

- N.B. :** (1) **All forty questions of section I are compulsory. Each question carries 1 marks.**
(2) **Attempt any three questions out of five in Section II. Each question carries 10 marks.**
(3) **Attempt any two questions out of four in Section III. Each questions carries 15 marks.**

Section I (Marks : 40)

1. A superdisintegrant in tablet formulation is :-

- (a) Sodium starch glycollate
- (b) Starch
- (c) PVP
- (d) Magnesium Aluminium silicate.

2. 'Droves test' is associated with measuring the efficiency of :-

- (a) Detergents
- (b) Wetting agents
- (c) Suspending agents
- (d) Adsorbent.

3. The growth of large particles at the expense of smaller ones, as a result of a difference in the solubility of the particles of varying sizes, is termed as :-

- (a) Interfacial phenomenon
- (b) Partitioning
- (c) Erosive formulation
- (d) Ostwald ripening.

4. Stokes equation is :-

(a)
$$V^2 = \frac{d^2 (P_s - P_0) g}{18 \eta_0}$$

(b)
$$V = \frac{d^2 (P_s - P_0) g}{18 \eta_0}$$

(c)
$$V^2 = \frac{d (P_s - P_0) g^2}{18 \eta_0}$$

(d)
$$V = \frac{d^2 (P_s - P_0) g}{9 \eta_0}$$

5. Negative thixotropy is represented by :-
- Shear thinning system with an increase in consistency along the downcurve.
 - Shear thinning system with a decrease in consistency along the downcurve.
 - Shear thickening system with an increase in consistency along the downcurve.
 - Shear thickening system with a decrease in consistency along with the downcurve.
6. Microemulsions can be readily distinguished from Liquid crystalline phases due to :-
- Their transparency
 - Optical isotropicity
 - Spontaneous formation
 - All of the above.
7. Which of the following is not a preformulation consideration for tablet dosage form :-
- Intrinsic dissolution
 - Melting point
 - Friability
 - Polymorphism
8. 'D' value and 'F₀' are parameters for validation of :-
- Dryers
 - Granulators
 - Sterilizers
 - Mixers.
9. Which of the following is Not a ligand for GPCR :-
- Dopamine
 - Propranolol
 - Insulin
 - Norepinephrine.
10. Which of the following is a major metabolite of aromatic hydroxylation reaction in human :-
- p-hydroxy compound
 - m-hydroxy compound
 - o, p-dihydroxy compound
 - o-hydroxy compound.
11. Lipinski's rule is applied to evaluate :-
- Pharmacodynamic properties of NCEs
 - Toxin like properties of NCEs
 - Drug-like properties of NCEs
 - Hydrogen bonding properties of 5 NCEs.

12. Which of the following is a nonmathematical procedure for substituent selection in 2D QSAR :-
- Principal Component Analysis
 - Cluster Analysis
 - Topliss Scheme
 - Monte Carlo.
13. Select the odd combination therapy of the following :-
- Sulfamethoxazole – trimethoprim
 - Azidothymidine – Nelfinavir
 - Probenecid – Allopurinol
 - Ritonavir – Saquinavir.
14. Cocaine has 4 chiral centres, but has ----- isomers :-
- 4
 - 8
 - 16
 - 2.
15. Which of the following does **not** contain a cyclopropyl group in its structure :-
- Ciprofloxacin
 - Nevirapine
 - Abacavir
 - Cyclophosphamide.
16. Which **one** of the following is **Not** an antiamoebic :-
- Metronidazole
 - Parbendazole
 - Tinidazole
 - Secnidazole.
17. 'LEAD' is a subpopulation of 'HITS' that possesses :-
- Potency and specificity
 - Is attractive for optimization
 - Potential to be developed as a novel therapeutic agent
 - All the above.
18. Analgesic activity of a drug can be evaluated by using :-
- Eddy's hot plate method
 - Tail immersion method
 - Radiant heat method
 - All the above methods.
19. Nicotinic receptors are :-
- Metapotropic receptors
 - Ionotropic receptors
 - Nuclear receptors
 - Tyrosine kinase receptors.

20. Phase IV and V clinical studies of a new drug help in :-
- Identifying new indications of the drug
 - Improvement in the synthesis process development
 - Both 'a' and 'b'
 - None of the above.
21. Chronic toxicity studies in animals are of :-
- 14 days, multiple dose
 - 14, days, single dose
 - 28 days, multiple dose
 - 90 days, multiple dose duration.
22. Phospholipase C enzyme is responsible for the formation of :-
- cAMP
 - cGMP
 - IP₃ and DAG
 - None of the above.
23. Monoamine oxidase (MAO) :-
- Is a mitochondrial enzyme
 - Is present in two isoforms A and B
 - MAO inhibitors possess antidepressant activity
 - All the above.
24. Non microsomal enzymes are :-
- Present on the smooth endoplasmic reticulum
 - They are inducible
 - Flavoprotein oxidases, esterases, amidases are nonmicrosomal enzymes
 - Monooxygenases are nonmicrosomal enzymes.
25. While quantifying impurities by HPLC and UV detection, the parameter considered, when there is a difference in absorptivities of the drug substance and the impurities at the wavelength of detection :-
- Absorptivity factor
 - Corrective factor
 - Reactivity factor
 - Response factor.
26. Evaporative Light Scattering Detector is an example of :-
- Bulk property HPLC detector
 - Solute property HPLC detector
 - Fluorescence detector
 - Gas chromatography detector.

27. Conditioning, sample introduction, washing and elution are steps involved in :-
- Bioanalytical method validation
 - Protein precipitation
 - Liquid liquid extraction
 - Solid phase extraction.
28. Cosy is an example of a technique for :-
- 2 D IR
 - 2 D NMR
 - 2 D TLC
 - 2 D UV.
29. In normal phase chromatography :-
- Polar component is eluted first when polar mobile phase is used.
 - Non polar component is eluted first when non polar mobile phase is used.
 - Polar component is always eluted first, whatever be the nature of the mobile phase.
 - Non polar component is always eluted first, whatever be the nature of the mobile phase.
30. The study undertaken to determine the intrinsic stability of the molecule by establishing degradation pathways in order to identify the likely degradation products and to validate the stability indicating power of the analytical procedures used is known as :-
- Accelerated testing
 - Long term testing
 - Stress testing
 - Degradation testing.
31. Helical polymers, 'Brush like', proteins and peptides and inclusion complexes are types of :-
- Chiral stationary phases
 - Gas chromatography columns
 - Ion pair reagents
 - Non polar stationary phases.
32. 1 m H_2SO_4 is :-
- 0.5 N H_2SO_4
 - 2 N H_2SO_4
 - 5 N H_2SO_4
 - 0.25 N H_2SO_4 .

33. 'Autoradiography' is the technique of detection of :-
 (a) Radio-isotope in biological and other materials
 (b) Radio-waves
 (c) X-ray dection
 (d) Micro-waves.
34. The growth inhibitor plant-hormone is :-
 (a) Auxin
 (b) Gibberellin
 (c) Absciscic acid
 (d) Cytokinin.
35. Tropane alkaloids are biosynthetically derived from amino acid :-
 (a) Glutamic acid
 (b) Glycine
 (c) Ornithine
 (d) Alamine.
36. The phytoconstients considered to be useful in management of AMD (Age-related macular degeneration) are :-
 (a) Lutein and Zeaxanthin
 (b) Atropine and Hyoscine
 (c) Hyoscyamine and Hyoscine
 (d) Digoxin and Digitoxin.
37. All the following phytochemicals are mono-terpenoids except :-
 (a) Citral
 (b) Carvone
 (c) Geraneol
 (d) Saffrole.
38. 'Reseveratrol' occuring in grapes is an example of :-
 (a) Ordinary phytochemical
 (b) Phytoalexin
 (c) Allelochemical
 (d) Fungal toxin.
39. The following herbs contain saponin glycosides except :-
 (a) Liquorice
 (b) Asperagus
 (c) Wild cherry
 (d) Ginseng.
40. The pesticidal constituents, intefering with the metamorphosis of insects is :-
 (a) Azadiractin
 (b) Nicotine
 (c) Pyrethrin
 (d) Rotenoids.

