

## Sample Questions- Modern Pharmaceutics

### Topic: Preformulation studies

1. High Throughput Screening & Virtual Screening methods are used for-
  - A. Solubility determination
  - B. Choice of promising drug candidate
  - C. Accelerated stability studies
  - D. Study of polymorphism
2. The amount of moisture absorbed by a substance can be measured by-
  - A. Hot stage microscopy
  - B. Karl Fisher titration
  - C. Differential scanning calorimetry
  - D. Laser diffraction
3. If Hausner's ratio is 1.25, the flow property is said to be
  - A. Fair
  - B. Moderate
  - C. Poor
  - D. Excellent
4. What is the main advantage of QbD?
  - A. Degradation pathway detection
  - B. Optimization of product & process
  - C. Economical
  - D. Specifications of raw materials
5. Sequence of steps in preformulation studies-
  - A. Literature survey – microscopy - solubility
  - B. Literature survey- solubility- organoleptic properties
  - C. Organoleptic properties- solubility - microscopy
  - D. Solubility – initial toxicity - microscopy
6. The noise in an experiment is contributed by
  - A. Control parameters
  - B. Unwanted, uncontrollable factors
  - C. Response variables
  - D. Signal enhancers
7. Independent variable is also called as-
  - A. Signal
  - B. Noise
  - C. Control
  - D. Response
8. A 2 x 3 factorial design is depicted as-
  - A. 3<sup>2</sup>
  - B. 2<sup>3</sup>
  - C. 2,3
  - D. 3,2
9. Simplex method is-

- A. Used in factorial design
  - B. Is a model independent method
  - C. Uses Latin square model
  - D. Builds response surface
10. ....is a fundamental property of powder.
- A. Bulk density
  - B. Porosity
  - C. Particle shape
  - D. Compressibility
11. In Heckel's plot, we have graph of –
- A.  $\log_e(\text{porosity})$  with pressure
  - B.  $\log_e(\text{compressibility})$  with pressure
  - C.  $\log_e(\text{porosity})$  with volume reduction
  - D.  $\log_e(\text{compressibility})$  with volume reduction
12. Solid bridges&Mechanical interlocking are mechanism of-
- A. Compaction
  - B. Decompression
  - C. Fragmentation
  - D. Bonding
13. The ability of a powder to deform under pressure is called as-
- A. Compactibility
  - B. Porosity
  - C. Compressibility
  - D. Consolidation
14. Which of the following is true-
- A. Fragmentation creates new surfaces
  - B. Porosity increases in transitional repacking
  - C. Bonding causes reduction in mechanical strength
  - D. Plastic deformation disappears completely upon release of stress.
15. Which of the following is used for size reduction of powders-
- A. Rapid mixer granulator
  - B. Fluid energy mill
  - C. Chilsonator
  - D. Cone blender
16. Shelf life is estimation of Reduction of \_\_\_\_\_ % concentration from its original Concentration.
- A. 10
  - B. 20
  - C. 30
  - D. 90
17. The Exaggerated temperature as per ICH is used in
- A. Toxicity study
  - B. Viscosity study
  - C. Accelerated stability study

D. Container Evaluation study

18. Which of the following is true for the resultant polymer product formed, when molecules of phthalic acid react with molecules of glycerol?

- A. branch polymer
- B. cross-link polymer
- C. linear polymer
- D. none of the mentioned

19. Which of the following is Chain Growth Polymer?

- A. Nucleic Acid
- B. Polystyrene
- C. Protein
- D. Starch

20. Polymer formation from monomers starts by

- A. condensation reaction between monomers
- B. coordination reaction between monomers
- C. conversion of monomers to monomer ion by protons
- D. hydrolysis of monomers

21. Following is hydrophilic polymer

- A. Carnuaba Wax
- B. Stearyl Alcohol
- C. HPMC
- D. Polyvinylchloride

22. How many Primary Batches are considered for Stability study

- A. 3
- B. 2
- C. 1
- D. 5

23. Which is correct ICH Guideline for Stability study

- A. ICHQ1
- B. ICH Q3
- C. ICH Q8
- D. ICH Q10

24. Which is correct stability Zone for UK

- A. Zone I
- B. Zone II
- C. Zone III
- D. Zone IV

25. Which is correct Accelerated Stability Condition for Products stored at refrigerated condition?

- A.  $40^{\circ}\pm 2^{\circ}/75\%RH\pm 5\%$
- B.  $25^{\circ}\pm 2^{\circ}/60\%RH\pm 5\%$
- C.  $30^{\circ}\pm 2^{\circ}/85\%RH\pm 5\%$
- D.  $50^{\circ}\pm 2^{\circ}/75\%RH\pm 5\%$

26. Indicate which of the following statements relating to the effect of pH on drug stability are true

- A. The rate of acid-catalysed decomposition of a drug increases with pH.
- B. The rate of base-catalysed decomposition of a drug increases with the concentration of hydroxyl ions.
- C. The effect of buffer components is not decomposition as acid–base catalysis.
- D. Plot of the observed-rate constant (as ordinate) against pH (as abscissa) for an acid-catalysed reaction has a gradient equal to  $kH^+$ .

27. The Arrhenius equation for effect of temperature on the hydrolysis of a drug in aqueous solution

- A. predicts that the rate of reaction will decrease as temperature is increased
- B. predicts that a plot of  $\log k$  against temperature will be linear
- C. predicts that a plot of  $\log k$  against the reciprocal of temperature will be linear
- D. predicts that there will be no change in the order of reaction when temperature is increased

28. The time taken for 5% of a drug to decompose by first-order kinetics is:

- A.  $0.022/k_1$
- B.  $0.051/k_1$
- C.  $0.105/k_1$
- D.  $k_1/0.051$

E.  $0.105 k_1$

29. Drug release from a non-eroding hydrophilic matrix drug release involves:

- A. Coacervation
- B. Diffusion of Drug Through a Gel Layer
- C. Diffusion of Drug Through a Semipermeable Membrane
- D. Passage of Drug Through Pores in the Matrix

30. Following is the Natural Polymer

- A. Dextran
- B. PLGA
- C. PEG
- D. PVC