Pharma Unit

Pharmacognosy Top 15 Questions with Answers According To PCI New Syllabus ER -2020

1. Define pharmacognosy, discuss the history and scope of Pharmacognosy?

Ans. Pharmacognosy is the study of medicines or crude drugs produced from natural sources such as plants microbes and animals it includes analysis of their biological chemical physical and biochemical properties

History of pharmacognosy

The Egyptians were aware of medicinal use of several plants and animals and about human anatomy. The Greek physician Hippocrates known as father of medicine Greek pharmacist Galen described various methods of preparation containing active constituents of crude drugs. The history of pharmacognosy is very old. Different countries like India, China, Nepal develop medicine from plants to cure certain diseases. Indian history of medicinal plants is dated back to 3500 BC the curative properties of plants have been mentioned in the suktas of Rigveda and Atharvaveda. Ayurveda has also described a good number of plants with their therapeutic properties. The ancient well known treaties in ayurveda are the charaka Samhita and sushruta Samhita and written by charaka and sushruta respectively.

Scope of Pharmacognosy :-

- Synthesis drugs and antibiotics : The demand of pharmaceutical production of plant origin has increased due to the world-wide use of synthesis drugs and antibiotics
- Plant Drugs and remedies : Complex diseases like cancer AIDS are treated by plant drugs and remedies , which are safer than the Synthetic medicines .
- Herbal medicines and preparations :-herbal medicines have become more popular in recent years because it is believed that this do not have any toxin or side effects as compared to modern medicine
- Natural flavouring agents and natural perfumes :- Large number of aromatic plants which are extensively used as natural flavouring agents, natural perfume spices and medicine.

2. Write pharmacological classification of crude drugs?

Ans. Pharmacological classification of through drugs involved the group of crude drugs according to their pharmacological action of their active constituent or their therapeutic uses the drugs which include in pharmacological classification have similar pharmacological action

Pharmacological classification of crude drug

- Drug acting on gastrointestinal tract : Carminatives such as Dill & Mentha, emetics such as ipecacuanha, purgatives such as senna & castor oil
- Drug acting on respiratory system : Expectorants such as vasaka & liquorice, antitussive such as codeine, bronchodilators such as ephedra
- Drugs acting on cardiovascular system : cardiotonic such as digitalis and squill, anti-hypertensives such as rauwolfia
- Drugs acting on autonomic nervous system : Adrenergic such as ephedra, cholinergic such as physostigmine
- Drugs acting on central nervous system : CNS stimulants such as coffee Central analgesics such as opium
- Anti-cancer drugs : vinca, podophyllum
- Anti-rheumatics drugs : Aconite, guggul
- Anti-malarial drugs : Cinchona, artemisia
- Astringents : Myrobalan, Black catechu
- Antispasmodics : Papaverine, datura

3. Write about morphological classification of drugs?

Ans. The crude drugs are grouped according to the part of plant or animal represented into organised and unorganised drugs. The organised drugs are divided into parts of plants like leaves, flowers, fruits seeds, wood barks and subterranean parts like root and rhizomes. The unorganised drugs are dried latex gums etc. This system of classification is more convenient for practical study especially when the chemical nature of a drug is not clearly understood.

Morphological classification of drug

- Seeds : nux-vomica, castor and isabgol
- Leaves : senna, digitalis, vasaka
- Barks : Cinchona, kurchi, cinnamon
- Woods : Sandalwood, quassia, red sanders

- Roots : Rauwolfia, aconite, ipecacuanha
- Rhizomes : Turmeric, Ginger, podophyllum
- Flowers : clove, saffron
- Fruits : coriander, fennel,
- Entire drugs :- Ergot, ephedra, belladonna
- Dried latices : Opium, papain
- Resins : balsam of tolu, asafoetida, benzoin
- Dried juices : Aloes, Red gum
- Gums : Acacia, Tragacanth, guar gum
- Dried extracts : gelatine, catechu, agar

4. Define adulteration and give methods of adulteration with suitable examples?

Ans. The term Adulteration is defined as substituting original crude drugs partially or wholly with other similar-looking substance

Following are the various methods used for drug adulteration.

A. Substitution with manufactured materials
B. Substitution with Inferior material
C. Substitution with Exhausted material
D. Excessive adventitious matter
E. Adulteration with non-plant material
F. Substitution with cheap natural substance

A. Substitution with manufactured materials:- This is done with artificially manufactured material which resembles various drugs in form and appearance. Example: - Paraffin wax has been coloured yellow to substitute beeswax.

B. Substitution with Inferior material:- Drugs are sometimes adulterated and substituted with standard commercial material. The common example of substitution is adulteration of cloves by mother cloves. Saffron is adulterated with dried flowers of Carthamus tinctorius (Safflower).

C. Substitution with Exhausted material: Exhausted material the vegetable residues which remain after the original material has been used for drug preparation. Example substitution of Alexandrian Senna with Arabian Senna, Used of exhausted Clove and ginger for adulteration.

D. Substitution with cheap natural substances. Sometimes drugs are adulterated with cheaper natural substances which have no relation to the genuine article. Example: - Japan wax for beeswax and sterculia gum for Tragacanth.

E. Adulteration with non- plant material. Plant materials are sometime adulteration with worthless non-plant materials

5. Write about evaluation of crude drugs?

Ans. Evaluation of drugs means identification of its quality and purity. It also includes the detection of the nature of adulteration in the crude drugs. The morphological character is sufficient in the need of detection but in case of powdered drugs the microscopic characters, while in case of liquid drug chemical tests and one of the physical standards such as specific gravity, optical rotation solubility etc are also very important for the evaluation of drugs. The crude drugs can be identified on the basis of their morphological, histological and chemical studies.

The different techniques involved in standardization of crude drugs are as follows.

1. Physical Evaluation:- Physical evaluation of drugs are to be determined wherever possible. They may help in evaluation, specifically with reference to specific gravity, density, optical rotation, refractive index, melting point, viscosity and solubility in different solvents.

2. Chemical Evaluation:- chemical evaluation of crude drugs comprises different chemical tests and chemical assays. The isolation, purification and identification of active constituents are chemical methods of evaluation. Quantitative chemical tests such as acid value, saponification value, etc. Whereas qualitative chemical tests such as identification of carbohydrates, proteins, etc. This chemical test also helps in proper identification of varieties of crude drugs.

3. Biological Evaluation:- The estimation of potency of crude drugs is done by means of its effect on the living organism like bacterial, fungal growth or animal tissue or entire animal, it is called a bioassay. Bioassay is the measure of sample being tested capable of producing the biological effects as that of the standard preparation.

4. Morphological Evaluation:- It is also called as organoleptic evaluation of crude drugs. It refers to evaluation of drugs by colour, odour, taste, size, shape and special features like touch, texture and sound etc. The study of the form of crude drugs is morphology while description of the form is morphography. The adulteration of seeds is identified by morphological techniques.

5. Microscopic Evaluation:- The microscopic evaluation also covers study of constituents by application of chemical tests to small quantities of drugs in powdered form or to histological sections of the drug. This method allows more detailed examination of a drug and its can be used to identify organised drugs by their known histological characters.

6. Write a note on alkaloids?

Ans . Alkaloids are derived from the word alkali like. Alkaloids are nitrogenous compounds which are basic in nature due to the presence of one or more nitrogen atoms. They are defined as basic nitrogenous compounds of plant origin which are physiologically active.

Classification of alkaloids

- True alkaloids :- True alkaloids contain heterocyclic nitrogen atoms in the heterocyclic ring. The alkaloids are derived from amino acids. They are basic in nature. For example, quinine, atropine and morphine
- Proto alkaloids :- These are also called amino alkaloids. This contains nitrogen but not in the heterocyclic ring. It is also considered as a biological amine. It is also basic in nature. For example, ephedrine
- Pseudo alkaloids :- It contains heterocyclic nitrogen atom it is weak base for example caffeine

Occurrence and distribution of alkaloids :- alkaloids are found in plants and are especially common in certain families of flowering plants. They also occur in seed bearing plants mainly in berries, bark, fruits, roots and leaves. Alkaloids are more present in dicots than monocots. Families rich in alkaloids are Apocynaceae, Rubiaceae, Solanaceae, and papaveraceae.

Isolation method

1) Stas otto process :- Extraction is basically carried out by Stas-Otto process in which the moistened drug is treated with alkali to set free the base existing in salt form and then the free base is separated with an organic solvent
2) Kippenbergeis process :- In this Process the powdered and sieved plant substance is first digested with solution of tannin in glycerol at a constant temperature 40 degree Celsius for 48hrs. The resultant mixture is further heated to 50°C to complete coagulation of pretentious substance and finally filtered

Identification test

1. Dragon droff's test :- Alkaloids + dragendorff reagent = reddish brown ppt

2. Mayer's test :- Alkaloids +Mayer's reagent = cream ppt

3. Hager's test :- Alkaloids + Hager's reagent = reddish yellow ppt

4. Wagner's test :- Alkaloids + Wagner's reagent = yellow ppt

Therapeutic uses :-

1) It is used as antidepressant
2) It is used as local anaesthetic agent
3) It is used as antiseptic
4) It is used as antibacterial agents

7. Write a note on volatile oil?

Ans. Volatile oils are odorous volatile principles of plant and animal source, evaporate when exposed to air at ordinary temperature, they are also known as essential oils.

Classification of volatile oils :-

a) Hydrocarbon volatile oil :- turpentine
b) Aldehyde volatile oil :- lemongrass and cinnamon
c) Alcohol volatile oil :- peppermint
d) Ketone volatile oil :- camphor and cumin
e) Phenol volatile oil :- clove
f) Oxide volatile oil :- cardamom

Occurrence and distribution :- majority of volatile oil are present in plants they are specially present in secretory tissues for example oil ducts of umbelliferous fruits, oil cells or oil glands are present in sab epidermal tissue of lemon, and trichomes of several plants. In some cases, they do not pre-exist in the plant, but it is formed by decomposition of glycosides for example, mustard oil

Isolation method :-

- Distillation method - the crude drug is distilled with water using Clevenger apparatus. For example, sandalwood, clove and cinnamon
- Expression method - the volatile oil is obtained by expressing the fruit. For example, citrus fruits
- Extraction method - the volatile oil is obtained by extracting the drug with volatile solvent such as ether and petroleum ether
- Maceration method - drug containing volatile oil is first heated with melted fat or fixed oil stirring continuously in a water bath and left overnight the oil is separated from the fat with the help of alcohol. For example, oil obtained from flowers

Identification test

- To a thin section of drug add alcoholic solution of Sudan III, red colour globules indicate the presence of volatile oil
- To a thin section of drug add a drop of tincture alkenes, red colour indicates the presence of volatile oil

Therapeutic uses

1) It is used as antiseptic agent
2) It is used as antispasmodic agent
3) It is used as carminative
4) It is also used as flavouring agent
5) It is also used in perfume industries
6) It is also used in spices

8. Write a note on tannins?

Ans. Tannins are polyphenolic Tannins are present in the aerial parts, e.g., leaves, fruits, barks, or stem, generally occurs in immature fruits, but disappears during the ripening process

Classification of Tannins :-

Tannins are classified into two types

A. Hydrolysable : these tannins are hydrolysed by acids or enzymes quickly and the product of hydrolysis is gallic acid and ellagic acid. On dry distillation gallic acid and other compound get converted to pyrogallol they react with ferric chloride solution producing bluish black colour

E.g.- Gallo tannins

B. Condensed : these are true tannins which on acidic or enzyme treatment get decomposed into a red insoluble compound known as phlobaphenes. On dry distillation they yield catechol tannins with ferric chloride solution they produce brownish green colour

E.g.- kino tannic acid,

Occurrence and distribution :-

Tannins are found commonly in the bark of trees, wood, leaves, buds, stems, fruits, seeds, roots, and plant galls. Tannins are distributed in species throughout the plant kingdom. They are commonly found in both gymnosperms and angiosperms. Mole studied the distribution of tannin in 180 families of dicotyledons and 44 families of monocotyledons.

Isolation Method :-

Both hydrolysable and condensed tannins are highly soluble in water and alcohol but insoluble in organic solvents such as solvent ether, chloroform, and benzene. Tannin compounds can be easily extracted by water or alcohol. The general method for the extraction of tannic acid from various galls is either with water-saturated ether, or with mixture of water, alcohol, and ether. In such cases, free acids such as Gallic and ellagic acid go along with ether, whereas true tannin gets extracted in water. If the drug consists of chlorophyll or pigment, it may be removed by ether. After extraction, the aqueous and ethereal layers are separately concentrated, dried, and subjected to further isolation and purification using various separation techniques of chromatography.

Identification test for tannins:-

1) Phenazone Test: To 5 ml of aqueous solution of tannin-containing drug, add 0.5 g of sodium acid phosphate. Warm the solution, cool, and filter. Add 2% phenazone solution to the filtrate. All tannins are precipitated as bulky, coloured precipitate.
2) Gelatine Test: To a 1% gelatine solution, add a little 10% sodium chloride. If a 1% solution of tannin is added to the gelatine solution, tannins cause precipitation of gelatine from solution.
3) Test for Catechin: Catechin test is the modification of the well-known phloroglucinol test for lignin. Matchstick contain lignin. Dip a matchstick in the dilute extract of the drug, dry, moisten it with concentrated hydrochloric acid, and warm it near a flame. Catechin in the presence of acid produces phloroglucinol which stains the lignified wood pink or red.
4) Test for chlorogenic acid: A dilute solution of chlorogenic acid containing extract, if treated with aqueous ammonia and exposed to air, slowly turns green indicating the presence of chlorogenic acid.
5) Vanillin-hydrochloric acid test: Drug shows pink or red colour with a mixture of vanillin: alcohol : dilute hcl in the ratio 1:10:10. The reaction produces phloroglucinol which along with vanillin gives pink or red colour.

Therapeutic uses :-

a) It is used as antidote
b) It is used as antitumor agent
c) It is used as antidiarrheal agent
d) They also have antibacterial properties

9. Write a note on glycosides?

Ans. Glycosides can be defined as the compounds in which one or more sugars are combined with non-sugar molecules through glycosidic linkage

Classification of glycosides

Glycosides are classified into different types based on their chemical nature. They are

1. Anthracene glycoside - E.g. : senna , rhubarb

2. Sterol or cardiac glycoside - E.g. : digitalis and squill

3. Cyanogenic glycoside - E.g. : bitter almond

4. Saponin glycoside - E.g. : dioscorea

5. Isothiocyanate glycoside - E.g. : black mustard

6. Flavonol glycoside - E.g. : silymarin

7. Coumarin glycoside - E.g. : cantharides

8. Aldehyde glycoside - E.g. : vanilla

9. Phenol glycoside - E.g. : bearberry

Occurrence and distribution :-

Glycosides widely occur in root, bark, fruits, and to a small extent in leaves. Many glycosides occur in plants, often as flower and fruit pigments, for example, anthocyanins.

Isolation method :- The drug containing glycosides is finely powdered extracted by a continuous hot percolation method. Using Soxhlet apparatus with an alcohol as a solvent. During this process the various enzymes present in the drug get deactivated due to heating. The extract is than treated with lead acetate to precipitate tannins and to remain non-glycosidal impurities The excess of lead acetate is precipitate as lead sulphide by passing the H_2S (hydrogen sulphide gas)through the solution The extracts filtered, and glycoside is obtained.

Identification of Glycosides :-

A. Borntrager's test :- The drug is finely powdered and added to dilute H_2SO_4 Due to which the drug is hydrolysed and then it is filtered. The filtration is cooled and shaken with organic solvent such as benzene or chloroform by which aglycone part enter into the organic solvent. The organic solvent separated, and ammonia is added Ammoniacal layer turn pink to red colour

B. Killer killani test :- The powdered drug is boiled with 70% of alcohol for 2-3 mins and Filter. The filtrate is added to water and strong lead acetate solution. The chloroform is added and shaken. The aglycon now entered into the chloroform. The chloroform layer is separated and evaporated. The remaining part residue is then dissolved in glacial acetic acid containing 5%ferric chloride solution. Add hcl or H_2SO_4 , a reddish brown layer is formed

Therapeutic uses :-

1. Used in treating heart failure
2. Used in treating irregular heartbeats

10.Write a note on enzymes?

Ans. Enzymes are proteins that help speed up chemical reactions in living things. They act as catalysts, meaning they increase the rate at which a chemical reaction occurs without being used up in the process. Enzymes are essential to many biological processes in the body, including digestion, metabolism, and cellular respiration.

Examples are – Pancreatin, diastase

11. What are pharmaceutical aids give pharmacognosy of kaolin?

Ans. Pharmaceutical aids are the substance which have no or little pharmacological effect, but they are essentially used in the preparation of pharmaceutical dosage form like tablets, capsule, injections, suspension and emulsion

Examples are kaolin, lanolin, beeswax, Acacia tragacanth, Agar

Pharmacognosy of kaolin

Synonyms :- China clay, porcelain

Source :- Kaolin is a naturally occurring mineral that is formed by the weathering of rocks containing aluminium silicates. Kaolin deposits are often found in areas with high levels of rainfall and a warm, tropical climate. Over time, the weathering of the rocks in these areas breaks down the aluminium silicates and leaves behind kaolin. The kaolin deposits are then mined from the earth and processed to remove impurities before being used in various industrial applications.

Chemical Constituents :- kaolinite and halloysite. Kaolinite is a hydrated aluminium silicate with the chemical formula $Al_2Si_2O_5(OH)_4$, while halloysite is also a hydrated aluminium silicate with the chemical formula $Al_2Si_2O_5(OH)_4 \cdot 2H_2O$. Kaolin may also contain small amounts of other minerals, such as quartz, feldspar, and mica

Uses :-

a) Kaolin is used in some pharmaceutical products as an excipient
b) Kaolin is used in a range of personal care products, such as soaps, creams, and powders, as a thickening agent, absorbent, and skin protectant
c) Kaolin is also used in the production of ceramics

12.Write a note on sutures with examples?

Ans. Sutures are medical devices used to close wounds or surgical incisions by stitching or tying the edges of the tissue together. They come in various sizes, shapes, and materials, depending on the specific use and location of the wound.

Classification:-

A. Absorbable sutures: These sutures are made of materials that break down in the body over time and are eventually absorbed by the body. Examples of absorbable sutures include Catgut, Polyglycolic acid, Polylactic acid

B. Non-absorbable sutures: These sutures are made of materials that do not break down in the body and need to be removed manually. Examples of non-absorbable sutures include Silk, Nylon, Stainless steel

Uses :-

a) Used to close wounds and incisions.
b) They are used in surgery, dental work, obstetrics and gynaecology, and veterinary medicine.
c) Sutures promote healing, prevent infection, and stop bleeding.

13.Write a note on antioxidants?

Ans. Antioxidants are compounds that inhibit oxidation. They help to protect the body's cells from damage caused by free radicals.

Classification:-

A. Vitamins: Vitamins such as Vitamin C, Vitamin E, and beta-carotene
B. Minerals: Minerals such as selenium, copper, and zinc
C. Phytochemicals: flavonoids, carotenoids, and resveratrol.
D. Synthetic antioxidants: propyl gallate, tertiary butylhydroquinone, butylated hydroxyanisole, butylated hydroxytoluene

Uses:-

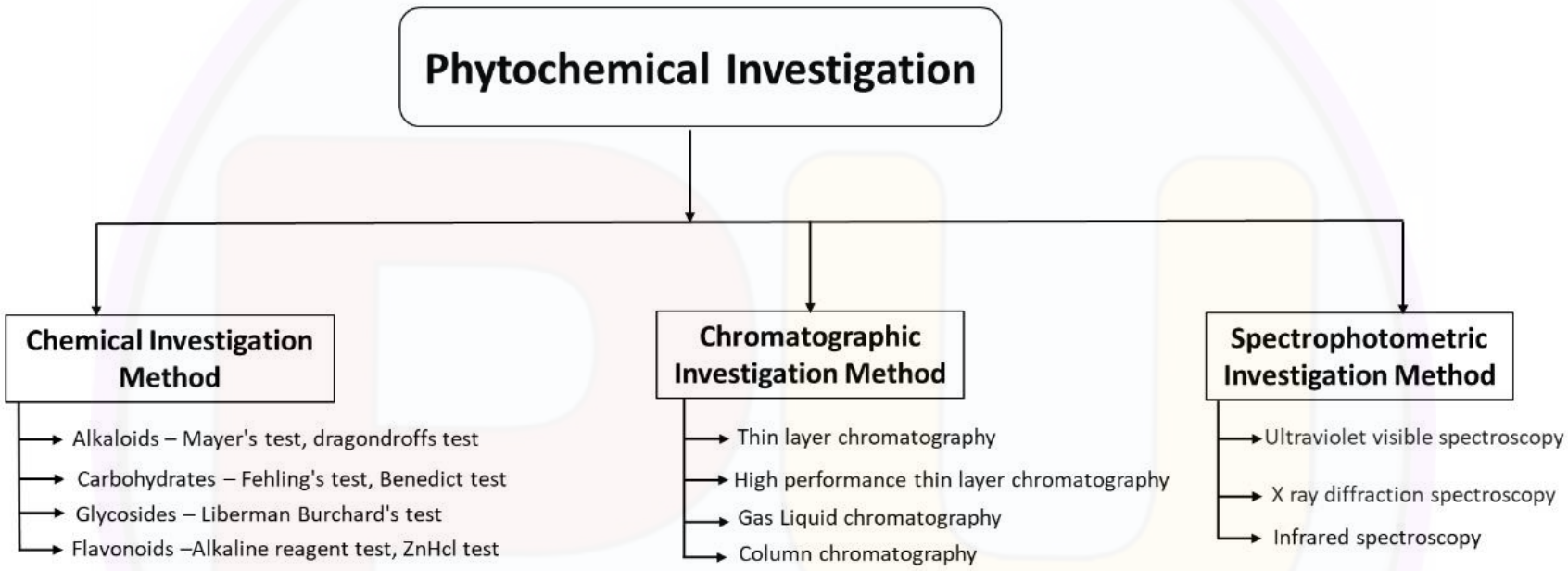
1. Protecting against cancer
2. Protecting against heart disease

3. Boosting the immune system
4. Reducing inflammation

14.Discuss in detail about phytochemical investigation of drugs?

Ans. Phytochemical investigation of drugs is the scientific process of identifying and studying the active chemical components found in plants that have medicinal properties. These chemicals are often referred to as phytochemicals, and they can be extracted from various parts of the plant such as the leaves, stem, or roots.

Classification:-



15.Write the biological source family chemical constituents and therapeutic uses of the following drugs?

Ans. There are about 70 Drugs in Pharmacognosy Syllabus. Read all the drugs. In exam they will ask about any drugs

Very Imp Note :-

- **Please Read All the chapters very carefully before Pharmaceutical chemistry Exam**
- **These questions are only for the reference purpose**

Pharma Unit

Pharmaceutical Chemistry Top 30 IMP Short (1M) Questions with Answers According To New Syllabus ER 2020-2021

1. Define pharmaceutical chemistry?

Ans. The chemistry which studies about the drug design and synthesis of biologically active molecules is known as pharmaceutical chemistry

2. Define impurities?

Ans. Impurities are defined as the presence of undesired and unexpected material during any procedure and that may affect the final product

3. Define accuracy and precision?

Ans. Accuracy - accuracy is the closeness of measured value to the true value. Precision - the degree of repeatability of same value or same result is called as precision

4. Define errors and enlist sources of errors?

Ans. Error is the difference between the standard value and measured value.

Sources of errors - Sample preparation, error by analyst, equipment error, reporting error, calculation error, error due to transport and storage

5. Which apparatus is used in the limit test of arsenic?

Ans. Gutzeit Apparatus

6. Define chelating agent? Name any 2 chelating agents?

Ans. Ligands having more than one electron donating group are called chelating agents. Examples – copper chelators, Iron chelators.

7. Define titration?

Ans. Titration is a technique where a solution of known concentration is used to determine the concentration of an unknown solution

8. Define neutralization reaction?

Ans. Neutralization reaction can be defined as a chemical reaction in which an acid and base quantitatively react together to form a salt and water as product

9. Define haematinics?

Ans. Haematinics are the drugs used to increase the concentration of haemoglobin in blood or used to cure anaemia mainly due to iron deficiency

10. Define antacids?

Ans. Antacids are such substances which are used to neutralise the excess amount of acid in our stomach

11. Define dental products?

Ans. Dental products are those substances which prevent the dental caries, dental decay and give the freshness and cleanness to the mouth and teeth

12. Define dentifrices and write storage of it?

Ans. Dentifrices is a substance used for cleaning the reachable surface of the teeth with a toothbrush For example - calcium carbonate, calcium phosphate, etc. It should be stored in a well closed container.

13. What is dental fluorosis?

Ans. Dental fluorosis is a condition that causes changes in the appearance of tooth enamel. It's caused by overexposure to fluoride in the early years of life when your permanent teeth are developing.

14. Give a chemical formula of nitrous oxide and calcium carbonate?

Ans. Nitrous oxide - N_2O & Calcium carbonate - caco3

15. What are cyclic and acyclic compounds?

Ans. Cyclic compounds - cyclic compounds of the compound which have closed rings for e.g.- Benzene

Acyclic compounds - Acyclic compounds are the compounds which have opened Chain skeleton for e.g.- Methane

16. Define antipsychotic drugs?

Ans. Antipsychotic drugs are mainly used for treating schizophrenia. However, they can also be used in mania with much agitation. Examples are – chlorpromazine, Haloperidol

17. Enlist 4 stages of anaesthesia?

Ans. Stage 1(Analgesia), Stage 2(Delirium or Excitement), Stage 3(Surgical Anaesthetics), Stage 4(Medullary paralysis)

18. Define sedatives & hypnotics?

Ans. Sedative is a drug that produces calming or quietening effect and reduces excitement it may induce drowsiness

Hypnotics is a drug that induces sleep which resembling to natural sleep

19. Define sympathomimetics?

Ans. Drugs that partially or completely mimic the actions of epinephrine or norepinephrine are called sympathomimetic drugs. They produce effects similar to the effect of sympathetic nerve fibers

20. Define hypertension?

Ans. Hypertension also known as high blood pressure is a long term medical condition in which the blood pressure in the arteries is persistently elevated. The systolic blood pressure will be more than or equal of 140 mmHg and Diastolic pressure will be more than or equal of 90 mmHg

21. Define antiarrhythmic drugs?

Ans. The drugs which are used in the treatment of irregular heartbeat or arrhythmia are called antiarrhythmic drugs. For e.g.- amiodarone, sotalol, etc.

22. Define diuretics?

Ans. Diuretics are the drugs which produce diuresis, or they increase the urine output. For e.g.- chlorthalidone, chlorothiazide, hydrochlorothiazide

23. Define hypoglycemic drugs?

Ans. The drugs which are used to reduce the blood sugar level are called hypoglycemic drugs. For example, metformin, etc.

24. Define Non-steroidal Anti-inflammatory Drugs?

Ans. Non-steroidal anti-inflammatory drugs (NSAIDS) are medicines that are used to relieve pain, reduce inflammation, and bring down a high temperature. For e.g.- Paracetamol, Ibuprofen.

25. Define narcotic analgesic?

Ans. Narcotic analgesics are drugs that relieve pain by binding to opioid receptors which are present in the central and peripheral nervous system and can cause numbness and induce a state of unconsciousness. For e.g.- Morphine, etc.

26. Define anti-tubercular agents?

Ans. The drugs which are used in the treatment of tuberculosis are called anti-tubercular agents. For e.g.- Ethambutol, Rifampicin, etc.

27. Define sulfonamides?

Ans. Sulphonamides, also known as sulfa drugs, are a class of antibiotics that work by inhibiting the growth and reproduction of bacteria. They achieve this by blocking the synthesis of folic acid in bacteria. Examples of sulfonamide antibiotics include trimethoprim-sulfamethoxazole, sulfadiazine, sulfamethizole,

28. Define antibiotics?

Ans. Antibiotics are medications used to treat bacterial infections. They work by killing or inhibiting the growth of bacteria. Examples of antibiotics include amoxicillin, ampicillin, cephalexin, azithromycin

29. What are beta lactam antibiotics?

Ans. Beta-lactam antibiotics are a type of antibiotics that have a beta-lactam ring in their structure, which is essential for their antibacterial activity. Examples of beta-lactam antibiotics include amoxicillin, ampicillin.

30. Define antineoplastic agents?

Ans. The drugs which are used in the treatment of cancer are called antineoplastic agents. For e.g.- Busulfan, Carmustine, Chlorambucil, Cyclophosphamide

Very Imp Note :-

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- **These questions are only for the reference purpose**

Pharma Unit

Pharmaceutics Top 30 IMP Short (1M) Questions with Answers According To New Syllabus ER 2020-2021

1. Define pharmacopeia?

Ans. Pharmacopoeia is the standard book which helps in formulating the drugs. The book is published in almost every country under the authority of its own government.

Pharmacopoeia is derived from Greek word Pharmakon – Drugs, Copoeia - Means to make

2. Who is father of Indian pharmacy?

Ans. The father of Indian pharmacy Mahadeva Lal shroff.

3. Define packaging?

Ans. Packaging is a process in which the pharmaceutical products are suitably and safely placed so that they can retain their therapeutic effectiveness until they are consumed by patients. Pharmaceutical package is an important part of pharmaceutical product, it is defined as a device which contains the pharmaceutical product, and the container may or may not be in direct contact with the product.

4. Write composition of glass?

Ans. Glass is made up of silica (59 to 80%), calcium oxide (5 to 12%), sodium oxide (12 to 17%), aluminium oxide (0.5 to 23%), barium oxide, boric oxide, potassium oxide and magnesium oxide and
Cullet.

5. Define pharmaceutical aids?

Ans. Pharmaceutical aids can be defined as the substance which have no or little pharmacological effect but are essential to be used in the preparation of pharmaceutical dosage.
Examples of pharmaceutical aids are organoleptic agents such as colouring agent, flavouring agent, sweetening agent, preservatives, acidifiers, antioxidants, binders, buffering agents, suspending agents, etc.

6. Define preservatives?

Ans. A preservative is a natural or synthetic substance that is added to pharmaceutical products to prevent decomposition by microbial growth or by undesirable chemical changes. Preservatives inhibit the growth of bacteria, yeast and molds that can cause disease.

7. Define size reduction?

Ans. Size reduction is defined as a process of reducing large solid unit masses into small unit masses, coarse particles or fine particles
Comminution, Grinding or Milling is also used to describe size reduction

8. Define size separation?

Ans. Size separation is defined as a pharmaceutical process by which different sizes of particles are separated from a mixture.

9. Define mixing?

Ans. Mixing is the process in which two or more ingredient are treated so that every particle of one ingredient lies as near as possible to the particle of another ingredient

10. Define filtration?

Ans. Filtration is defined as the process of removal of solids or suspended particles from a liquid or a gas by passing through a porous medium in which liquid passes but solid get entrapped

11. Define drying?

Ans. Drying is defined as a final removal of liquid from solid by vaporization with the application of heat

12. Define extraction?

Ans. Extraction is the process of removal of active ingredients from the crude drugs of plant or animal origin by using a suitable solvent

13. Write principle of hammer mill?

Ans. It operates on the principle of impact i.e., the size of material is reduced when the material is hitted by moving object at high speed.

14. Write principle of ball mill?

Ans. Ball mill works on the principle of combine impact and attrition. If material is hitted by continuously moving ball then impact mechanism occur, and if material is present in between the two balls the attrition mechanism will occur.

15. Write principal of cyclone separator?

Ans. In cyclone separator centrifugal force is used to separate solids from fluid, the separation depends upon particle size and density of particles. Cyclone separator is used to separate all types of particles depending on the fluid velocity, otherwise it can be also used to separate only coarse particles while fine particles are carried out with the fluid.

16. Write principle of double cone blender?

Ans. Double cone blender works on the principle of tumbling and shear action i.e., the mixing of powder take place due to tumbling action(Due to rotation of vessel) and shear action with the blades

17. Define tablet?

Ans. Tablet is defined as a compressed unit solid dosage form containing medicaments with or without excipients

18. Define capsule?

Ans. Capsules are solid dosage form in which the drug substances are enclosed in a water-soluble shell or an envelope.

19. Define syrup?

Ans. Syrup is highly concentrated aqueous solution of sugar which contain 66.7% w/w of sugar

20. Define elixir?

Ans. Elixirs are cleared flavoured, sweetened hydroalcoholic liquid preparation for oral administration in which alcohol is present in concentration of 40%

21. Define emulsion?

Ans. An emulsion is biphasic liquid dosage form in which one liquid is dispersed throughout another liquid in the form of small droplets and the system is stabilized by 3rd substance called as emulsifying agent. In emulsion one phase is called as Disperse phase and another phase is called as continuous phase

22. Define suspension?

Ans. Suspensions are biphasic liquid dosage forms in which finely divided solid medicaments are dispersed in a liquid vehicle, the solid particle act as dispersed phase and liquid vehicle act as continuous phase. The size of particles ranges from 0.5 to 5 μm.

23. Define Dry powder for reconstitution?

Ans. - Dry powder for reconstitution are the preparations consisting of mixtures of dry powders of various sizes that required the addition of water for reconstitution at the time of dispensing.

24. Define Ointment?

Ans. Ointments are defined as the topical or semisolid preparations intended for external application to the skin that provides emollient protective and therapeutic action Ointments may or may not contain medicaments

25. Define creams?

Ans. Cream are defined as homogeneous semisolid topical preparation consisting of emulsion of either oil in water or water in oil type whose consistency vary with the amount of oil and water used

26. Define liniment?

Ans. Liniments are medicated topical preparations for application to the skin to reduce pain, stiffness from sore muscles. Liniment or generally applied to the skin with friction

27. Define lotion?

Ans. Lotion is defined as either a liquid or semisolid topical preparation with low viscosity that are meant for external application to the skin. Lotion or applied to the skin without friction

28. Define suppositories?

Ans. Suppositories are medicated solid dosage forms intended for insertion into rectum where they melt, soften or dissolve to exert localised or systemic effect.

29. Define pessaries?

Ans. Pessaries are medicated solid dosage form intended for insertion into vagina where they melt or dissolve to exert local or systemic effect

30. Define novel drug delivery system?

Ans. Novel drug delivery system refers to the approaches, formulations, technologies and systems for transporting of pharmaceutical compounds in a body as needed to safely achieve its desired therapeutic effect.

Pharma Unit

Social Pharmacy Top 30 IMP Short (1M) Questions with Answers
According To New Syllabus ER 2020-2021

1) Define social pharmacy?

Ans. Social pharmacy is the multidisciplinary field of education and research that focuses on the rule regulation and use of medicine in society. Or Social pharmacy may be defined as a discipline dealing with the role of medicines from the social scientific and a humanistic perspective.

2) Define health?

Ans. Health is a state of complete physical, mental, and social well-being and not merely an absence of disease or infirmity

3) Enlist different dimensions of health?

Ans. Physical Dimension, Mental Dimension, Social Dimension, Emotional Dimension, Spiritual Dimension, Vocational Dimension

4) Define health indicators and enlist different names of health indicators?

Ans. Health indicator is a characteristic or a variable which helps to measure the changes in the health of a

Society, community and the country. Different Health Indicators are - Mortality indicators, Morbidity indicator, Disability indicators, Health service indicators, Sanitation indicator, Socioeconomic indicators, Quality of life indicator

5) Write a full form of NHP?

Ans. NHP - National Health Policy

6) Write a full form of NHM?

Ans. NHM - National Health Mission

7) Write a full form of SDG, MSG, FIP?

Ans. SDG- Sustainable Development Goals, MSG- Millennium Development Goals, FIP- International Pharmaceutical Federation

8) Define Demography?

Ans. Demography is the study of human populations, their size, composition and distribution across space and the process through which populations change.

9) Define Family Planning?

Ans. Family planning is a way of living and thinking that is adopted voluntarily upon the basis of knowledge, attitude and responsible decisions by individuals and couples to promote the health and welfare of the family group and thus contribute effectively to the social development of the country.

10) Define Vaccines?

Ans. Vaccine is a biological preparation that improve immunity towards disease for example Polio vaccine, Covid vaccine, BCG vaccine

11) Name any pandemic disease?

Ans. Corona, Ebola, Plague, Spanish flu

12) Write deficiency disorders cost by the deficiency of vitamin A, D, E, K, C?

Ans.

- Vitamin A deficiency - Night Blindness
- Vitamin D deficiency – Rickets, Osteomalacia
- Vitamin E deficiency – Anaemia, Hair loss, dry skin
- Vitamin K deficiency - Vitamin K deficiency, cardiovascular disease
- Vitamin C deficiency – Scurvy, Anaemia, Gingivitis

13) Write the name of a microorganism causing tuberculosis?

Ans. The microorganism that causes tuberculosis is called Mycobacterium tuberculosis.

14) Write the name of microorganism causing cholera?

Ans. The microorganism that causes cholera is called Vibrio cholerae.

15) What is the function of copper T?

Ans. The function of Copper T is to prevent pregnancy by creating a hostile environment for sperm within the uterus.

16) What is the full form of BCG?

Ans. BCG - Bacille Calmette-Guerin, is a vaccine for tuberculosis (TB) disease.

17) What is the causative agent of syphilis?

Ans. The causative agent of syphilis is a bacterium called Treponema pallidum.

18) Define toxoids?

Ans. Toxoids are inactivated toxins that have been treated to remove their toxic properties while retaining their ability to stimulate the immune system and provide immunity against the actual toxin.

19) Define pandemic?

Ans. Pandemic refer to an epidemic that has spread over several countries or continents usually affecting a large number of people

20) Define incubation period?

Ans. Incubation period is the time elapse between exposure to a pathogenic Organism and when symptoms and signs are first apparent in patients

21) Define mode of transmission?

Ans. Mode of transmission refers to the way in which a disease-causing organism is transferred from one person or source to another, leading to infection or disease. Contact, droplet, airborne and vectors are 4 modes of transmission of infection.

22) Define micronutrient and macronutrient?

Ans. Micronutrients are essential nutrients that are required in small amounts for proper body functioning

Macronutrients are nutrients required in larger amounts for energy production and growth.

23) Define mortality?

Ans. Mortality refers to the number of deaths in a population within a specific period of time.

24) Define morbidity?

Ans. Morbidity refers to the prevalence or incidence of disease or illness within a population.

25) Define Pharmacoeconomics?

Ans. Pharmacoeconomics is the study of the economic impact of pharmaceutical products and services, including their costs, benefits, and value, on healthcare systems, patients, and society.

26) Define proteins?

Ans. Proteins are large molecules made up of chains of amino acids that play various essential roles in the body, such as building and repairing tissues, acting as enzymes and hormones, and supporting the immune system.

27) Write fat and water soluble vitamins?

Ans. Fat-soluble vitamins are vitamins A, D, E, and K. Water-soluble vitamins include vitamin C and the B vitamins

28) Define epidemiology?

Ans. Epidemiology is the study of the distribution and determinants of health and disease in populations, and the application of this knowledge to control and prevent disease.

29) Enlist components of disaster management?

Ans. Prevention and Mitigation, Preparedness, Response, Recovery, Risk communication.

30) Enlist vector borne diseases?

Ans. Dengue, malaria and Chagas disease. Leishmaniasis, schistosomiasis and yellow fever. Chikungunya, lymphatic filariasis, onchocerciasis and West Nile virus.

Very Imp Note :-

- **Please Read All the chapters very carefully before Social Pharmacy Exam**
- **These questions are only for the reference purpose**

Pharma Unit

Human Anatomy & Physiology Top 30 IMP Short (1M) Questions with Answers According To New Syllabus ER 2020-2021

1. Define anatomy?

Ans. Anatomy is the branch of biology that deals with the study of the structure and organization of living organisms, including humans, animals, and plants. It involves the examination and analysis of the internal and external structures of organisms, including their organs, tissues, cells, and systems.

2. Define Physiology?

Ans. Physiology is the branch of biology that deals with the study of the normal functions and activities of living organisms, including humans, animals, and plants. It involves the examination and analysis of the physical and chemical processes that occur within organisms, such as metabolism, respiration, circulation, and reproduction.

3. Define metabolism?

Ans. Metabolism refers to the chemical processes that occur within living organisms to maintain life. It involves the conversion of food into energy and the use of that energy by the body to carry out various functions, such as movement, growth, and repair.

4. Define anabolism?

Ans. Anabolism refers to the metabolic process in which complex molecules are synthesized from simpler ones, requiring energy input. It involves the building up of molecules such as proteins, carbohydrates, and lipids, which are used for growth, repair, and maintenance of body tissues.

5. Define catabolism?

Ans. Catabolism refers to the metabolic process in which complex molecules are broken down into simpler ones, releasing energy in the process. It involves the breakdown of molecules such as proteins, carbohydrates, and lipids, which are used by the body for energy production and other functions.

6. Define reproduction?

Ans. Reproduction is the biological process by which living organisms produce offspring of the same species. It involves the transfer of genetic material from one generation to the next and is essential for the continuation of life.

7. Define cell and enlist component of cell?

Ans. A cell is the basic unit of life and the smallest structural and functional unit of all living organisms.

Component of cell - Cell membrane, Cytoplasm, Nucleus, Mitochondria, Endoplasmic reticulum, Golgi apparatus, Ribosomes, Lysosomes

8. Define tissue and its types?

Ans. Tissue is defined as a group or layer of cells that work together to perform a specific function.

Types of tissue - Epithelial tissue, Connective tissue, Muscular tissue, Nervous tissue

9. Define blood?

Ans. Blood is a fluid connective tissue that consists of plasma, blood cells and platelets. It circulates throughout our body delivering oxygen and nutrients to various cells and tissues. It makes up 8% of our body weight.

10. Write composition of blood?

Ans. Blood composed of 55% plasma and 45% formed elements including wbcs, rbcs, and platelets.

11. Define lymph node?

Ans. A lymph node is a small, bean-shaped structure that is part of the lymphatic system, which helps to defend against infections and foreign substances. Lymph nodes contain immune cells that filter and trap foreign particles, such as bacteria, viruses, and cancer cells, as they travel through the lymphatic vessels.

12. Write function of heart?

Ans. Circulating oxygen and nutrients, removing carbon dioxide, maintaining blood pressure, Supporting immune function, Maintaining fluid balance, Providing hormonal regulation, Supporting physical activity

13. Name 3 layers of heart?

Ans. 3 layers of heart are - Epicardium (outer layer), Myocardium (middle layer), Endocardium (inner layer)

14. Name the bones involved in elbow joints?

Ans. The elbow joint is formed by the articulation of three bones - Humerus, Radius, Ulna

15. Name the cranial nerve responsible for equilibrium and hearing?

Ans. The vestibulocochlear nerve is responsible for equilibrium and hearing

16. Define spleen?

Ans. The spleen is an immune system organ that filters the blood, produces and stores white blood cells, fights infections, destroys old blood cells and helps maintain blood volume. It is located in the upper left part of the abdomen.

17. Define blood pressure?

Ans. Blood pressure is the force exerted by the blood against the walls of the arteries. It is measured in mmhg, and consists of systolic and diastolic pressures

18. What is normal blood pressure?

Ans. Normal blood pressure in humans is around 120/80 mmhg. Systolic pressure is around 120 mmhg and the diastolic pressure is around 80 mmhg.

19. Define glomerular filtration rate?

Ans. Glomerular filtration rate (GFR) is defined as the volume of plasma that is filtered by the glomeruli per unit of time.

20. Write full form of RBC, WBC, ANS, TSH, GIT?

Ans. RBC – Red Blood Cell. WBC – White Blood Cell. ANS - Autonomic Nervous System. TSH - Thyroid Stimulating Hormone. GIT - Gastrointestinal Tract

21. Bile is stored in which part of body?

Ans. Bile is stored in the gallbladder

22. Estrogen and progesterone are secreted by which part of body?

Ans. Estrogen and progesterone are primarily secreted by the ovaries in females, although small amounts are also produced by the adrenal glands and the placenta during pregnancy.

23. What is tidal volume?

Ans. It is the amount of air inspired or expired during normal breathing

24. What is inspiratory volume?

Ans. It is the maximum amount of air inspired over tidal volume by deepest inspiration

25. What is expiratory reverse volume?

Ans. It is the amount of air expired over tidal volume by most forceful expiration

26. What is residual volume?

Ans. It is the amount of air that remains inside lungs after forceful expiration

27. Enlist male reproductive system & enlist female reproductive system?

Ans. Male reproductive system – Testes, Epididymis, Vas deferens, Seminal vesicles, Prostate gland, Bulbourethral gland, Urethra, Penis

Female reproductive system - Ovaries, Fallopian tubes, Uterus, Cervix, Vagina, Clitoris, Labia majora, Labia minora

28. Enlist name of cranial nerves?

Ans. Olfactory nerve, Optic nerve, Oculomotor nerve, Trochlear nerve, Trigeminal nerve, Abducens nerve, Facial nerve, Vestibulocochlear nerve, Glossopharyngeal nerve, Vagus nerve, Accessory nerve, Hypoglossal nerve.

29. Define micturition?

Ans. Micturition is the process of emptying the bladder. It is the process of excreting the urine from the urinary bladder.

30. Write the reason why right kidney is slightly lower than the left kidney?

Ans. The right kidney is slightly lower than the left kidney due to the presence of the liver on the right side of the body.

Very Imp Note :-

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- **These questions are only for the reference purpose**