

Bio-Analytical Sciences.
(3 Hours)

[Total Marks : 100

28/04/12

- N.B.** (1) Answer **all** sections in the **same** answer book.
(2) **Figures** on the **right** indicate **full** marks.

Section I

- N.B.** (1) **All** questions are **compulsory**.
(2) Select the most **appropriate answer** from the alternatives provided for **each** of the following and write **ONLY** the correct option in your answer-book.

- 1) Extraction efficiency of a solute is best reflected by-
a) Stability of solute b) Partition coefficient c) pH of solvent d) partial pressure
- 2) The route of administration that gives maximum bioavailability is-
a) IV b) Oral c) IM d) SC
- 3) First pass effect refers to-
a) Liver metabolism b) Gastric absorption c) Enteric absorption d) None of these
- 4) GCP guidelines for India are issued by-
a) DCGI b) FDA c) ICMR d) Govt. Of India
- 5) Powder characteristics of crude plant drug is used in-
a) Pharmacognostic evaluation b) Proximate analysis c) Herbal analysis d) None of these
- 6) Electronic signature is described in-
a) CFR 21 part 11 b) CFR 21 part 12 c) FDA guidelines d) None of these
- 7) Sub family papilionaceae belongs to family-
a) Asteraceae b) Leguminosae c) Rosaceae d) Malvaceae
- 8) Trichomes are found on-
a) leaves b) roots c) seeds d) None of these
- 9) Extraction technique that relies on adsorption of solutes is-
a) liquid liquid extraction b) SCFE c) SPE d) Soxhlet extraction
- 10) Arka Vati is a type of formulation in -
a) Ayurveda b) Unani c) Siddha d) Homeopathy
- 11) Visualisation of bands after derivatizing a TLC plate can be done using-
a) Exposure to Safranin b) Exposure to Nitrogen
c) Exposure to iodine crystals d) none of these
- 12) Scanning of a TLC plate is based on the principle of-
a) Densitometry b) Lambert's law c) Refractometry d) Sonometry
- 13) Separation of solutes of similar nature by LC can be achieved by-
a) Isocratic HPLC b) Gradient HPLC c) GLC d) LC-MS
- 14) Proteins are best separated in HPLC using-
a) C18 column b) C9 column c) Affinity column d) Ion exchange column
- 15) Enantiomers are separated in HPLC using-
a) chiral columns b) phenyl column c) affinity column d) none of these

[TURN OVER

- 34) A single DNA strand begins with the sequence ATGGACGTATTC , the complimentary DNA strand will be-
- a) GCTATCCAGGAT b) TACCTGCATAAG c) CTTATGCAGGTA d) ATGGACGTATTC
- 35) A colorimeter is designed to work-
- a) only in the uV region b) only in the visible region
c) both in the visible and the uV region d) in none of the above regions
- 36) Deviations from the Beer-Lambert's law are observed mainly due to-
- a) failure of Beer's law b) failure of Lambert's law
c) failure of both Beer's and Lambert's law d) the instrument used
- 37) A buffer solution can be prepared from-
- a) a weak acid and its salt with a strong base
b) a weak base and its salt with a strong acid
c) a salt of a weak acid and a weak base
d) all of the above
- 38) Enantiomers are-
- a) geometric isomers b) position isomers
c) structural isomers d) positional isomers
- 39) Primary and secondary amines can be distinguished by means of their reaction with-
- a) nitric acid b) nitrous acid c) halogen acid d) halogens
- 40) Chair form and boat form of cyclohexane are examples of-
- a) conformational analysis b) position isomerism c) structural isomerism
d) enantiomers

SECTION II

Attempt **ANY THREE** of the following;

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- Q1. What does the term analytical method validation mean? Explain different parameters used?
- Q2. Explain the significance of WTO in the promulgation of amendments in Indian Patent Law.
- Q3. Differentiate between Nephelometry and Turbidometry?
- Q4. Describe various factors that influence bioavailability of a drug.
- Q5. Write an explanatory note on Ayurvedic Pharmacopeia of India

SECTION III

Attempt **ANY TWO** of the following;

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- Q1. Describe the process of standardising a medicinal plant for the herbal drug industry.
- Q2. Describe the principles of Tandem mass spectrometry and its applications in bioanalysis.
- Q3. What is autoradiography ? What are the principles involved in Autoradiography?
- Q4. What are the various thermal methods of analysis and what are the basic properties that are measured in them?