

0807

21415

3 Hours / 80 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any TEN of the following: **20****
- a) Define pharmacognosy. Give the contribution of Hippocrates.
 - b) Name a drug having following microscopical characters.
 - (i) Lignified trichomes
 - (ii) Paracytic stomata
 - c) Differentiate between organised crude drug and unorganised crude drug.
 - d) Mention the synonym of following drugs.
 - (i) Asafoetida
 - (ii) Gymnema
 - (iii) Chaulmoogra oil
 - (iv) Dioscorea
 - e) Write down the biological source of following drugs.
 - (i) Cinchona
 - (ii) Vinca

P.T.O.

- f) Draw a well labelled diagram showing morphological characters of 'Coriander fruit'.
- g) Give the example of a drug used as antihypertensive and write its biological source.
- h) Identify a drug containing following chemical constituents.
 - (i) Bassorin
 - (ii) Kinoin
 - (iii) Margosine
 - (iv) Fibroin
- i) Enlist various Indian traditional system of medicine.
- j) Give any two examples of drugs from umbelliferae family and mention two characteristic features of umbelliferous fruits.
- k) Define oxytocics. Write down chemical constituents of Ergot.
- l) Give the examples of drugs from following families.
 - (i) Rubiaceae
 - (ii) Polygonaceae
 - (iii) Acantheaceae
 - (iv) Rutaceae

2. Answer any THREE of the following:

12

- a) Explain pharmacological method of classification of crude drug with its merits and demerits.
- b) Mention the adultrants and substituents of
 - (i) Clove
 - (ii) Senna
- c) Define Natural pesticide. Give the biological source, chemical constituents, and uses of any one drug.
- d) Define Lipids. Write down the properties of fixed oil.
- e) Differentiate between Plant Fibre and Animal Fibre.

3. Attempt any THREE of the following:**12**

- a) Give the uses of
 - (i) Rauwolfia
 - (ii) Isapghula
 - (iii) Colchicum
 - (iv) Garlic
- b) Draw a well labelled diagram of T.S. of Ginger and describe it.
- c) Define Tannins and write down the chemical test for identification of tannins.
- d) Describe any four physical methods of evaluation of crude drug.
- e) Define Suture and Ligature and write down the properties of it.

4. Attempt any THREE of the following:**12**

- a) Write down the classification of Glycosides on the basis of linkage between sugar and non - sugar with one example each.
- b) Name a drug containing papain and citral as active constituents and write their uses.
- c) Define Diuretic. Give the examples of it and write biological source, chemical constituents of any one drug.
- d) How will you differentiate Black catechu and Pale catechu?
- e) Give the method of collection and preparation of opium for market.

- 5. Attempt any THREE of the following:** **12**
- a) Define Pharmaceutical aids. Give the classification of it with examples.
 - b) Give the biological source and chemical constituents of
 - (i) Amla
 - (ii) Sandalwood
 - c) Define drug evaluation and explain the terms
 - (i) Stomatal No.
 - (ii) Stomatal index
 - (iii) Vein - islet No.
 - d) Define:
 - (i) Antidysentrics
 - (ii) Enzymes
 - (iii) Vitamines
 - (iv) Antileprotics
 - e) Describe the method of preparation of silk fibres.
- 6. Explain the chemical tests for following crude drugs (any four):** **12**
- a) Starch
 - b) Myrrh
 - c) Tolu balsum
 - d) Digitalis
 - e) Asafoetida
 - f) Gelatin
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15162

3 Hours / 80 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
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Marks

1. Answer any EIGHT of the following: 16
- a) Define pharmacognosy. When and who coined the term pharmacognosy?
- b) Name the drug which contain:
- (i) Bassorin
 - (ii) Harmine
 - (iii) Fenchone
 - (iv) Reserpine
- c) Mention a crude drug for which each of the following synonym is applicable:
- (i) Mel
 - (ii) Oleum selachoids
 - (iii) yam
 - (iv) Cera flava

P.T.O.

- d) Name a crude drug to which each of following chemical test is applicable:
- (i) Klunge's test
 - (ii) Fische's test
 - (iii) Vitali-Morin test
 - (iv) Keller-Killiani test
- e) Mention which part of the plant is useful as a drug in case of:
- (i) Gymnema
 - (ii) Nutmeg
 - (iii) Liquorice
 - (iv) Black pepper
- f) For identification of which crude drugs swelling factor is determined. Describe how will you determine it?
- g) Write chemical tests for ergot.
- h) Describe method of preparation of cotton.
- i) What are balsams? Name balsams used in pharmacy.
- j) What do you know about 'Ayurveda' as traditional Indian system of medicines?

2. Answer any FOUR of the following:

12

- a) Give two examples of crude drugs from family:
- (i) Burseraceae
 - (ii) Apocyanaceae
 - (iii) Scrophulariaceae
- b) Define evaluation of crude drugs. Describe any two microscopical methods of drug evaluation.
- c) What are surgical dressing? Give the ideal requirements of surgical dressings.
- d) Define and classify pharmaceutical aids with examples.

- e) Differentiate between organised and unorganised crude drugs with examples.
- f) Define perfumes and flavouring agents. Give biological source and chemical constituents of any one:
 - (i) Peppermint oil
 - (ii) Lemon grass oil

3. Answer any FOUR of the following: 12

- a) Define volatile oil. Explain method of isolation of volatile oil.
- b) (i) What are enzymes? Give biological source of diastase.
(ii) Define tannins. Write chemical test for tannins.
- c) Describe pharmacological method of classification with its merits and demerits.
- d) Draw a well labelled cellular diagram of T.S. of bark used as antimalarial. Describe any two microscopic characters.
- e) Describe method of collection and preparation of digitalis for market.
- f) Write biological source, chemical constituents and uses of garlic.

4. Answer any FOUR of the following: 12

- a) How will you differentiate:
 - (i) Plant fibres and animal fibres
 - (ii) Leaf and leaflet
- b) Define antiseptic. Give biological source, chemical constituents of benzoin.
- c) Write biological source and use of:
 - (i) Neem
 - (ii) Shatavari
- d) Define sutures and ligatures. Write ideal requirements of sutures.

- e) Explain the significance of following in evaluation of crude drugs with suitable examples:
 - (i) Alcohol soluble extractives
 - (ii) Optical rotation
- f) Define resin and resin combinations. Classify it with suitable examples.

5. Answer any FOUR of the following: 12

- a) Define and classify alkaloids with examples of crude drugs.
- b) Write the morphological characters of Ipecac along with diagram.
- c) Define adulteration. Give various methods of adulteration with suitable examples.
- d) Which umbelliferous fruit mainly contains a chemical constituent linalol? Write its morphological characters with diagram.
- e) Define with examples of crude drugs (any three):
 - (i) Oxytocics
 - (ii) Astringents
 - (iii) Carminatives
 - (iv) Antitumour
- f) Define diuretics. Write biological source, chemical constituents of punernava.

6. Write chemical tests of crude drugs (any FOUR): 16

- a) Nux vomica
 - b) Turmeric
 - c) Shark liver oil
 - d) Datura
 - e) Wool
 - c) Acacia
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21718

3 Hours / 80 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
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Marks

1. Attempt any EIGHT of the following: 16
- a) What is Ayurveda? Describe contribution of “Sushrut” in Indian History.
- b) Why Saponin glycosides are not safe for intravenous administration?
- c) Define and write one example of
- (i) Antiseptic
- (ii) Diuretics
- d) Which parts of the plant is used as a drug in case of
- (i) Aloe
- (ii) Gymnema
- (iii) Coriander
- (iv) Rauwolfia

P.T.O.

- e) Write the name of drug for which following chemical test is applied
- (i) Borntrager Test
 - (ii) Klunge's Test
 - (iii) Fiehe's Test
 - (iv) Keller Killiani Test
- f) Define pharmacognosy. Give the contribution of Hippocrates.
- g) Give any four characteristics features of Umbelliferous fruits.
- h) Mention the synonym of following drugs
- (i) Asafoetida
 - (ii) Dioscorea
 - (iii) Castor oil
 - (iv) Cinnamon
- i) Draw a well labelled diagram showing morphological characters of "Datura leaf".
- j) Name the family of following drugs.
- (i) Colchicum
 - (ii) Ashwagandha
 - (iii) Ginger
 - (iv) Tragacanth
- k) Suggest the drugs containing following chemical constituents.
- (i) Reserpine
 - (ii) Rhein
 - (iii) Bassorin
 - (iv) quinine, quinidine
- l) Differentiate between organised and unorganised crude drug.

2. Attempt any THREE of the following: 12

- a) Explain the chemical method of classification with its merits and demerits.
- b) Define Pharmaceutical aids. Give the classification of it with examples.
- c) Describe method of cultivation, collection and preparation for market of opium.
- d) What are volatile oil? What are the methods of extraction of volatile oil.
- e) Write the name of the drug which passes the following Chemical Test and explain it.
 - (i) Vitali-Morin Test
 - (ii) Swelling factor Test.

3. Attempt any THREE of the following: 12

- a) Describe life cycle of Ergot.
- b) Write the synonyms, biological source of (any two)
 - (i) Liquorice
 - (ii) Gokhru
 - (iii) Sandalwood
- c) What is Ash value? Write its types and Give the importance of Ash value in evaluation of drug.
- d) Mention the adulterants and substituents of (any two).
 - (i) Digitalis
 - (ii) Clove
 - (iii) Nux-vomica
- e) Give the chemical constituents and uses of (any two)
 - (i) Sandalwood
 - (ii) Vasaka leaf
 - (iii) Garlic

- 4. Attempt any THREE of the following:** **12**
- a) Draw a well labelled diagram of T.S. of Nux-Vomica seed and describe the same.
 - b) Define suture and Ligature. Write the ideal requirement of Surgical dressings.
 - c) Differentiate between
 - (i) Gum and mucilage
 - (ii) Leaf and leaflet
 - d) Define Anti Rheumatic. Give the example of it and write Biological source, chemical constituents of any one drug.
 - e) Define “Drug Adulteration”. Describe any four method of adulteration with suitable examples.
- 5. Attempt any THREE of the following:** **12**
- a) Define fibre. Describe the method of preparation of cotton fibre.
 - b) Define the following with example:
 - (i) Antihypertensives
 - (ii) Antileptotics
 - (iii) Enzymes
 - (iv) Antitussive
 - c) What are vitamins? Describe biological source, chemical constituents and uses of drug containing vitamin ‘C’.
 - d) Define Resin. Classify resin combination with example.
- 6. Write chemical tests of crude drugs (any FOUR):** **16**
- a) Benzoin
 - b) Wool
 - c) Starch
 - d) Gelatin
 - e) Acacia
 - f) Pale catechu
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21819

3 Hours / 80 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
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Marks

1. **Attempt any EIGHT of the following:** **16**
- a) Define Pharmacognosy. Name the scientist who coined the term Pharmacognosy.
- b) Write name of drug of the following synonyms:
(i) Crow fig
(ii) Ma-Huang
(iii) Periwinkle
(iv) Banda soap
- c) Define with examples:
(i) Cardiotonics
(ii) Antiseptic.
- d) Which part of plant is used as drug in case of:
(i) Rauwolfia
(ii) Arjuna.
(iii) Rhubarb
(iv) turmeric

P.T.O.

- e) Write any four characteristics of Umbelliferous fruits.
- f) Draw well labelled diagram of macroscopy of Ginger rhizome.
- g) Name two drugs belonging of following family:
 - (i) Apocynaceae.
 - (ii) Liliaceae.
- h) Write significance of:
 - (i) Swelling index.
 - (ii) Ash value.
- i) Name the drug which contain following active chemical constituents:
 - (i) Shogaol.
 - (ii) Harman.
 - (iii) Ajmalicine.
 - (iv) Rhein
- j) Write method of preparation of cotton fibers.
- k) Write contribution of following scientist in the development of pharmacognosy:
 - (i) Dioscoridis
 - (ii) Galen.
- l) Differentiate between leaf and leaflet.

2. Attempt any FOUR of the following:

12

- a) Define resins. Write resin combinations.
- b) Explain different methods of adultration with examples.
- c) Define oxytocics. Explain life cycle of ergot.
- d) Write morphological method of classification of crude drug along with merits and demerits.
- e) Define alkaloids with examples. Write identification test for alkaloids.
- f) Write biological source, chemical constituents and uses of Cinchona.

3. Attempt any FOUR of the following:**12**

- a) Write microscopical method of evaluation of crude drug.
- b) Draw well labelled diagram of T.S of fennel or Nux vomica and explain it.
- c) Write about.
 - (i) Vitali – Morein test
 - (ii) Modified borntrager test
 - (iii) Killer – killani test
- d) Write diagnostic characteristics of leaf (leaf constant).
- e) Write chemical constituents of
 - (i) Ephedra
 - (ii) Digitalis
 - (iii) Sandalwood.
- f) Write biological source, chemical constituents and uses of vasaka.

4. Attempt any FOUR of the following:**12**

- a) Define pharmaceutical aids. Classify pharmaceutical aids with examples.
- b) Differentiate between organized crude drug and unorganized crude drug with examples.
- c) Define Tannin. Write types and pharmaceutical applications of tannin.
- d) Write biological source, chemical constituents and uses of Rauwolfia.
- e) Define with examples:
 - (i) Diuretics
 - (ii) Antitussive
 - (iii) Antidysentric
- f) Write uses of the following:
 - (i) Dioscorea.
 - (ii) Pyrethrum
 - (iii) Shatavari

5. Attempt any FOUR of the following:**12**

- a) Write cultivation, collection and preparation of Senna for the market.
- b) Define and classify fibres. Write ideal requirements of surgical dressings.
- c) Write biological source, chemical constituents and uses of Madhunashini or Shankhapushpi.
- d) Define Antitumor. Write chemical constituents and uses of vinca.
- e) Define volatile oil. Write Isolation methods of volatile oil.
- f) Enlist Indigenous system of medicine. Write about Ayurvedic system of medicine.

6. Write chemical tests of the following crude drugs (any FOUR):**16**

- a) Acacia.
 - b) Pale Catechu
 - c) Turmeric
 - d) Agar
 - e) Asafoetida
 - f) Senna
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11718

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Marks

1. Attempt any EIGHT of the following: 16
- a) Define the following:
- (i) Oxytocics
 - (ii) Antitussives
- b) Name the family to which the following crude drugs belong to:
- (i) Pyrethrum
 - (ii) Garlic
 - (iii) Myrrh
 - (iv) Coriander
- c) What are pharmaceutical aids? Give examples.
- d) Write contribution of following scientist to pharmacognosy.
- (i) Sushruta
 - (ii) Galen

P.T.O.

- e) Write the synonym for the following crude drugs:
- (i) Rauwalfia
 - (ii) Tulsi
 - (iii) Ashwagandha
 - (iv) Chaul moogra oil
- f) Mention which part of the plant is used as crude drug in case of:
- (i) Arjuna
 - (ii) Ginger
 - (iii) Belladonna
 - (iv) Aconite
- g) Name the drug which contains the following chemical constituents:
- (i) Vasicine
 - (ii) Emetine
 - (iii) Vincristine
 - (iv) Purpurea glycosides A and B
- h) Write ideal properties of sutures.
- i) Describe Morphological characters of Ginger with diagram.
- j) Enlist various Leaf constants used for drug evaluation.
- k) State the uses of the following crude drugs:
- (i) Glycyrrhiza
 - (ii) Yeast
- l) Mention the adulterants of dried clove flower buds.

2. Attempt any FOUR of the following:**12**

- a) Explain 'Pharmacological system of classification of crude drugs along with its advantages and disadvantage.
- b) Explain 'Life cycle of Ergot'.
- c) Write Biological source chemical constituents and uses of Amla or Cinchona.
- d) Write about 'Ayurveda system of Medicine'.
- e) Define the following with examples.
 - (i) Carminatives
 - (ii) Laxatives
- f) Draw a neat and well labelled diagram of "T.S. of cinnamon bark".

3. Attempt any FOUR of the following:**12**

- a) What are the different means by which crude drugs are adulterated?
- b) Describe method of collection and preparation of 'Senna Leaves' for market.
- c) What are alkaloids? Name the reagents used for identification of alkaloids by precipitation method.
- d) Write the Biological source, chemical constituents and uses of Gokhru or Nutmeg.
- e) Explain the following:
 - (i) Mace
 - (ii) Balsam
 - (iii) Resins
- f) Describe the method of preparation for silk fibre.

- 4. Attempt any FOUR of the following:** **12**
- a) What are volatile oils? Explain “Enfleurage method” for extraction of volatile oils.
 - b) What is Drug Evaluation? Explain ‘Morphological evaluation’.
 - c) Name the crude drugs used as Astringent. Write the Biological source and chemical constituents of any one drug.
 - d) What are glycosides? Explain ‘Saponin Glycosides’.
 - e) Write Biological source, chemical constituents and uses of “Lemon oil” or Sandalwood.
 - f) Define Antidiabetics? Give examples of antidiabetic crude drug and write the biological source of any one drug.
- 5. Attempt any FOUR of the following:** **12**
- a) What are tannins? Classify them.
 - b) Differentiate between organised and unorganised crude drugs with example.
 - c) Explain the characteristics features of umbelliferous drug.
 - d) Write biological source of Honey. Explain ‘Fiehe’s test’.
 - e) What are surgical dressings? Write the official requirements of surgical dressings.
 - f) Write chemical tests for Asafoetida.
- 6. Write chemical tests for the following crude drugs: (any FOUR)** **16**
- a) Aloe
 - b) Benzoin
 - c) Gelatin
 - d) Wool
 - e) Nux-vomica
 - f) Ergot
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11819

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Marks

1. Attempt any TEN of the following: 20
- When, where and who coined the term pharmacognosy?
 - Differentiate between leaf and leaflet.
 - Define -
 - Carminative
 - Antihypertensive
 - Draw a well labelled diagram showing morphological characters of clove bud.
 - Explain Goldbeater's skin test for tannins.
 - Mention the synonym of following drugs -
 - Rauwolfia
 - Gymnema
 - Gokhru
 - Vinca

P.T.O.

- g) Write the biological source with family -
- (i) Rhubarb
 - (ii) Tobacco
- h) Enlist different types of Ash value.
- i) Mention one example of crude drug from the following family-
- (i) Zingiberaceae
 - (ii) Styraceae
 - (iii) Ranunculaceae
 - (iv) Rutaceae
- j) What is Garbling?
- k) Identify a drug containing following chemical constituents -
- (i) Withanolide
 - (ii) D-linalool
 - (iii) Allin
 - (iv) Vitamin-A
- l) Which part of the plant is used as crude drug in case of -
- (i) Cinchona
 - (ii) Black pepper
 - (iii) Ephedra
 - (iv) Colchicum

2. Attempt any THREE of the following:

12

- a) Assign the name and explain chemical test for the crude drug containing -
- (i) Tropane alkaloid
 - (ii) Mucilage
- b) Describe the method of collection and preparation of senna leaf for market.
- c) Enlist various methods for isolation/extraction of volatile oil. Explain any two methods in detail.

- d) What are cardiotonics? Write the biological source chemical constituents and uses of Arjuna.
- e) Define Antiseptics and Disinfectants. Give biological source with family of -
 - (i) Neem
 - (ii) Myrrh

3. Attempt any THREE of the following: 12

- a) Give the chemical constituents and uses of -
 - (i) Fennel
 - (ii) Sandalwood
- b) Explain chemical classification of crude drug with its merits and demerits.
- c) How will you distinguish silk fibres from wool fibres, using its source, solubility tests and two chemical tests.
- d) Describe the 'Life cycle of Ergot'.
- e) Name any two adulterants for -
 - (i) Senna
 - (ii) Clove
 - (iii) Nux-vomica
 - (iv) Digitalis

4. Attempt any THREE of the following: 12

- a) Define evaluation of crude drugs. Describe any three leaf constants used for drug evaluation with examples.
- b) Draw a well labelled diagram of T.S of Nux-vomica and describe its microscopy by giving minimum four points.
- c) Name the drug and their uses belonging to following family.
(Any two)
 - (i) Acanthaceae
 - (ii) Caricaceae
 - (iii) Gentianaceae

- d) Define pharmaceutical Aids. Classify it according to their use and application with examples.
- e) Explain the Borntrager's test and Modified Borntrager's test. Give the significance for each test.

5. Attempt any THREE of the following: 12

- a) Define and classify resin and resin combinations with examples.
- b) Describe the method of preparation of cotton fibre.
- c) Define with any two examples for each -
 - (i) Antitussive
 - (ii) Diuretics
 - (iii) Enzymes
 - (iv) Vitamin
- d) Assign the name of crude drug for following use with its chemical constituents. (Any two)
 - (i) Antioxytotic and galactogogue
 - (ii) Brain tonic
 - (iii) In the preparation of insect repellent coils and sticks.
- e) Mention the different methods used for drug adulteration with examples.

6. Explain the chemical tests for following crude drugs. (Any four): 12

- a) Asafoetida
 - b) Pale Catechu
 - c) Tragacanth
 - d) Gelatin
 - e) Benzoin
 - f) Honey
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Marks

1. Attempt any EIGHT of the following: 16
- a) Define the following (any two)
- (i) Laxatives
 - (ii) Pharmacognosy
 - (iii) Balsam
- b) Write the role of ‘Dioscoride’ and ‘Seydler’ in the development of pharmacognosy.
- c) State which part of the plant is used in case of
- (i) Belladonna
 - (ii) Rauwolfia
 - (iii) Ipecac
 - (iv) Colchicum
- d) Write example of pharmaceutical aid obtained from:
- (i) Animal source
 - (ii) Mineral source

P.T.O.

- e) Mention synonym of the following crude drug:
- (i) Asafoetida
 - (ii) Liquorice
 - (iii) Aconite
 - (iv) Tulsi
- f) Explain Galenical pharmacy. Who discovered it?
- g) Give the name of the drug which passes the following chemical test.
- (i) Vitali-Morin test
 - (ii) Swelling factor test
 - (iii) Modified Borntrager's test
 - (iv) Fiehe's test
- h) Describe morphological characters of clove with diagram.
- i) What is Garbling?
- j) Name the drug having following microscopical characters (any two)
- (i) Lignified trichomes
 - (ii) Fibrovascular bundle
 - (iii) Paracytic stomata.
- k) Write the name of the drug which has following use:
- (i) Galactagogue
 - (ii) Dental analgesic
 - (iii) Diuretics
 - (iv) Brain tonic.
- l) Write official requirements of surgical dressings.

2. Attempt any THREE of the following: 12

- a) Explain chemical method of classification of crude drug with its merit and demerit.
- b) Define Glycosides. Classify it on the basis of Glycosidic linkage with example.
- c) Write the synonyms, biological source, chemical constituents of 'Gokhru' OR 'Gymnema'.
- d) Write the method of cultivation and collection of 'Rauwolfia'.
- e) Explain with example (any two)
 - (i) Stomatal Index
 - (ii) Optical rotation
 - (iii) Organoleptic method of evaluation.

3. Attempt any THREE of the following: 12

- a) Describe the different techniques (any three) for isolation of volatile oils.
- b) Draw a well labelled diagram of T. S of cinnamon bark and describe any four microscopical characters.
- c) Write the chemical constituents and uses of the following drug- (any two)
 - (i) Cinchona
 - (ii) Sandalwood oil
 - (iii) Ephedra
- d) Explain with example of the following: (any two)
 - (i) Latex
 - (ii) Condensed tannin
 - (iii) Characteristics of umbelliferous fruit.
- e) Define bark. Describe the methods of collection of barks.

4. Attempt any THREE of the following: 12

- a) Explain the general chemical test for the identification of alkaloids
- b) Define the following with example.
 - (i) Oxytocics
 - (ii) Cardiotonics
 - (iii) Antitussive
 - (iv) Astringents.
- c) Describe the method of preparation of fibre obtained from plant source.
- d) Write the biological source, chemical constituents and uses of 'Garlic'.
- e) Differentiate between organised and unorganised crude drug.

5. Attempt any THREE of the following: 12

- a) Define 'Drug Adulteration' Describe any three methods of adulteration with suitable example.
- b) Name the adulterants and substitute of-
 - (i) Nuxvomica
 - (ii) Digitalis
- c) Enlist the Indigenous system of medicine. Describe the 'Siddha system of medicine'.
- d) Write any two examples of drug belonging to following family-
 - (i) Rubiaceae
 - (ii) Apocynaceae
 - (iii) Burseraceae
 - (iv) Liliaceae
- e) Define Enzymes. Write the biological source, chemical constituents and uses of 'Papaya'.

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[5]

Marks

6. Explain the chemical tests of any FOUR crude drugs: 16

- a) Silk
 - b) Benzoin
 - c) Nux-Vomica
 - d) Shark liver oil
 - e) Gelatin
 - f) Starch
-