

Bio-Analytical Science
(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?