

**M.Sc. Part -II**

**SEMESTER-III**

**Paper-IV Medicinal, Biogenesis and Green chemistry**

**Sample Questions**

Q 1) Therapeutic index is the ratio of:

- A) LD50 over the ED50
- B) ED50 over the LD50
- C) bioavailability over drug dose
- D) apparent volume of distribution over elimination rate constant

Q 2) Therapeutic dose is not related to:

- A) patient's age
- B) route of administration
- C) desired therapeutic effect
- D) organs of elimination

Q 3) Distribution is the

- A. Process that defines the drug entrance into the systemic circulation from the site of administration or application
- B. Abstract concept, which determines where is a drug distributed
- C. Chemical processing of drugs before they will leave an organism
- D. Disposition of a drug throughout the body from the general circulation

Q 4) Volume of distribution is the

- A. Disposition of a drug throughout the body from the general circulation
- B. Elimination of drugs from the body
- C. Chemical processing of drugs before they will leave an organism
- D. Process that defines the drug entrance into the systemic circulation from the site of administration or application

Q 5) Which of the following is not the subject for pharmacodynamics?

- A. Mechanism of action.
- B. Duration of effect.
- C. Adverse effects.
- D. Phases of metabolism.

Q 6) Bioavailability is the

- A. Proportion of administered drug that reaches the systemic circulation in unchanged form
- B. Ability of administered drug to reach its target of action
- C. Proportion of administered drug that reaches the systemic circulation
- D. Proportion of administered drug that reaches the systemic circulation in changed form

Q 7) The distribution of drugs into the central nervous system (brain) usually depends on:

- a. Aqueous diffusion
- b. Lipid diffusion
- c. Active transport
- d. Facilitated transport

Q 8) Following intravenous administration, drugs are distributed fastest to:

- a. the skin, kidney, and brain
- b. the liver, kidney, and brain
- c. the liver, adipose, and brain
- d. the liver, kidney, and adipose

Q 9) The half-life of a drug eliminated by first order elimination kinetics will be LONGER in individuals who have an:

- a. increased volume of distribution or increased clearance
- b. increased volume of distribution or decreased clearance
- c. decreased volume of distribution or increased clearance
- d. decreased volume of distribution or decreased clearance

Q 10) Drug characteristics contributing to reliable transdermal drug absorption:

- (A) molecular weight less than 1000
- (B) drug does not cause histamine release
- (C) the daily drug requirement is less than 10 mg
- (D) in saturated aqueous solution, the pH range is 5-9

Q 11) Which of the following statements is untrue when comparing 3D QSAR with conventional QSAR?

- a) Only drugs of the same structural class should be studied by 3D QSAR or QSAR.
- b) 3D QSAR has a predictive quality unlike QSAR.
- c) Experimental parameters are not required by 3D QSAR, but are for QSAR.
- d) Results can be shown graphically in 3D QSAR, but not with QSAR.

Q 12)) A Hench analysis is being carried out in order to relate biological activity to  $\sigma$  and  $\pi$ . Which of the following substituents would best suit the study?

- a) SO<sub>2</sub>NH<sub>2</sub>, CONH<sub>2</sub>, CH<sub>3</sub>SO<sub>2</sub>, CH<sub>3</sub>CO, CN
- b) NH<sub>2</sub>, OH, F, Cl, CF<sub>3</sub>
- c) NO<sub>2</sub>, CO<sub>2</sub>H, F, OCH<sub>3</sub>, NMe<sub>2</sub>
- d) SO<sub>2</sub>NH<sub>2</sub>, Br, NMe<sub>2</sub>, NH<sub>2</sub>, CF<sub>3</sub>SO<sub>2</sub>

Q 13) The QSAR equation relating the insecticidal activity of a series of diethyl phenyl phosphonates versus  $\sigma$  is shown below.

$$\log \left( \frac{1}{C} \right) = 2.282\sigma - 0.348. (r^2 0.952, r 0.976, s 0.286)$$

What does  $s$  represent?

- a) The regression or correlation coefficient
- b) The number of compounds tested
- c) The standard deviation
- d) The  $F$  tests

Q 14) The QSAR equation relating the insecticidal activity of a series of diethyl phenyl phosphonates versus  $\sigma$  is shown below.

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Q 15) What does a negative value of  $\sigma$  signify for a substituent?

- a) It is electron donating
- b) It is electron withdrawing
- c) It is neutral
- d) It is hydrophobic

Q 16)) What software programmer is used to determine the Overlook steric parameter?

- a) Alchemy
- b) Chem3D
- c) Sterol
- d) Cheraw

Q 17) What does MR represent in a QSAR equation?

- a) Molar refractivity is a steric factor
- b) Molar refractivity is an electronic factor
- c) Molar refractivity is a hydrophobic factor
- d) Molar refractivity is a stereo electronic factor

Q 18) What is the symbol  $\pi$  in a QSAR equation?

- a) The hydrophobicity of the molecule
- b) The electronic effect of a substituent
- c) The substituent hydrophobicity constant
- d) A measure of the steric properties for a substituent

Q 19) What does the symbol P represent in a QSAR equation?

- a) pH
- b) plasma concentration
- c) partition coefficient
- d) prodrug

Q 20) What value does the regression coefficient have for a perfect fit?

- a) 0.1
- b) 1
- c) 10
- d) 100

Q 21) The following is often referred to as the universal solvent and is a preferred green solvent?

- a) Water
- b) Methanol
- c) Ethyl Acetate
- d) Benzene

Q 22) Benzene, a \_\_\_\_\_ substance, is an important industrial solvent used in the production of pharmaceuticals, plastics, and dyes?

- a) Odorless
- b) Non-flammable
- c) Biodegradable
- d) Carcinogenic

Q 23) In the late 1960's, the Cuyahoga River in Ohio overloaded with chemical pollutants and \_\_\_\_\_?

- a) Killed fish
- b) Polluted surrounding soil
- c) Caused foaming
- d) Caught fire

Q 24) Shortly after mid-night in 1984, a reaction caused poisonous methyl isocyanate gas to leak from a factory in this city, \_\_\_\_\_ causing 3,700 deaths?

- a) Bhopal
- b) Hinkley
- c) Calcutta
- d) Siberia

Q 25) \_\_\_\_\_ and moral arguments are often used when discussing sustainability and green chemistry?

- a) Environment
- b) Technology
- c) Politics
- d) Ethics

Q 26) \_\_\_\_\_ is fulfilling the needs of the present generation without compromising the ability of future generations to meet their needs?

- a) Sustainability
- b) Green chemistry
- c) Life Cycle Assessment
- d) Recycling

Q 27) Environmental benefits of green chemistry include?

- a) Fewer raw materials and natural resources used
- b) Cleaner production technologies & reduced emissions
- c) Smaller quantities of hazardous waste to be treated and disposed of
- d) All of the above

Q 28) The term used to measure a product or person's environmental impact is?

- a) Handprint
- b) CO<sub>2</sub> print
- c) Footprint
- d) Hazardous print

Q 29) The term which refers to the breakup within a compound due to microbial activity is?

- a) Microbial degradation
- b) Argo-degradation
- c) Photo-degradation
- d) Decomposition

Q 30) Which of the following is the greenest solvent?

- a) Formaldehyde
- b) Benzene
- c) Ethanol
- d) Water

Q 31) Triterpenes are a class of terpene that consist of \_\_\_\_\_ isoprene units.

- a. 3
- b. 4
- c. 6
- d. 8

Q 32) \_\_\_\_ are used to speed up biochemical reactions.

- a. Lipids
- b. Enzymes
- c. Prostaglandins
- d. Fatty acid

Q 33) Which of the following is NOT an example of cyclic sesquiterpene?

- a. Gamma-Guinee
- b. Geraniol
- c. Alpha- Humulene
- d. Alpha- Guinee

Q 34) \_\_\_\_ are building blocks of proteins.

- a. Amino acids
- b. Vitamins
- c. Lipids
- d. Alkaloids

Q 35) \_\_\_\_ serves as the intermediate for the biosynthesis of Bioflavonoids.

- a. Catechin
- b. Chalcone
- c. 4-Coumaryl CoA
- d. Phenylalanine

Q 36) Vinylic acid can be biosynthesised by \_\_\_\_

- a. 4-Coumaric acid
- b. Caffeic acid
- c. Cinnamic acid
- d. Synaptic acid

Q 37) Chemically, \_\_\_\_ are cross-link phenolic polymers.



- a. Steroids
- b. Amino acids
- c. Lignin's
- d. Phenols

Q 38) Which if the following is **NOT** the class of secondary metabolites?

- a. Amino acids
- b. Terpenes
- c. Phenolic ester
- d. Alkaloids

Q 39) \_\_\_\_ is the class of complex organic polymers that support tissue of vascular plants and algae.

- a. Prostaglandins
- b. Steroids
- c. Tyrosine
- d. Lignins

Q 40) beta-Carotene, a plant pigment falls under which of the following class of terpenes?

- a. Triterpenes
- b. Tetraterpenes
- c. Diterpenes
- d. Polyterpenes