

[A-22]

Sardar Patel University

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M. Sc. Biochemistry (IV Semester) Examination

Date: 28th April (Tuesday), 2015

Time: 10.30 am – 1.30 pm

Paper PS04ECBIC04: Pharmacognosy

30

Max. Marks: 70

N.B.: (i) Answers of all the questions (including multiple choice questions) should be written in the provided answer book only.

(ii) Figures in the right indicate marks.

Q1. Select the appropriate answer for the following multiple choice questions: (08)

- (i) The volatile oils are complex mixtures of.....
(A) mono- and sesquiterpenes and phenylpropane derivatives
(B) mono- and diterpene alcohols and ethers
(C) sesquiterpenes and other aromatic compounds
(D) monoterpene acids and lactones
- (ii) Which of the following is considered a drug's official name?
(A) the generic name (B) the trade name
(C) the international nonproprietary name (D) the chemical name
- (iii) Which of the following are known as balsams?
(A) Resins dissolved in volatile oil
(B) A mixture of volatile oils with sesquiterpenes
(C) Resins dissolved in water (D) Polysaccharides mixed with volatile oil
- (iv) Alkaloids are naturally occurring compounds which containin their molecules.
(A) one or more N atoms (B) two heterocyclic rings
(C) a side-chain on one of the benzene rings
(D) one or more N atoms originating from amino acids
- (v) The most suitable drug for treatment of congestive cardiomyopathy is
(A) Digitalis (B) Cinchona (C) Rauwolfia (D) Vinca
- (vi) Ergot is obtained from
(A) a dicot plant (B) a monocot plant (C) a Gymnosperm (D) a fungus
- (vii) Which of the following groups of compounds consists of primary metabolites?
(A) Alkaloids (B) Lignans (C) Flavonoids (D) Carbohydrates
- (viii) Which of the following pathways leads to aromatic amino acid biosynthesis?
(A) The mevalonic acid pathway
(B) The glycolytic pathway
(C) The shikimic acid pathway
(D) The Pentose Phosphate pathway

Q2. Answer any SEVEN of the following questions briefly: (14)

- (i) Pharmaceutical aids
(ii) Importance of ethnobotany in drug discovery
(iii) Steps involved in the standardization of herbal and/or raw drugs
(iv) Steam distillation

- (v) Structural differences between steroids and terpenes
- (vi) Mechanism of action of Morphine
- (vii) Uses of Vinca alkaloids
- (viii) Preparation of Cocaine
- (ix) Properties of cyanogenic glycosides

Answer the following:

(4x12 = 48 marks)

- Q.3.** (a) Discuss the methods of preservation of plant materials to be used as herbal drug. (6)
- (b) Enumerate the list of extraction procedures that are used in preparation of crude drugs and add a note on the Solvent-solvent precipitation and Liquid-liquid extraction methods. (6)

OR

- (a) Give a brief account of tools/ analytical instrumentation that are often used for standardization and to control the quality of both the raw material and the finished product of herbal drugs. (6)

- Q.4** (a) List various types of adulteration. Explain substitution of drugs in detail with Suitable examples (6)

- (b) Briefly discuss the systems which are often applied for immobilization of enzymes and (plant) cells, (under the process of Biotransformation) (6)

OR

- (b) Photosynthate is the ultimate source of primary and secondary metabolism in plants – Justify with the support of suitable biosynthetic pathways (6)

- Q.5** (a) Write notes on (6)

i) *Dioscorea* ii) Liquorice

- (b) Give an account of cultivation, collection and uses of *Catharanthus roseus*. (6)

OR

- (b) Outline the procedure for extraction of opium alkaloids (6)

- Q.6** (a) Write notes on:

i) Clove ii) Cannabis (6)

- (b) Describe the bioassay guided method for screening plant for bioactive Principles (6)

OR

- (b) Outline the biosynthetic pathway for alkaloid biosynthesis from aromatic amino acids. (6)

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