

Q.P. Code : 50263

[Total Marks : 100

- Note: 1) All questions are compulsory in Section I
2) Attempt any three questions out of five in Section III
3) Attempt any two questions out of four in Section III

Section I

40 Marks

1. In tablet compression, least repacking is seen in:
a) Porous particles b) spherical particles
c) irregular particles d) fluffy particles
2. Orasolv is an example of :
a) Gastroretentive tablet b) Osmotic tablet
c) Mouth dissolving tablet d) Enteric coated tablet.
3. Porosity pressure equations are is represented as:
a) Flow properties b) Compaction behaviour
c) Crystal properties d) Density
4. Which of the following is a mucoadhesive polymer?
a) Carbopol b) PLGA
c) Polyester d) Polyamide
5. Carbohydrates are added in lyophilized products as :
a) Sweetener b) Cryoprotectant
c) buffer d) preservative
6. MMAD is a term used to characterize:
a) Flow behaviour b) Adhesiveness
c) Aerosolization property d) Sedimentation behaviour
7. Haemocompatibility of implanted devices can be increased by coating them with:
a) Fibrinogen b) PEGs
c) Heparin d) Plasma
8. In compaction of tablets, bonding mechanisms are attributed to :
a) Liquid surface film surrounding the particles b) brittle fracture
c) densification d) plastic deformation

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[TURN OVER]

9. Which of the following drug delivery systems avoids first pass metabolism? 15
- a) Rectal b) sublingual
c) nasal d) gastroretentive
10. Wurster's equipment is also known as :
- a) Fluid bed equipment b) Dria coater
c) Accela cota d) Chilsonator.
11. A drug with high volume of distribution indicates which of the following:
- a) It has a small half life b) it accumulates in various tissues and organs
c) it has a low bioavailability d) it will not be effective
12. FFS technology is used for the fabrication of :
- a) Glass containers b) Rubber closures
c) Soft capsules d) LVP containers
13. Which of the following solutions containing both NaCl & Dextrose is isotonic?
- a) 0.9% NaCl & 5% Dextrose b) 0.9% NaCl & 2.5% Dextrose
c) 1.8% NaCl & 10% Dextrose d) 0.45% NaCl & 2.5% Dextrose
14. PEGylated liposomes have the advantage of :
- a) Increased uptake by RES b) Active targeting
c) Hydrophobic surface d) Increased circulation time.
15. Which of the following equations is used to understand diffusion of drugs?
- a) Higuchi,s equation b) Arrhenius equation
c) Ficks equation d) Noyes Whitney equation
16. Inclusion complexes of drugs are formed with :
- a) Albumin b) EDTA
c) Cyclodextrins d) Lipids
17. Example of pulsatile drug delivery system is:
- a) OROS b) Pulsincap
c) SODI d) Orasolv
18. Type IV dissolution apparatus, as per USP is :
- a) Reciprocating cylinder b) Paddle type
c) Flow through cell d) Paddle over disk

19. Which of the following techniques is not useful to detect polymorphs:
- a) PXRD
 - b) DSC
 - c) HPLC
 - d) Melting point determination
20. One of the most widely used class of biodegradable polymers is :
- a) Silicones
 - b) Polyamides
 - c) Acrylates
 - d) PLGA polymers
21. Copper T is an example of :
- a) Matrix tablet
 - b) Osmotic delivery system
 - c) IUD
 - d) Injectable microspheres
22. pMDI are formulations based on :
- a) Lactose as diluent
 - b) Liquefied Propellants
 - c) Glycerol as vehicle
 - d) Water-as vehicle
23. Multiorifice centrifugal process is a method of :
- a) Particle Size classification
 - b) Particle size reduction
 - c) Microencapsulation
 - d) Crystallization
24. For design of a SR matrix tablet, maintenance dose (D_m)/kg body weight is calculated by the following formula:
- a) $[(C_p \cdot V_d \cdot K_e) / F]$
 - b) $[(C_p \cdot V_d \cdot t_{1/2}) / F]$
 - c) $[(C_p \cdot V_d) / F]$
 - d) $[(C_p \cdot V_d \cdot t_{max}) / F]$
25. Glass transition temperature of a polymer is the temperature at which :
- a) The polymer solubilises
 - b) the polymer the polymer gets converted to soft rubbery state
 - c) polymer crystallizes from a solution
 - d) gels
26. Complex coacervation involves the use of :
- a) Temperature change
 - b) Addition of a non solvent
 - c) oppositely charged polyelectrolytes
 - d) Salt addition
27. Degree of polymerization of a polymer gives an idea of :
- a) Average molecular weight
 - b) Number of monomers linked together in the polymer chain
 - c) Extent of crosslinking
 - d) Viscosity of the polymer solution

28. The particle size of inhalation sprays should ideally be :
- a) More than 10 microns
 - b) 2-5 microns
 - c) less than 2 microns
 - d) 5-7 microns
29. Liposomes can be prepared by :
- a) Spray drying
 - b) Jet milling
 - c) Lipid film hydration
 - d) Pelletization
30. ICH Q7 refers to :
- a) Quality of Biotech products
 - b) Stability studies
 - c) GMP
 - d) Process development
31. Instrumental tablet presses make use of :
- a) stalagmometer
 - b) pressure gauges
 - c) strain gauges
 - d) rheometer
32. Anderseans pipette is used to measure :
- a) mucoadhesiveness
 - b) particle size
 - c) volume
 - d) viscosity
33. Occusert Pilo-20 is fabricated using the following polymers:
- a) Gelatin and PVP
 - b) HPMC and Sodium Alginate
 - c) Sodium Alginate and Ethyl vinyl acetate copolymer
 - d) Sodium Alginate and Acrylic copolymer
34. Azo bond conjugates and azo polymers are useful for developing :
- a) Gastroretentive systems
 - b) Targeting to lymphatics
 - c) Colon specific systems
 - d) Targeting to liver microsomes
35. Example of pressure sensitive adhesives for TDDS is:
- a) Cellulosic polymers
 - b) Acrylic polymers
 - c) Alginates
 - d) Carboxy vinyl polymers
36. Thixotropic behaviour indicates:
- a) Constant viscosity
 - b) Sol-gel transformation
 - c) Shear thinning
 - d) Shear thickening
37. CFCs and HFAs are used in aerosols as :
- a) Propellants
 - b) Buffers
 - c) Dispersants
 - d) Osmotic agents

38. Hot stage microscopy is an important tool in preformulation studies for study of :
- a) Particle sizes
 - b) Polymorphism
 - c) Microbial Contamination
 - d) Impurities
39. Comparison of mean in vitro dissolution time to in vivo mean residence time is used in which level of IVIVC?
- a) Level A
 - b) Level B
 - c) Level C
 - d) Level D
40. Spray drying process can be used to generate particles which are :
- a) dense and spherical
 - b) light and porous
 - c) flaky particles
 - d) needle shaped.

Section II

30 marks

Attempt **any three** questions out of five:

- Q 1. With suitable examples discuss hydrolytic and oxidative degradation of drugs. How will you determine shelf life of a formulation?
- Q 2. Discuss the criteria for selecting drug candidates for developing a Transdermal system. How are these systems characterized?
- Q 3. Elaborate on mouth dissolve tablets formulation and evaluation.
- Q 4. Discuss Emulsion Polymerization method and its merits over bulk polymerization method.
- Q 5. State advantages of mucoadhesive formulations and elaborate on theories of mucoadhesion.

Section III

30 marks

Attempt **any two** questions out of four:

- Q 1. Discuss the preformulation considerations for the design of a film coated tablet formulation.
- Q 2. Discuss the various methods for preparation of liposomes, and methods for their characterization.
- Q 3. Elaborate on various approaches for delivery of drugs in the eye.
- Q 4. Discuss microemulsions and SMEDDS w.r.t. development and characterization.
