04/01/2023

BP 504 T

Roll No. of candidate

2022

B.Pharm. 5th Semester (Regular) End-Term Examination

PHARMACOGNOSY AND PHYTOCHEMISTRY — II (Theory)

Full Marks – 75   Time – Three hours

The figures in the margin indicate full marks

for the questions.

1. Choose the correct answer from the following :   (20 × 1 = 20)

    (i) Amino acids which are basically obtained from Shikimic acid pathways are:

    (a) Methionine, leucine and tyrosine

    (b) Arginine, tyrosine and ornithine

    (c) Glutamine, tyrosine and isoleucine

    (d) Phenylalanine, tyrosine and tryptophan

    (ii) Which of the following is the correct scientific name of Senna?

    (a) *Centela asiatica*   (b) *Curcuma longa*

    (c) *Cassia angustifolia*   (d) *Foeniculum vulgare*

    (iii) Volatile oil is extracted from which plant parts of 'Clove'?

    (a) Root   (b) Flower

    (c) Stem   (d) Leaves

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(iv) Which of the following is the chief chemical constituent of 'Opium'?

    (a) Reserpine   (b) Menthol

    (c) Digoxin   (d) Morphine

(v) 'Pale catechu' and 'Black catechu' can be differentiated by which of the following chemical test?

    (a) Gambier-Fluorescein test

    (b) Dragendorff's test

    (c) Van-urk's Test

    (d) None of the above

(vi) 'Aloe' belongs to which of the following phytoconstituents class?

    (a) Alkaloids   (b) Steroids

    (c) Resins   (d) Glycosides

(vii) Which of the following natural compound is used for the treatment of Malaria?

    (a) Rutin   (b) Artemisin

    (c) Vincristine   (d) Atropine

(viii) Which of the following active phytoconstituents has anti-cancer properties?

    (a) Quinine   (b) Fenchone

    (c) Taxol   (d) Caffeine

(ix) Which of the following Co-Enzyme type is involve in Mevalonate pathway?

    (a) Co-enzyme A   (b) Co-enzyme B

    (c) Co-enzyme C   (d) Co-enzyme D

(x) Unsaturated aldehyde (R-CH=O) functional group is present in which of the following plant's component?

    (a) Menthol   (b) Citral

    (c) Atropine   (d) Diosgenin

(xi)   Which of the following phytoconstituents is regarded as the main precursor for the production and synthesis of other steroid classes?

(a) Digoxin   (b) Diosgenin

(c) D-glucose   (d) None of the above

(xii) Which of the following test is used to identify the presence of quinine?

(a) Thalleoquine test   (b) Kedde's test
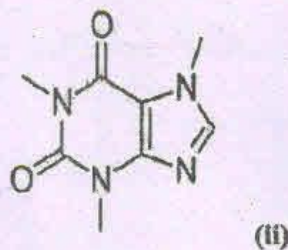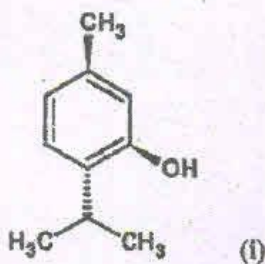
(c) Shinoda's test   (d) Biuret's test

(xiii) Stas-Otto method is applied for the extraction of which of the following phytochemical class?

(a) Resins   (b) Carbohydrates

(c) Alkaloids   (d) All of the above

(xiv) Give the full abbreviated form of TLC in herbal analysis.

(a) Thick Layer Chromatography

(b) Thin Layer Chromatography

(c) Topical Layer chromatography

(d) None of the above

(xv)   Identify the following compounds based on their chemical structure

(a) Quinine (i) and Menthol (ii)

(b) Citral (i) and Menthol (ii)

(c) Menthol (i) and Caffeine (ii)

(d) Quinine (i) and Caffeine (ii)

(xvi) Industrial production of diosgenin is commonly done by which of the following method?

    (a) Fermentation-cum-acid hydrolysis method

    (b) Soxhlet method

    (c) Clevenger method

    (d) Microwave assisted extraction method

(xvii) UV-Visible spectroscopic analysis of compound is basically applied to
_____

    (a) To detect the molecular weight of the compounds

    (b) To detect the melting point of the compounds

    (c) To detect the solubility of the compounds

    (d) To detect the absorption spectra of the compounds

(xviii) Which of the following active phytoconstituents has the medicinal uses as CNS stimulant?

    (a) Caffeine   (b) Digitalis

    (c) Atropine   (d) Phytosterol

(xix) Terpenoidal substances can be extracted by which of the following techniques?

    (a) Soxhlet technique   (b) Maceration technique

    (c) Percolation technique   (d) Clevenger technique

(xx) In TLC technique, which of the following substance is commonly used as the stationary phase?

    (a) Gelatin   (b) Sucrose

    (c) Silica gel   (d) All of the above

2. Answer the following questions (any *seven*): (7 × 5 = 35)

(a) Match the following : (5 × 1 = 5)

Group A	Group B
(i) Soxhlet appratus	(1) Extraction of volatile phytoconstituents
(ii) Clevenger apparatus	(2) Separation of active phytoconstituents
(iii) Thin layer chromatographic technique	(3) Investigation of biogenic pathways
(iv) UV-visible spectroscopy	(4) Extraction of non-volatile phytoconstituents
(v) Radioactive isotopes techniques	(5) Analysis of active phytoconstituents

(b) Give the biological sources and chemical constituents of the following plants. (5)

    (i) Rauwolfia

    (ii) Gentian

    (iii) Digitalis

    (iv) Fennel

    (v) Catechu

(c) Explain in brief the Amino acid pathway. (5)

(d) Describe the detail process of isolation of atropine from Belladona leaves. (5)

(e) Describe in detail the pharmacognostical study of Liquorice. (5)

(f) Outline in detail the identification and analysis of menthol. (5)

(g) Explain with a neat diagram the working principles of Soxhlet Apparatus. (5)

(h) Describe in detail the industrial production and utilization of any anticancer phytoconstituents. (2.5 + 2.5)

(i) Write a note on how to analyse crude drugs using any chromatographic methods. (5)

3. Answer the following questions (any *two*): (2 × 10 = 20)

(a) Give the general introduction, biological source, composition, chemistry, therapeutic uses and commercial applications of secondary metabolites (*any one*) (10)

    (i) Belladona

    (ii) Clove

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(b) Describe in detail the isolation, identification and analysis of the following secondary metabolites (*any one*) (3 + 3 + 4)

    (i) Citral

    (ii) Caffeine

(c) Write a short note on the following (any *two*) (5 + 5)

    (i) Application of Spectroscopic techniques in herbal medicine

    (ii) Shikimic acid pathway

    (iii) Biogenic studies.

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