Fourth Year B. Pharm. (Sem VIII) CBCS

BPH_E_811_T – Novel Drug Delivery Systems

Sample MCQs for Practice

1. A lipid bilayer structure that encloses an internal aqueous volume.

A. Niosome

B. Liposome

C. Solid lipid nanoparticle

D. Nanoparticle

2. 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

3. A non-ionic surfactant based multilamellar or unilamellar vesicular structure

A. Microspheres

B. Liposome

C. Niosome

D. Nanoparticle

4. This particulate system is also known as “bodies of water”.

A. Aquasome

B. Liposome

C. Niosome

D. Dendrimer

5. Which of the following is a non- erodible insert?

A. Ocusert

B. Collagen shield

C. NODS

D. SODI

6. A prominent structure for ocular absorption of drugs

A. Conjunctiva

B. Choroid

C. Sclera

D. Cornea

7. The polymer used in "Lacriset"

A. Hydoxy ethyl cellulose

B. Hydoxy Methyl cellulose

C. Methyl cellulose

D. Hydroxy propyl cellulose

8. An ocular device that has the shape of a flag

A. Ocusert

B. Lacrisert

C. NODS

D. SODI

9. Which of the following does not constitute an appendageal route?

A. Sweat glands

B. Hair follicle

C. Sebaceous gland

D. Stratum corneum

10. “Transderm-Scop” is used in the treatment of

A. Hypertension

B. Angina

C. Motion sickness

D. Antidote for smoking

11. The size of particles in a a parenteral suspension should be

A. 10 to 20 µm

B. Less than 10 µm

C 100 to 200 µm

D.50 to 100 µm

12. Alzet is an example of _____ type of parenteral system.

A. Osmotic pressure activated

B. Vapour pressure activated

C. Magnetically activated

D. Hydration activated

13. The anterior part of the nasal cavity opening towards the face.

A. Nasopharynx

B. Nasal septum

C. Nasal vestibule

D. Nasal turbinate

14. An advantage of Novel Drug Delivery Systems is

A. it causes fluctuation of blood levels

B. it cannot be target specific

C. it increases toxicity of the drug

D. it reduces side effects of the drug

15. 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

16. 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

17. A Polymer used for colonic systems is
    A. carboxymethyl cellulose
    B. cellulose acetate phthalate
    C. gelatin
    D. acacia

18. 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

19. One method to prepare nanoparticles is
    A. pan coating
    B. filtration
    C. solubilisation
    D. precipitation

20. Excipient to increase density of GRDDS is
    A. zinc oxide
    B. talc
    C. sodium bicarbonate
    D. calcium carbonate

21. _____ is a dispersed matrix system
    A. nanospheres
    B. nanoparticles
    C. nanocapsules
    D. nanopolymers

22. Microspheres are prepared by coacervation using
    A. non solvent
    B. trituration
    C. pH
    D. pressure

23. Drug permeation through the buccal mucosa is by
    A. paracellular
    B. transcellular
    C. both paracellular and transcellular
    D. pinocytosis

24. Chitosan is a _____ mucoadhesive polymer
    A. cationic
    B. anionic
    C. synthetic
    D. non-ionic

25. _____ is a drug unsuitable for GRDDS
    A. ciprofloxacin
    B. diazepam
    C. furosemide
    D. aspirin

26. Which of the following is a natural polymer used in nanoparticles.

A.Polycaprolactone

B. Polylactic acid

C. Alginate

D. Polystyrene

27. A microcapsule has_____

A. Drug dispersed in matrix

B. Dug core surrounded by distinct wall

C. Drug adsorbed on the surface

D. Drug distributed in polymeric matrix

28. A polymeric implant that is biodegradable

A. Prepared from silicone

B. Prepared from Polyurethane

C. Prepared from Polylactic acid

D. Prepared from polyacrylate

29. 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

30. Sodium taurocholate used as penetration enhancer is

A. A Surfactant

B. Fatty acid with surfactant property

C. Bile salt with surfactant property

D. Bile salt but no surfactant property

31. 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

32. Mucocilliary clearance is

A. A barrier to nasal absorption

B. Not a barrier to nasal absorption

C. It is protective in function

D. It is a barrier to nasal absorption but also protective in function

33. Which of the following characteristics is suitable for transdermal drug?

A. Large drug dose

B. Large molecular size

C. Drugs with narrow therapeutic indices

D. Drugs which are metabolized in the skin

34. Reservoir systems

A. do not depend on area

B. have a rate controlling membrane

C. follow any order of kinetics

D. are highly porous

35. Factors affecting lymphatic uptake include

A. larger aqueous phase

B. greater hydrophilicity of nanoparticles

C. low concentration of surfactant

D. longer chain length of lipid

36. Stealth liposomes

A. have short half-life

B. are taken up by macrophages

C. have very large size

D. are sterically stabilized

37. An example of a polymer incorporated into dendrimers is

A. propylene glycol

B. polyethyleneimine

C. polyurethane

D. styrene copolymers

38. Spray congealing method of pelletization includes
A. globulization
B. agitation
C. powdering
D. compaction

39. Hydrogen bonds in mucoadhesion are formed by
A. dipole moment
B. non polar groups
C. dispersion forces
D. electronegative atoms

40. Modified balance method is used to evaluate
A. particle size
B. adhesive strength
C. drug release
D. swelling

41. Eudragit L100 is a type of
A. cellulose polymer
B. vinyl co-polymer
C. methacetic acid co-polymer
D. methacrylic acid co-polymer

42. A Primary Irritation index of <2 for a transdermal patch indicates that patch is

A.Non-irritant

B.Slightly irritant

C.Moderately irritant

D.Severely irritant

43. Ideal glass transition temperature for a pressure sensitive adhesive used in transdermal system should be

A. - 20° C to - 40° C

B. - 2° C to - 4° C

C. 20° C to 40° C

D. 2° C to 4° C

44. Benzathine penicillin G injection is an example of one of the following approaches for parenteral controlled drug delivery

A. Use of water immiscible vehicles

B. Salt formation approach

C. Macrocrystal approach

D.Use of water miscible vehicles

45. Ocusert is an example of

A. Feedback regulated system

B. Activation modulated system

C. Bio -responsive system

D. Membrane permeation system

46. _____ is an advanced method of determining size of nano particles

A. Atomic force microscopy
B. Ultrasound scattering
C. Compound microscopy
D. Molecular microscopy

47. Chimeric peptides have

A. chylomicrons
B. polymeric micelles
C. peptidomimetic antibodies
D. polymeric nanoparticles

48. Use of monoclonal antibodies for drug delivery to tumors is

A. active targeting
B. passive targeting
C. triggered drug targeting
D. vector targeting

49. _____ is an example of a synthetic biodegradable polymer

A. acrolein
B. polyethylene glycol
C. LDPE

D. polystyrene

50. _____is an example of a bioerodible polymer
A. polyorthoesters
B. polycarbonate
C. fluorocarbon
D.polystyrene

51. Which amongst this is a limitation associated with conventional drug delivery systems?

a. Lower effectiveness
b. Ease of manufacturing
c. Decreased side effects
d. Spatial and temporal control

52. Which of the following is a pH-sensitive bioerodible polymer?

a. Polymethacrylate
b. HPMC
c. Na CMC
d. Ethyl cellulose

53. Carbopols are:

e. Synthetic vinyl polymers with ionizable carbonyl group
f. Polyoxythylene ethers with carboxy groups
g. Mineral waxes with hydrocarbon content ranging from C35 to C55
h. Polyoxyethylene derivatives of plyoxypropylene

54. Which amongst the following are the smallest liposomes?

i. Large unilamellar vesicles
j. Oligolamellar vesicles
k. Multilamellar vesicles
l. Multivesicular vesicles

55. Which of the following is used as chemical cross-linking agent in preparation of nanoparticles?

m. Glutaraldehyde
n. 2,2, di-methyl propane
o. Lactides and glycolides
p. Poly (acryl) starch

56. What type of protein binding characteristics of a drug are desirable to be formulated into an ocular system?

q. Low

r. Medium
s. High
t. It has no bearing

57. A positive temperature-sensitive hydrogel has ---------- critical solution temperature

u. Upper
v. Lower
w. Hybrid
x. Mixed

58. The stratum corneum consists of ----------layers of keratinized cells

y. 10 to 25
z. 0 to 10
aa. 25 to 50
bb. Above 50

59. Peel adhesion is tested by measuring the force required to pull a single coated tape, applied to a substrate at a ……° angle

cc. 180
dd. 360
ee. 45
ff. 90

60. Which of the following is the Noyes – Whitney equation?

a. $\frac{dC}{dt} = -k(c_r - c)$
b. $\frac{dC}{dt} = \frac{DAk_{o/w}(c_s - c_b)}{Vh}$
c. $M_0^{1/3} - M^{1/3} = Kt$
d. $\frac{M_t}{M_0} = k\sqrt{t}$

61. Which among the following can be used as a hydrophobic matrix to formulate SRDDS?

a. Ethyl cellulose
b. Hydroxyporpyl methylcellulose
c. Hydroxypropylcellulose
d. Sodium carboxymethylcellulose

62. Which amongst this is a physicochemical factor of the drug that should be considered while formulating a controlled drug delivery system?

a. Diffusivity

b. Half life

c. Side effects

d. Absorption

63. Based on their half-lives, which drug would you select to make a sustained release tablet?

gg. Metformin (6 hr)
hh. Heroin (2 – 6 min)
ii. Cocaine (50 mins)
jj. Amlodipine (20 hrs)

64. Which of the following is an effective barrier for drug?

a. Tight junctions
b. Pinocytes
c. Glucose transporters
d. Protein carriers

65. To prevent the loss of drug that has migrated into the adhesive layer during storage, this is used

a. Release liner
b. Rate controlling membrane
c. Adhesive layer
d. Backing membrane

66. Webels model is used for evaluation of

a.Pulmonary Targeting

b.Nasal Targeting

c. Hepatic Targeting

d. Ocular targeting

67. These noninvasive techniques have been used for drug delivery to brain

a. Nanogels
b. Bradykinin administration
c. Onmaya reservoir
d. Microgel

68. OROSCT Approach is used in

a. Colon targeting
b. Lymphatic targeting
c. Brain targeting
d. Mucoadheisve delivery

69. In Pulmonary Drug Delivery the drug absorption is achieved due to

a. High lipophilicity and large surface area
b. Low lipophilicity and small surface area
c. High hydrophilicity and large surface area
d. Low hydrophilicity and Small surface area

70. The dissolution study of colon targeted drugs is carried by

a. Bio Dis III apparatus
b. Beaker Method
c. Flow through cell
d. USP Type I AND II Apparatus

71. Super critical fluid technology is used to prepare:

a. Nanoparticle
b. Neosome
c. Aquasomes
d. Liposomes

72. These are a unique class of synthetic macromolecules having highly branched, three dimensional, nanoscale architecture with very low polydispersity index and high functionality

a. Dendrimers
b. Neosomes
c. Auasomes
d. Nanoparticles

73. _____ is carrier for Haemoglobin

a. Neosome
b. Nanoparticle
c. Aquasomes
d. Phytosomes

74. Following is the example of invasive brain targeting

a. Osmogens
b. Colloidal carriers

c. Amino acid transporters
d. Neosomes

75. The force required to remove an adhesion coating from test substrate is determined by
    a. Peel adhesion test
    b. Shear adhesion test
    c. Rolling ball tack test
    d. Probe tack test

X---X---X