MODEL ANSWERS

D. Pharm Part I

Pharmacognosy (AR-7448, Exam Date: 13.05.2013)

Section A

1  
(i) Mulberry silk is the finest quality of silk produced from *Bombyx mori* whose larvae feed upon mulberry leaves.

(ii) Epidermis (contains stomata), cortex (consists of 3 zones, aerenchyma present), columella

(iii) Fibres are elongated thick walled cells with pointed ends, cell wall of which consists of cellulose and may or may not contain lignin.

Plant fiber- jute, cotton

Animal fibres- silk, wool

(iv) Chaulmoogra oil: fixed oil obtained by cold expression method from ripe seeds of *Hydnocarpus anthelmintic, H. heterophylla*, belonging to the family flacourtiaceae

(v) Consists of fresh or dried seeds of *Colchicum autumnale or Colchicum luteum* belonging to the family liliaceae

(vi) Ash value is the total residue remaining after incineration of the drug, which simply represents inorganic salts, naturally occurring in drug or adhering to it or deliberately added to it.

Significance: it helps to judge the identity/purity of crude drug in terms of addition of any inorganic matter/soil/sand to the drug

(vii) herbal drug research, plant biotechnology, herbal formulation and industry, cosmetics, microbial technology, commercial aspects of medicinal plants

(viii) clove

(ix) Brontrager test is for detection of glycosides. Plant material is boiled with sulphuric acid. Filter while hot, cool the filtrate and shake with equal volume of chloroform. Separate the chloroform layer and shake with it with half of its volume of dilute ammonia. A rose pink to red colour is observed

(x) para dimethyl amino benzaldehyde

(xi) Alkaloids: basic organic products of natural or synthetic origin which are physiologically active and in which nitrogen is part of the heterocyclic ring (*exception is amino alkaloids)*

(xii) Keller killani test: it is for deoxy sugars. Extract the drug with chloroform and evaporate it to dryness. Add 0.4 ml of glacial acetic acid containing trace amount of ferric chloride. Transfer to a small test tube, add concentrated sulphuric acid by the sides of test tube. Acetic acid layer shows blue colour.
Section B

2 (a) various methods of classification of crude drug should be explained under the following heads with necessary examples, merits and demerits for each

Alphabetical, taxonomical, morphological, chemical, pharmacological and chemotaxonomical

(b) cuoxam test (ammonical copper oxide solution). Mention the procedure also

3(a) Pharmacognosy of cinchona should be explained under the following heads

Synonym, biological source, morphology, microscopy (with diagram), chemical test and uses

(b) neat labeled diagram has to be drawn with pencil

4 (i) life cycle of ergot should be mentioned under the following heads

Mycelium stage, sphacelial stage, sclerotium stage, sexual stage. Important terms such as ascospores, honey dew, conidiospores, pseudoparenchyma, stromata should be mentioned. Also support your answer with a life cycle diagram

(ii) definition of adulteration should be mentioned and atleast 4 types of adulteration should be explained with suitable examples

(iii) antitussives are those drugs which provide relief from cough and act as bronchodilators. Eg.- vasaka, tolu balsam and tulsi. Explain biological source, morphology, chemical constituents, chemical test of any one

5 (i) Aswagandha

Biological source: dried root of *Withania somnifera* belonging to the family solanaceae

CC: alkaloids (withanine) + steroida lactones (withanolides)

Use: sedative, respiratory stimulant, immunomodulatory

**Liquorice:**

Bs: dried peeled or unpeeled root and stolon of *Glycyrrhiza glabra* belonging to the family leguminosae

Cc: triterpenoid saponin – glycyrrhizin, flavonoids, carbenoxolone

Uses: expectorant, flavouring agent, peptic ulcer treatment

**Castor oil**

BS: it is the fixed oil obtained by cold expression of dried kernels of seeds of *Ricinus communis* belonging to the family Euphorbiaceae

CC: trigylecride of ricinolic acid, linolic acid, oleic acid

Use: cathartic, lubricant
**Coriander**

Bs: dried ripe fruits of *Coriandrum sativum* belonging to the family Umbellifereae

CC: volatile oil, linalool

Uses: flavouring agent, spice, carminative

6 (a) Chemical tests for alkaloids: the following tests should be explained with detailed procedure – dragendoff, hagers test, wagners test, mayers test

Glycosidtes: brontrager, keddies test, modified borntrager test, Raymond test, keller killani, legal, baljet (any four)

7(a) Pharmaceutical aids are those substances which do not have any direct pharmacological or physiological action on the body. As such these do not cure any diasese but have very important role in many medicaments. They also help or provide aid in different preparations

Explain the pharmacognosy of any two drugs

(b) **senna**: dried leaf and leaflets of *Cassia angustifolia* belonging to the family leguminocaceae

Use: purgative, cathartic

**Ginger**: consists of rhizome of *Zingiber officinale* belonging to the family zinziberaceae

Use: aromatic spice, flavouring agent, carminative

**Amla**: fresh or dried fruits of *Emblica officinalis* belonging to the family Euphorbiaceae

Use: Source of Vitamin C, anti-diabetic

(c) Organised drug: contain definite cellular structure, solid in nature, can be defined using botanical or zoological terms, identity can be established through microscopical characters