

D.PHARMA

1ST YEAR

PHARMACOGNOSY

MODEL PAPER

ER20-13T



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A. Each question carries equal marks (Any 6) 6×5 = 30 marks

1. Explain in detailed about the history of Pharmacognosy.

Answer

- History of Pharmacognosy is as old as history of human civilization. The primitive men and women had used animal and plants as their food material.
- In India four Vedas (Atharvaveda, Rigveda, Yajurveda and Samaveda) were written by Brahma about 5000 years ago regarding the religious advice to live in the society, uses of the crude drugs etc. In each Vedas use of many plants are described as medicine.
 - **In Rigveda:** 67 herbs are described
 - **In Atharvaveda:** 290 herbs are described
 - **In Yajurveda:** 81 herbs are described
 - **In Samaveda:** no herbs are described
- The language used in the Vedas is difficult for a common man to understand so about 3000 years ago Charak Rishi wrote a treatise called as "**Charak Samhita**"
- Charak Samhita describes uses of the different crude drugs from about 350 plants, animals, and mineral kingdom.
- It also describes how to collect them, how to use them, how to live etc. Later, about 2500 years ago Sushrut Rishi wrote another treatise based on Vedas, it is called as "**Sushrut Samhita**" It describes uses of about 395 plants.
- Egyptians were also familiar with human anatomy and uses of different plants which are described in "**Papyrus Ebers**" it is a very big written document (3500 years ago) found from Egyptian mummies. Different plants and plants parts are also found from the mummies.
- Greeks have also contributed a lot of knowledge regarding the plant and animal kingdoms.
- Hippocrates (460-370 BC) is referred to as a "**Father of Medicine**"

Ayurveda

- The doctrine of Ayurveda aims to keep structural and functional entities in a functional state of equilibrium, which signifies good health.
- Any imbalance due to internal and external factor causes disease and restoring equilibrium through various techniques, procedures, regimes, diet, and medicine constitute treatment.

Siddha

- Siddha system of medicine emphasizes that medical treatment is oriented not merely to disease, but also must consider the patient, environment, age, habits, physical condition.
- Siddha literature is in Tamil and it is largely practiced in Tamil speaking parts of India and abroad.

Unani

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- Unani System of medicine is based on established knowledge and practices relating to promotion of positive health and prevention of diseases.
- Unani system originated in Greece, passed through many countries, Arabs enriched it with their aptitude and experience and the system was brought to India during Medieval period.
- Unani System emphasises the use of naturally occurring, most herbal medicines, though it uses ingredients of animal and marine origin.

Homeopathy

- Homeopathy is a system of medicine, which believes in a specialized method of treatment of curing diseases by administration of potency drugs, which have been experimentally proved to possess the power of producing similar artificial systems on human beings.

Yoga and Naturopathy

- Yoga is a way of life, which has the potential for improvement of social and personal behaviour, improvement of physical health by encouraging better circulation of oxygenated blood in the body, restraining sense organs, and thereby inducing tranquillity and serenity of mind.
- Naturopathy is also a way of life, with drugless treatment of diseases. The system is based on the ancient practice of application of simple laws of nature. The advocates of naturopathy focus on eating and living habits, adoption of purification measures, use of hydrotherapy, baths, massage etc.

2. Describe in short the various systems of classification of crude drugs.

Answer

In Pharmacognosy, the crude drug may be classified according to:

1. Alphabetical status,
2. Taxonomy of plants and animals from which they are derived,
3. Morphology,
4. The chemical nature of their active constituents,
5. Chemotaxonomical status,
6. Pharmacological actions and therapeutics applications.

1. Alphabetical classification

- The crude drugs are arranged according to the alphabetical order of their Latin and English names.
- This arrangement is employed for some reference books, dictionaries, pharmacopoeias etc.
- This are suitable for quick reference it gives no indication of inter-relationships between drugs.
- Some of pharmacopoeias and reference books which classify crude drugs according to this system are as follows:
 - Indian Pharmacopoeia (IP)
 - British Pharmacopoeia (BP)
 - British Herbal Pharmacopoeia (BHP)

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- United State Pharmacopoeia and National Formulary (USP)
- British Pharmaceutical Codex (BPC)
- European Pharmacopoeia (Latin title)
- Encyclopedia of common natural ingredients used in drugs and cosmetics.

2. Taxonomical (Biological) Classification

- The taxonomical classification for few crude drugs derived from dicot plants is as follows:

Example		Example	
Phylum	Spermatophyta	Phylum	Spermatophyta
Division	Angiospermae	Division	Angiospermae
Class	Dicotyledons	Class	Dicotyledons
Order	Rosales	Order	Rutales
Family	Leguminosae	Family	Rutaceae
Genus	Glycyrrhiza	Genus	Atropa, Datura
Species	<i>Glycyrrhiza glabra</i>	Species	Atropa belladonna, Datura stramonium

3. Morphological Classification

- Here, the crude drugs are grouped according to the part of the plant or animal represented into organized and unorganized drugs.
- Some of the examples of crude drugs under this type of classification are as:

Parts	Drugs	Parts	Drugs
Seeds	Isabgol, Castor	Fruits	Fennel, Coriander
Leaves	Senna, Eucalyptus	Entire drugs	Ephedra, Belladonna
Bark	Cinchona, Cinnamon	Dried latex	Opium, Papain
Woods	Sandalwood, Quassia	Dried extracts	Gelatin, Agar
Roots	Rauwolfia, Jalap	Dried juices	Aloe
Rhizomes	Turmeric, Ginger	Resins	Asafoetida
Flowers	Clove, Saffron	Gums	Acacia, Tragacanth

4. Chemical Classification

- Here, the crude drugs are divided into different groups according to the chemical nature of their most important constituent.
- Since the pharmacological activity and therapeutic significance of crude drugs are based on - the nature of their chemical constituents, it would appear that chemical classification on crude drugs is the preferred method of study.
- The crude drugs belonging to different morphological or taxonomical categories may be brought together, provided there is some similarities in the chemical nature of active principle.

Chemical Classification	Crude drugs
Glycosides	Digitalis, Senna, Liquorice

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Alkaloids	Cinchona, Nux-vomica, Datura
Tannins	Ashoka, Amla
Volatile oils	Peppermint, Eucalyptus, Gaultheria
Lipids	Castor oil, Cod liver oil, Bees wax
Carbohydrates	Acacia, Agar, Pectin, Honey
Resins	Jalap, Balsam of Tolu

5. Pharmacological (Therapeutic) Classification

- An outline for pharmacological classification of crude drugs is as follows:

1. Drug Acting on Skin and Mucous Membrane-	Olive oil, Wool fat, Bees Wax, Sesame oil,
2. Drugs Acting on Gastro-intestinal Tract (GIT)	
Bitters	Cinchona, Gentian
Carminatives	Mentha, Cardamom
Emetics	Ipecacuanha
Anti- amoebics	Kurchi, Ipecac
Bulk Laxative	Agar, Ispaghula
Purgatives	Senna, Castor oil
Peptic Ulcer	Liquorice (Glycyrrhetic)
3. Drugs Acting on Respiratory System	
Expectorants	Liquorice, Vasaka
Antitussives	Opium (Codeine , Noscapine)
Bronchodilators	Ephedra, Tea (Theophylline)
4. Drugs Acting on Cardio-vascular System (CVS)	
Cardiotonics	Digitalis, Squill
Cardiac depressant	Cinchona (quinidine)
Vasoconstrictors	Ergot (ergotamine), Ephdra
Antihypertensive	Rauwolfia
5. Drugs Acting on Autonomic Nervous System (ANS)	
Adrenergics	Ephedra
Cholinergics	Physostigma, Pilocarpus
Anticholinergics	Belladonna, Datura
6. Drugs Acting on Central Nervous System (CNS)	
Central analgesics	Opium (Morphine)
CNS Stimulants	Coffee (Caffeine)
Analeptics	Nux-vomica, Camphor
CNS Depressants	Opium (Morphine, Codeine), Hyoscymus
Hallucinogenics	Cannabis, Poppy Latex
7. Antispasmodics	
Smooth muscle relaxants	Opium (Papavarine), Datura
Skeletal muscle relaxants	Curare
Antimalarials	Cinchona, Artemisia
Anticancer	Vinca, Camptotheca, Taxus
Antirheumatics	Aconite, Colchicum
Anthelmintics	Quassia, Vidang
Astringents	Myrobalan, Artemisia

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Local Anaesthetics	Coca
Immuno-modulatory agents	Ashwagandha, Tulsi, Ginseng
Immunising agents	Vaccines, Toxoids, Sera
Drugs acting Chemotherapeutically	Antibiotics

6. Chemotaxonomic Classification

- In this system of classification, the equal importance is given for taxonomical status and chemical constituents.
- The knowledge of chemotaxonomy could serve as the basis for the classification of crude drugs.
- There are certain types of chemical constituents which are characteristics of certain classes of plants.
- E.g., Tropane alkaloids generally occur in most of the members of *Solanaceae*.
E.g. Volatile oils occur in the membrane of *Umbelliferae* and *Rutaceae*.

3. Name the various methods of evaluation of crude drugs. Mention the organoleptic evaluation.

Answer

Methods of Drug Evaluation

- The crude drug can be identified on the basis of their-
 1. Morphological or Organoleptic Evaluation
 2. Histological or Microscopic Evaluation
 3. Chemical Evaluation
 4. Physical Evaluation
 5. Biological Evaluation

Morphological or Organoleptic Evaluation

- It refers to evaluation of drugs by colour, odour, taste, size, shape and special feature like touch texture etc.
- It is a technique of quality evaluation based on the study of morphological and sensory profiles of whole drugs.
- Organoleptic evaluation (Sensory)- conclusion drawn from studies resulted due to impression on organs of senses.
- **Example -**
 - The fractured surfaces in cinchona, quillia, and cascara bark are important characteristics.
 - Aromatic odour of umbelliferous fruits and sweet taste of liquorice.
 - Disc-shaped structure of Nux-vomica
 - Conical shape of Aconite

4. What are alkaloids? Write about the distribution and tests of identification of alkaloids.

Answer

Alkaloids

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- The term is derived from the word 'alkali-like' hence, they resemble some of the characters of naturally occurring complex amines so termed as 'alkaloids'.

Distribution of Alkaloids

- Alkaloids occur in 15% of all vascular terrestrial plants and in more than 150 different plants families.
- The promising families with alkaloidal content are Apocynaceae, Berberidaceae, Euphorbiaceae, Leguminosae, Loganiaceae, Liliaceae, Papaverceae, Rubiaceae, Rutaceae, Solanaceae.
- The major distribution of alkaloids occurs in the angiosperms. But their presence is also detected in microorganisms, marine organisms, insects, animals and some of the lower plants.
- **Examples-**
 1. **Animal kingdom** – Castoramine from Canadian Beaver.
 2. **Bacteria** - Pyocyanine from Pseudomonas aeruginosa.
 3. **Lower plants** –Lycopodine from lycopodium (a club moss).

Identification test of Alkaloids

Test	Reagent Composition	Positive Colour Change
Dragendorffs Reagent	Potassium bismuth iodide	Reddish-brown
Mayer's Reagent	Potassio mercuric iodide	White or pale yellow ppt
Hager's Reagent	Picric acid	Yellow
Wagner's Reagent	Solution of iodine in potassium iodide	Yellow or brown ppt.
Murexide Test (for Caffeine and Other Purine Derived Alkaloids)	Potassium chlorate + drops of HCl. Expose the resultant to NH ₃	Purple colouration

5. Write the biological source, Chemical constituents and therapeutic uses of any two of the following.

a) Aloe

Answer

- **Biological Source** - Aloe is the dried juice collected by incision, from the leaves of various species of Aloe. Aloe perryi Baker, Aloe vera, or Aloe barbadensis Mil and Aloe ferox
- **Family** - Liliaceae.
- **Chemical Constituents** - Aloins, Barbaloin, β -barboloin and Isobarbaloin.
- **Therapeutic uses** – Laxative and Purgative.

b) Coriander

Answer

- **Synonyms**- Fructus coriandri, Coriander fruits, Cilantro, Chinese parsley.
- **Biological Source** - Coriander consists of dried ripe fruits of Coriandrum sativum
- **Family** - Umbelliferae.

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- **Chemical Constituents**- borneol, p-cymene, camphor, geraniol, limonene, and alpha-pinenes.
- **Therapeutic Uses** -
 - Aromatic, carminative, stimulant, alterative, antispasmodic, diaphoretic and flavouring agent.
 - It is also used as refrigerant, tonic, appetizer, diuretic, aphrodisiac, and stomachic.

c) Clove

Answer

- **Synonyms** - Clove buds, Clove flowers.
- **Biological Source** - Clove consists of the dried flower buds of *Eugenia caryophyllus*.
- **Family** - Myrtaceae
- **Therapeutic Uses** -
 - It is used as aromatic stimulant, carminative, spice and antiseptic.
 - The antiseptic property is due to the presence of eugenol.

6. Discuss in brief the role of medicinal plants in national economy.

Answer

Role in National Economy

- India is a hub of medicinal and aromatic plants.
- Ministry of Environment and forest has reported around 9500 plants species having medicinal value.
- These important plants species should be preserved and also cultivated to meet the demand of domestic industries and to exploit the bright prospect for export.

Medicinal Plants

- India is blessed with an expensive wealth of medicinal plants, which have contributed to the development of ancient Indian material medica.
- The Charak Samhita (1000 B.C.) is one of the earliest treatises on Indian medicine.
- It records the utilization of over 340 herbal medicines. Most of these herbals are still collected from wild plants to satisfy the demand of medical profession.
- The therapeutic properties of drugs are due to the presence of complex chemical substances (secondary metabolites) in one or more parts of these plants.
- Based on their composition, these plant metabolites are categorized as alkaloids, glycosides, corticosteroids, essential oils, etc.
- Alkaloids form the largest group, and includes morphine and codein (poppy), strychnine and brucine (nux vomica), quinine (cinchona), ergotamine (ergot), hyoscyamine, (belladonna), scopolamine (datura), emetine (ipecac), cocaine (coco), ephedrine (ephedra), reserpine (rauwolfia), caffeine (tea dust), aconitine (aconite), vaccine (vasaka), santonin (artemisia), lobelin (lobelia), etc.
- Glycosides form another important group, and includes digoxin (foxglove), strophanthin (strophanthus), glycyrrhizin (liquorice), barbaloin (aloe), sennosides (senna), etc.

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- Corticosteroids have recently gained importance, and include diosgenin (dioscorea), solasodin (solanum sp.) etc.

7. Explain the basic principles involved in Ayurvedic and Homeopathic system of medicine.

Answer

Basic Principles involved in Ayurvedic System of medicine

AYURVEDIC SYSTEM OF MEDICINE

- Ayurveda is the 'Science of Life'.
- The word Ayurveda has been derived from two words; Ayush-Life and Veda-Knowledge. It is a natural healing system of India.
- Ayurveda includes herbal medicines, dietetics, body work, surgery, psychology and spirituality.
- Ayurvedic concept of human being consist of:
Sharira = Body
Indriya = Perceptory organs
Satwa = Mind
Atma= Soul

Principles

- Basic principles of Ayurveda involve two theory, one is Panchamahabhutas theory and other is the Tridosha theory.
- According to Ayurvedic philosophy all the living and non-living matters are made up of five basic elements in various proportions, they are Prithvi (Earth), Jala (Water), Teja (Fire), Vayu(air), Aakash (ether).
- Even the human body is made up of these elements known collectively as the Panchamahabhutas.
- There are three basic constituents of the physiological systems known as "Doshas" which are responsible for governing and maintaining the proper health. This concept is known as "Tridoshic concept."
VATA (Air) – Biological air
PITA (Bile) - Biological fire humor
KAFA (Phlegm) - Biological humor or phlegm

Basic Principles involved in Homeopathic System of medicine

HOMOEOPATHY SYSTEM OF MEDICINE

- Dr. Samuel Hahnemann (1755-1843AD), a German scientist known as father of Homoeopathy.
- This system is based on the fundamental concept of "likes be treated by likes".

Principles of homeopathy

1. **Concept of individualization:** It stated that no two individuals in the world are alike and the disease affecting the two individual cannot be similar.
2. **Principle of similar/law of similar:** It stated that the treatment of a disease by a medicine which produces similar symptoms in the healthy individual.

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3. **Principle of simplex:** This principle states the use of only single, simple medicine at one time.
4. **Principle of minimum dose:** It stated that lower the dose of the medication, greater is its effectiveness.
5. **Law of proving:** The method used for determining which remedies were suitable for specific disease was called proving.
6. **Law of Dynamization and Dilution:** Dr. Hahnemann recognized that the use of substances that cause symptoms similar to an existing disease.
7. **Law of Vital force:** It stated that "Life" depends on an important and undetectable "Vital Force". Homeopathy medicine restores the vital energy balance and stimulates the body's own healing response.

B. Each question carries equal marks (Any 10) 10×3 = 30 marks

1. **Discuss the present status of pharmacognosy.**

Answer

1. **Cultivation And Collection of Medicinal Plants:**

- ✓ Clove,
- ✓ Cinchona,
- ✓ Cinnamon,
- ✓ Senna,
- ✓ Opium

2. **Isolation Or Analysis of Phytochemical:**

Pharmacognosy has broad scope in the field of pharmacy such as:

- Examples: Strong acting substances such as
 - ✓ Glycosides from digitalis leaves.
 - ✓ Alkaloids from the plants of Belladonna, Hyoscyamus, Rauwolfia.
 - ✓ Morphine and other alkaloids from the plant opium were isolated and clinical uses studied.

3. **Natural Products as Models for Synthesis of New drugs:**

➤ **Example:**

- Morphine is the model of a large group of potent drugs.
- Cocaine for local anaesthetic.
- Atropine for certain spasmolytics

4. **Drugs Of Direct Therapeutic Uses:**

- Among the natural constituents which even now cannot be replaced are important group of antibiotics, steroids, ergot alkaloids, vincristine etc.

2. **What is adulteration? Describe in brief the adulteration of crude drugs with examples.**

Answer

Adulteration

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- Adulteration is a practice of substituting original crude drug partially or wholly with other similar looking substances but is either free or inferior in chemical and therapeutic properties.

Methods of Adulteration/ Types of Adulterants –

- The different methods of adulteration found in market are given here,
 1. **Substitution with substandard commercial varieties-**
 - The adulterants used here may resemble original crude drug by
 - morphological,
 - chemical or
 - therapeutic characters,
 - The example are –
 - Presence of *Strychnous nux –blanda* or *S. potatorum* in place of *S. Nux-vomica*.
 - Indian senna substituted with *Arabian senna* and *Dog senna*.
 2. **Substitution with superficially similar inferior drugs: -**
 - These inferior drugs used may or may not be having any chemical or therapeutic value as that of original natural drug.
 - Due to their morphological resemblance to authentic drug, they are marketed as adulterants.
 - Examples-
 - Belladonna leaves are substituted with *Ailanthus* leaves,
 - Saffron is admixed with dried flower of *Carthamus tinctorius*,
 - Mother *cloves* and clove stalks are mixed with clove,
 - Beeswax is substituted by *japan wax*.
 3. **Substitution with artificially manufactured substances: -**
 - It has been also observed that substances artificially prepared to resemble original drugs are used as substitutes.
 - Generally, this practice is followed for much costlier drugs.
 - Examples -
 - Compressed chicory in place of coffee,
 - Paraffin wax made yellow colored and substituted for beeswax.

3. What do you know about herbal cosmetics?

Answer

- The herbal cosmetics are the preparations containing phytochemicals from a variety of botanical sources, which influence the structure and functions of skin, hair, scalp, lips and nails
- These provide nutrients that are necessary for the healthy skin and hair.
- Examples –
 - Aloe vera Gel
 - Lavender oil
 - Almond oil
 - Herbal Toothpaste
 - Herbal oils

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4. Write the tests of identification of glycosides.

Answer

S. No.	Test name	Procedure	Observation
A. Chemical Tests for Anthraquinone Glycosides			
1.	Borntrager's test	1gm of drug + 5-10 ml of dilute HCl → Boil on water bath for 10 min and filter → Filtrate was extracted with CCl ₄ / benzene → Then add equal amount of ammonia solution to filtrate and shake	Formation of pink or red colour in ammonical layer is due to presence of anthraquinone moiety
B. Chemical Tests for Saponin Glycosides			
1.	Haemolysis test	A drop blood on slide + few drops of aq. Saponin solution	RBC's becomes ruptured in presence of saponins
C. Chemical Tests for Steroid and Triterpenoid Glycosides			
1.	Libermann burchard test	Alcoholic extract of drug was evaporated to dryness → Extracted with CHCl ₃ → Then add few drops of acetic anhydride + conc. H ₂ SO ₄ from side wall of test tube to the CHCl ₃ extract	Formation of violet to blue coloured ring at the junction of two liquid, indicate the presence of steroid moiety

5. Write the biological source and therapeutic uses of any two of the following.

a. Punarnava

Answer

Biological source: Punarnava consists of fresh as well as dried whole plant of *Boerhaavia diffusa* Linn.

Family: Nyctaginaceae

Therapeutic efficacy

- Punarnava possess potent antifibrinolytic, anti-inflammatory, and diuretic properties.

b. Ashwagandha

Answer

Biological source: It consists of dried roots and stem bases of *Withania somnifera*.

Family: Solanaceae

Therapeutic efficacy

- Ashwagandha is used for arthritis, anxiety, bipolar disorder, tumors, tuberculosis, asthma, (leukoderma), bronchitis, menstrual problems, hiccups, Parkinson's disease, and chronic liver disease.

c. Belladonna

Answer

Biological source: It consists of fresh or dried leaves and flowering tops of *Atropa belladonna*, *European Belladonna*.

Family: Solanaceae

Therapeutic activity

- Parasympathetic depressant (which decreases the secretions of salivary glands, gastric secretions and check the respiration).

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- Used in gastro-enteritis, hyperacidity and ulcers.

6. Define any three of the following:

a. Cardiotonic

Answer

- These are substances that affect the tone and force of cardiac muscle contraction. They may have direct or indirect effect on the performance of heart.

b. Laxative

Answer

- Laxatives are used for curing acute and chronic constipation, (hemorrhoids), treating anorectal and preparing the bowel for colonoscopy.

c. Diuretic

Answer

- Drug promoting urine output are known as diuretic drugs.

d. Astringent

Answer

- Astringent are the substances which precipitate protein by forming complex. It causes shrinkage of mucous membranes or exposed tissues and are often used internally to check discharge of blood serum or mucous secretions.

e. Carminative

Answer

- These are the aromatic substances used to expel gases from the gastro intestinal tract and help to relieve flatulence.

7. Write the biological source and chemical constituents of an oxytocic drug.

Answer

Ergot

Biological source: Ergot is the dried sclerotium of a fungus *Claviceps purpurea*. **Family:** *Clavicipitaceae* developing in the ovary of rye plant, *Secale cereale*.

Family: Gramineae

Chemical constituents

- Contains **0.1 – 0.25%** of indole alkaloids which are **derivative of lysergic acid**
- Lysergic acid is present in its peptide derivative form and hence the alkaloids are also called as **peptide alkaloids**

8. Write in a short note on any two of the following.

a. Ispaghula

Answer

Biological source: It consists of dried ripe seeds of *Plantago ovata*; *Plantago indica*; *Plantago psyllium*.

Family: Plantaginaceae

Chemical constituents

- The chief constituent of seed husk is mucilage which is a hydro-colloidal polysaccharide (20-30%), known as pentosan.

b. Podophyllum

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Answer

Biological source: Podophyllum resin is a mixture of resins obtained from the dried rhizomes and roots of *Podophyllum hexandrum* Royle.

Family: Berberidaceae

Chemical constituents

- The composition of resin is made up of lignans which contain at least 40% of podophyllotoxin.
- American podophyllum resin contains only 10 % of podophyllotoxin.

c. Myrrh

Answer

Biological source: It is an oleo-gum-resin obtained from the of *Commiphora molmol*.

Family: Burseraceae

Chemical constituents

- It consists of upto 40% of resins, volatile oil (3-6%) and gum (55-60%).
- It also contains β -heerabe myrrholic acid, α , β and γ commiphoric acid and few phenolic acids.

9. Write the therapeutic and cosmetic uses of any two of the following.

a. Sandalwood Oil

Answer

Therapeutic uses

1. It is used in aromatherapy due to fragrance.
2. It is added to soaps and cosmetics.

Cosmetic uses

- It is also used in Ayurvedic medicine for the treatment of common colds, bronchitis, fever, urinary tract infections, and inflammation.

b. Aloe vera gel

Answer

Therapeutic uses

- Anti-tumor
- Anti-inflammatory
- Boosts immune system
- Anti-bacterial

Cosmetic uses

1. Used in the formulation of soap and gels.
2. As an antiaging gel.
3. As a protectant in lotions.

Olive Oil

Answer

Therapeutic uses

1. Olive oil has demulcent, emollient and laxative properties.
2. It is used as a vehicle for oily parenteral preparations.

Cosmetic uses

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- It is also used in the preparation of lubricants, plasters, textiles, soaps, cosmetics and sulphonated oil.
- When used externally it is an emollient and soothing.

10. Explain any two of the following:

a. Nutraceuticals

Answer

- Nutraceutical can thus be defined as food or part of diet that improve health or decrease the incidence of diseases.
- **Example:** Ascorbic acid, cellulose, pectin, β -carotene, Allicin Plants Animals Lecithin, Calcium, Bifidobacterium bifidum, etc.

b. Dietary fibres

Answer

- Dietary fibers are mainly helpful in keeping the digestive system healthy.
- In other words it is it also known as roughage that is obtained from plant derived food.
- **It can divided into two parts :**
 1. **Soluble fiber** - which dissolves in water (e.g., pectin, gums, mucilage, which are mainly found in plant).
 2. **Insoluble fiber** - which doesn't dissolve in water (e.g. cellulose, hemicelluloses, and lignin are the components of plant cell wall).

c. Omega-3 fatty acids

Answer

- Fatty acids are an important part of human body.
- Unsaturated fatty acids are particularly useful for regenerative and cognitive functions in the body.
- Commonly known as PUFA. Cod liver oil, halibut liver oil, shark liver oil, olive oil, nuts and seeds are some of the common sources of PUFA.

11. Write in short note on any two of the following.

a. Organised and Unorganised drugs

Answer

- **Organized drug-** those drugs materials which represent a part of the plant (made up of cells). The organized drugs divided into parts of plants like leaves, flowers, fruits, seeds, roots and rhizomes.
- **Unorganized drug-** are diverse group of solid and liquid materials which do not consist of parts of plants (obtained from natural sources by a variety of physical processes such as incision, drying or extraction). E.g., dried latex, gums, extracts, etc.

b. Chromatography

Answer

- Chromatography is based on the principle where molecules in mixture applied onto the surface or into the solid, and fluid stationary phase (stable phase) is separating from each other while moving with the aid of a mobile phase.

c. Tannins

Answer

- Tannins are secondary metabolite of plant, non-nitrogenous and polyphenolic in nature and are present in cell sap and vacuoles.

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C. MCQs/ Fill in the blanks (Answer all questions) 20×1 = 20 marks

- The term 'Pharmacognosy' was coined by:
a) R. N. Chopra b) Pedanius Dioscorides
c) **C.A Seydler** d) Alexander Flemming
- Which of the following is an unorganised drug?
a) Vinca b) Arjuna
c) Nutmeg d) **Asafoetida**
- Which of the following crude drug contains alkaloid?
a) Ginger Senna b) **Belladonna**
c) Senna d) Gelatin
- Which of the following is diuretic?
a) **Punarnava** b) Ipecacuanha
c) Ephedra d) Vasaka
- Who coined the term 'Nutraceutical'?"
a) Stephen Hawking b) **Stephen Defelice**
c) Stephen Fleming d) Stephen King
- The main chemical constituent of Garlic is.
a) Colchicine b) Vasicine
c) Myristicin d) **Allicin**
- Which of the following is not an Ayurvedic formulation?
a) Asava b) **Cream**
d) Bhasma e) Gutika
- Which of the following is an organised drug.
a) Acacia b) Benzoin
c) **Ginger** d) Opium
- Who is the father of Homeopathy
a) Dhanvantari b) Hakim Ajmal Khan
c) Ghiya Suddin Balban d) **Samuel Hahnemann**
- Sterile threads used to tie up a blood vessel are known as:
a) Ligatures b) **Sutures**
c) Surgical Dressings d) None of the these
- ____ is the synonym of Fennel.
Answer - Sauf
- ____ is a class of drugs which are used to treat high blood pressure.
Answer - Antihypertensives
- ____ are a combination of living beneficial bacteria and yeasts that naturally live in our body.
Answer - Probiotics
- Absorbent cotton is the epidermal hairs of the seeds of species of _____.
Answer - Gossypium
- Cinchona is an ____ drug.
Answer - Antimalarial
- Goldbeater's skin test is done for the identification of _____.
Answer - Tannins
- Tea leaves are obtained from the plant _____.
Answer - Thea sinensis
- Withania somnifera belongs to the family _____.
Answer - Solanaceae
- In Hindi Cinnamon is known as _____.

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Answer - Dalchini

20. Shark liver oil is the source of Vitamin _____.

Answer - Vitamin A



Exclusive

D. PHARMA EXIT EXAM PRACTICE QUESTIONS

Based On PCI Syllabus

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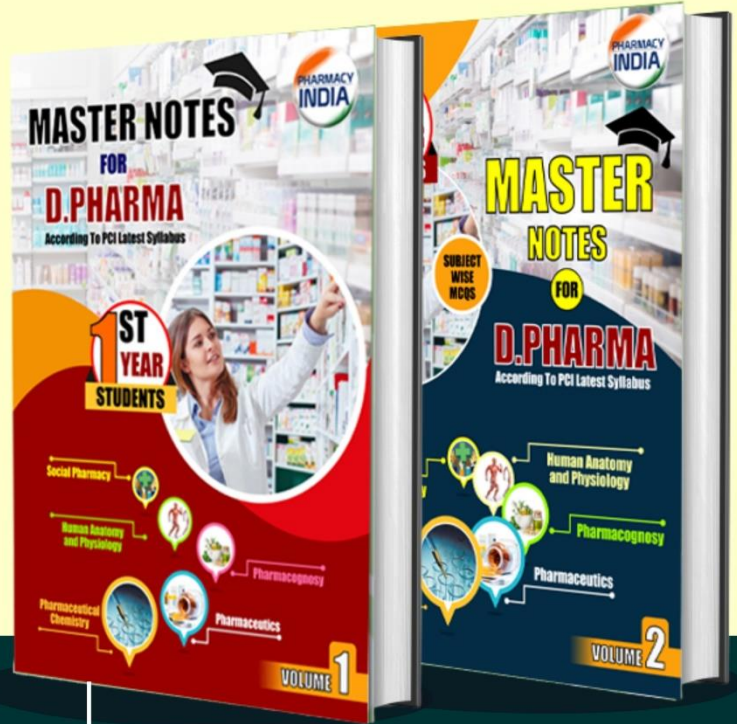


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