. Nanoparticle
2. A non-ionic surfactant based multilamellar or unilamellar vesicular structure
  - a. Microspheres
  - b. Liposome
  - c. Niosome
  - d. Nanoparticle
3. This particulate system is also known as “bodies of water”.
  - a. Aquasome
  - b. Liposome
  - c. Niosome
  - d. Dendrimer
4. Which of the following is a non- erodible insert?
  - a. Ocusert
  - b. Collagen shield
  - c. NODS
  - d. SODI
5. A prominent structure for ocular absorption of drugs
  - a. Conjunctiva
  - b. Choroid
  - c. Sclera
  - d. Cornea
6. An ocular device that has the shape of a flag
  - a. Ocusert
  - b. Lacrisert
  - c. NODS
  - d. SODI
7. Alzet is an example of \_\_\_\_\_ type of parenteral system.
  - a. Osmotic pressure activated
  - b. Vapour pressure activated
  - c. Magnetically activated
  - d. Hydration activated
8. Osmotic drug delivery systems
  - a. Have a membrane that is soluble at intestinal pH
  - b. The membrane is impermeable to GI fluids
  - c. The membrane is permeable to water
  - d. The membrane must swell

9. Monolithic devices
  - a. Have drugs with large therapeutic indices
  - b. Have rapid drug permeation
  - c. Only hydrophilic polymers are used
  - d. Release is through a polymer membrane
10. Drug release from osmotic drug delivery systems depends on
  - a. Osmotic pressure
  - b. Ionic strength
  - c. Osmotic pressure & ionic strength
  - d. Osmotic pressure & environment in GIT
11. Excipient to increase density of GRDDS is
  - a. Zinc oxide
  - b. Talc
  - c. Sodium bicarbonate
  - d. Calcium carbonate
12. \_\_\_\_\_ is a dispersed matrix system
  - a. Nanospheres
  - b. Nanoparticles
  - c. Nanocapsules
  - d. Nanopolymers
13. Which of the following is a natural polymer used in nanoparticles?
  - a. Polycaprolactone
  - b. Polylactic acid
  - c. Alginate
  - d. Polystyrene
14. A microcapsule has \_\_\_\_\_
  - a. Drug dispersed in matrix
  - b. Drug core surrounded by distinct wall
  - c. Drug adsorbed on the surface
  - d. Drug distributed in polymeric matrix
15. Paracellular route for nasal drug delivery is
  - a. Slow and passive lipodial pathway
  - b. Slow and passive aqueous pathway
  - c. Fast and active aqueous pathway
  - d. Fast and active lipodial pathway
16. Sodium taurocholate used as penetration enhancer is
  - a. Surfactant
  - b. Fatty acid with surfactant property
  - c. Bile salt with surfactant property
  - d. Bile salt but no surfactant property
17. pH of nasal formulation in the physiological range
  - a. Keeps the drug in ionized state
  - b. Alters physiological ciliary movements
  - c. Increases mucosal irritation
  - d. Keeps the drug in unionized state and sustains physiological ciliary movements

18. Which of the following characteristics is suitable for transdermal drug?
- Large drug dose
  - Large molecular size
  - Drugs with narrow therapeutic indices
  - Drugs which are metabolized in the skin
19. Stealth liposomes
- Have short half-life
  - Are taken up by macrophages
  - Have very large size
  - Are sterically stabilized
20. An example of a polymer incorporated into dendrimers is
- Propylene glycol
  - Polyethyleneimine
  - Polyurethane
  - Styrene copolymers
21. Spray congealing method of pelletization includes
- Globulization
  - Agitation
  - Powdering
  - Compaction
22. Hydrogen bonds in mucoadhesion are formed by
- Dipole moment
  - Non polar groups
  - Dispersion forces
  - Electronegative atoms
23. Modified balance method is used to evaluate
- Particle size
  - Adhesive strength
  - Drug release
  - Swelling
24. Eudragit L100 is a type of
- Cellulose polymer
  - Vinyl co-polymer
  - Methacetic acid co-polymer
  - Methacrylic acid co-polymer
25. A Primary Irritation index of  $<2$  for a transdermal patch indicates that patch is
- Non-irritant
  - Slightly irritant
  - Moderately irritant
  - Severely irritant
26. Ideal glass transition temperature for a pressure sensitive adhesive used in transdermal system should be
- $-20^{\circ}\text{C}$  to  $-40^{\circ}\text{C}$
  - $-2^{\circ}\text{C}$  to  $-4^{\circ}\text{C}$
  - $20^{\circ}\text{C}$  to  $40^{\circ}\text{C}$
  - $2^{\circ}\text{C}$  to  $4^{\circ}\text{C}$

27. Ocusert is an example of
- Feedback regulated system
  - Activation modulated system
  - Bio-responsive system
  - Membrane permeation system
28. \_\_\_\_\_ is an advanced method of determining size of nano particles
- Atomic force microscopy
  - Ultrasound scattering
  - Compound microscopy
  - Molecular microscopy
29. Chimeric peptides have
- Chylomicrons
  - Polymeric micelles
  - Peptidomimetic antibodies
  - Polymeric nanoparticles
30. \_\_\_\_\_ is an example of a synthetic biodegradable polymer
- Acrolein
  - Polyethylene glycol
  - LDPE
  - Polystyrene
31. \_\_\_\_\_ is an example of a bioerodible polymer
- Polyorthoesters
  - Polycarbonate
  - Fluorocarbon
  - Polystyrene
32. Which amongst this is a limitation associated with conventional drug delivery systems?
- Lower effectiveness
  - Ease of manufacturing
  - Decreased side effects
  - Spatial and temporal control
33. Which of the following is a pH-sensitive bioerodible polymer?
- Polymethacrylate
  - HPMC
  - Na CMC
  - Ethyl cellulose
34. Carbopols are:
- Synthetic vinyl polymers with ionizable carbonyl group
  - Polyoxyethylene ethers with carboxy groups
  - Mineral waxes with hydrocarbon content ranging from C35 to C55
  - Polyoxyethylene derivatives of polyoxypropylene
35. Which amongst the following are the smallest liposomes?
- Large unilamellar vesicles
  - Oligolamellar vesicles
  - Multilamellar vesicles
  - Multivesicular vesicles

36. Which of the following is used as chemical cross-linking agent in preparation of nanoparticles?
- Glutaraldehyde
  - 2,2, di-methyl propane
  - Lactides and glycolides
  - Poly (acryl) starch
37. What type of protein binding characteristics of a drug are desirable to be formulated into an ocular system?
- Low
  - Medium
  - High
  - It has no bearing
38. A positive temperature-sensitive hydrogel has ----- critical solution temperature
- Upper
  - Lower
  - Hybrid
  - Mixed
39. The stratum corneum consists of -----layers of keratinized cells
- 10 to 25
  - 0 to 10
  - 25 to 50
  - Above 50
40. Peel adhesion is tested by measuring the force required to pull a single coated tape, applied to a substrate at a .....° angle
- 180
  - 360
  - 45
  - 90
41. Which of the following is the Noyes – Whitney equation?
- $\frac{dC}{dt} = -k(c_r - c)$
  - $\frac{dC}{dt} = \frac{DAk_{o/w}(c_s - c_b)}{Vh}$
  - $M_0^{1/3} - M^{1/3} = Kt$
  - $\frac{M_t}{M_0} = k\sqrt{t}$
42. Which among the following can be used as a hydrophobic matrix to formulate SRDDS?
- Ethyl cellulose
  - Hydroxypropyl methylcellulose
  - Hydroxypropylcellulose
  - Sodium carboxymethylcellulose

43. Which amongst this is a physicochemical factor of the drug that should be considered while formulating a controlled drug delivery system?
- Diffusivity
  - Half life
  - Side effects
  - Absorption
44. Based on their half-lives, which drug would you select to make a sustained release tablet?
- Metformin (6 hr)
  - Heroin (2 – 6 min)
  - Cocaine (50 mins)
  - Amlodipine (20 hrs)
45. Which of the following is an effective barrier for drug?
- Tight junctions
  - Pinocytes
  - Glucose transporters
  - Protein carriers
46. To prevent the loss of drug that has migrated into the adhesive layer during storage, this is used
- Release liner
  - Rate controlling membrane
  - Adhesive layer
  - Backing membrane
47. Webels model is used for evaluation of
- Pulmonary Targeting
  - Nasal Targeting
  - Hepatic Targeting
  - Ocular targeting
48. These noninvasive techniques have been used for drug delivery to brain
- Nanogels
  - Bradykinin administration
  - Onmaya reservoir
  - Microgel
49. OROSCT Approach is used in
- Colon targeting
  - Lymphatic targeting
  - Brain targeting
  - Mucoadheisve delivery
50. The dissolution study of colon targeted drugs is carried by
- Bio Dis III apparatus
  - Beaker Method
  - Flow through cell
  - USP Type I AND II Apparatus

51. Super critical fluid technology is used to prepare:
- Nanoparticle
  - Niosomes
  - Aquasomes
  - Liposomes
52. These are a unique class of synthetic macromolecules having highly branched, three-dimensional, nanoscale architecture with very low polydispersity index and high functionality
- Dendrimers
  - Niosomes
  - Aquasomes
  - Nanoparticles
53. \_\_\_\_\_ is carrier for Haemoglobin
- Niosomes
  - Nanoparticle
  - Aquasomes
  - Phytosomes
54. The force required to remove an adhesion coating from test substrate is determined by
- Peel adhesion test
  - Shear adhesion test
  - Rolling ball tack test
  - Probe tack test
55. Hydrogen bonding capacity is related to which type of factor affecting mucoadhesion
- Physiological
  - Polymer
  - Environment
  - Physicochemical
56. What type of process does the liposomes undergoes?
- Oxidation
  - Acetylation
  - Reduction
  - Isomerization
57. What is extrusion?
- Pushing the heated material through an orifice
  - Producing a hole by a punch
  - Making cup shaped parts from the sheet
  - Process of mixing the ingredient
58. Which of the following drugs cannot be given as transdermal DDS?
- Drugs with very short half life
  - Drugs with narrow therapeutic indices
  - Easy removal & termination
  - Drugs against peptic ulcer

59. Which of the following is the example of Physical theory of mucoadhesion?
- Wetting
  - Electronic
  - Adsorption
  - Adhesion
60. Niosomes are prepared from which of the following
- Phospholipids
  - Lecithin
  - Spingolipid
  - Surfactants
61. Select the physical mechanism by which in situ gelling system is formed
- Change in pH
  - Change in glucose level
  - Change in electric field
  - Change in ion concentration
62. What are the characteristics of matrix diffusion-controlled release system?
- Release the drug along the entire length of GIT
  - Drug disperse in an insoluble matrix of rigid hydrophobic material
  - Employ waxes to control the rate dissolution
  - Release only at specific site
63. Which of the following is not the advantage of Transmucosal DDS?
- Drugs sensitive to pH change can be administered via this route
  - Drug having poor bioavailability through oral route can be administered via this route
  - Various hormone, steroids, enzymes can be administered by this route
  - Ease of administration
64. Ocular iontophoresis is a process which does not involve
- Electrical potential driving charged ions into eyes
  - Delivers high concentration to specific sight
  - Good bioavailability
  - Disadvantage of epithelial on conjunctival edema
65. Which of the following is not a component of dendrimer?
- Central core
  - Stem
  - Interior dendritic structure
  - Exterior surface
66. Which of the following is incorrect about Transdermal DDS?
- A stable and controlled blood level can be attained
  - All potent drugs can be administered as TDDS
  - Drugs with narrow therapeutic window can be administered as TDDS
  - Self- medication is possible
67. Which of the following is not a disadvantage of conventional dosage form?
- Poor patient compliance
  - Change in concentration may lead to under or over medication
  - Attainment of steady state condition difficult.
  - Have high cost



68. Which of the following characteristics is suitable for transdermal drug?
- Large drug dose
  - Large molecular size
  - Drug with narrow therapeutic indices
  - Drugs which are metabolized in the skin
69. Which of the following is not a component of buccal patch?
- Polymer
  - Active substance
  - Flavouring agent
  - Counter irritant
70. Example of hydrophobic polymer used in nanoparticles is
- Gelatin
  - Alginate
  - Acrylate
  - Lectin
71. Which of the method is not used for preparation of nanoparticle?
- Immersion polymerization
  - Dispersion polymerization
  - Interfacial polymerization
  - Emulsion polymerization
72. What are the characteristics of continuous release systems?
- Release the drug along the entire length of GIT
  - Prolonged their residence in the GIT and release
  - Release only at a specific drug
  - Release as soon as comes in contact to the saliva
73. What is the characteristic of dissolution-controlled release systems?
- Release the drug along the entire length of GIT
  - Prolonged their residence in the GIT and release
  - Release only at a specific drug
  - Very slow dissolution rate
74. The absorption of the ophthalmic drug does not depend on which of the following?
- Physicochemical properties of the permeating molecule
  - Drainage of tears
  - Output of tears
  - Size of the eyeball
75. Which of the following is not a property of Bio-adhesive microspheres?
- Achieved by making use of adhesive properties of water-soluble polymers
  - Adhesion of drug delivery device to the mucosal membrane such as buccal, ocular, rectal, nasal.
  - Exhibit a prolonged residence time at the site of application causing intimate contact with the absorption site and produces better therapeutic action.
  - They contain radioisotope i.e. Either  $\alpha$ ,  $\beta$  or  $\gamma$  emitters.
76. What are the characteristics of the reservoir or membrane devices?
- The drug has a large therapeutic index
  - Drug permeation rate is high
  - Control drug release by partitioning the drug from the oil
  - Administration of emulsions