SCL PARAMEDICAL COUNCIL OF INDIA

Anatomy and Physiology :-

THEORY (75 Hours)

- Scope of Anatomy and physiology.
- Structure of cell, function of its components with special reference to mitochondria and microsomes.
- Elementary tissues: Elementary tissues of the body, i.e. epithelial tissue, muscular tissue, connective tissue and nervous tissue.
- Skeltal System: Structure and function of Skelton .
- Composition of blood, functions of blood elements and Blood group.
- Name and functions of lymph glands.
- Cardiovascular System: Structure and functions of various parts of the heart .Arterial and venous system with special reference to the names and positions of main arteries and veins. Blood pressure and its recording.
- Respiratory system: Various parts of respiratory system and their functions,
- Urinary System: Various parts of urinary system and their functions,
- structure and functions of kidney.
- Central Nervous System: Various parts of central nervous system, brain and its parts, functions .
- Anatomy and physiology of automatic nervous system.
- Sensory Organs: Elementary knowledge of structure and functions of the organs of taste, ear, eye and skin.
- Digestive System: names of various parts of digestive system and their functions. structure and functions of liver.
- Endocrine System: Endocrine glands and Hormones. Their hormones and functions. pituitary, thyroid. Adrenal and pancreas
- Reproductive system: Physiology and Anatomy of Reproductive system.

PRACTICALS

(50 hours)

1. Study of the human Skelton.

2. Study with the help of charts and models of the following system and organs- Digestive system, Respiratory system , Ear Cardiovascular system, Urinary system, Reproductive system ,Eye.

3. Microscopic examination of epithelial tissue, cardiac muscle, smooth muscle, skeletal muscle. Connective tissue and nervous tissues.

4. Examination of blood films for TLC.DLC and malarial parasite.

5. Determination of RBCs, clotting time of blood, erythrocyte sedimentation rate and Hemoglobin value.

6. Recording of body temperature, pulse, heart-rate, blood pressure and ECG.

Pharmaceutical chemistry

THEORY (75 Hours)

General discussion on the following inorganic compounds including important physical and chemical properties, medicinal and pharmaceutical uses, storage conditions and chemical incompatibility.

- **Acids, bases and buffers**-Boric acid, Hydrochloric acid, Strong Ammonium hydroxide, Sodium hydroxide and official buffers.

- **Antioxidants**- Hypophosphorous acid, Sulphur dioxide, Sodium bisulphite, Sodium meta-bisulphite, Sodium thiosulphate, Nitrogen and Sodium nitrite.

- **Antacids-** Sodium bicarbonate, Aluminum hydroxide gel, Aluminum phosphate, Calcium carbonate, Magnesium carbonate, Magnesium oxide, Combinations of antacid preparations. Protective and Adsorbents- Bismuth sub carbonate and Kaolin. Saline cathartics- Sodium potassium tartrate and Magnesium sulphate.

- **Topical AgentsProtective**- Talc, Zinc Oxide, Calamine, Titanium dioxide, silicone polymers.

PRACTICAL

(50 hours)

1. Identification tests for inorganic compounds particularly drugs and pharmaceuticals.
2. Limit test for chloride, Sulfate, Arsenic, Iron and Heavy metals.
3. Assay of inorganic pharmaceuticals involving each of the following methods of compounds (Hydrogen peroxide, Ammonium chloride)

i. Acid-Base titrations(at least 3)
ii. Redox titrations (one each of permanganometry and iodimetry).
iii. Precipitation titrations (at least 2)
iv. Complexometric titration (Calcium and Magnesium).

Pharmacology and toxicology
THEORY (75 Hours)

- General principles of pharmacotherapeutics, pharmokinetics, pharmacodynamics, and pharmacogenetics/genomics.
- Medication calculation and administration concepts:
- Drug categories
- Pharmacotherapeutic problem solving for common acute and chronic health problems across systems including drug administration and monitoring for therapeutic responses.
- Adverse drug reactions .
- Drug interactions based on selected drug categories including drug-drug interactions , drug food interactions .
- Economic implications of drug management .
- Implications of client's cultural health beliefs and practices on drug monitoring and client adherence .
- Legal and ethical parameters

PRACTICAL
(50 hours)

1. Effect of acetyl choline on rectus abdomens muscle of frog .
2. Effect of spasmogens and relaxants on frog intestine.
3. Effect of local anaesthetics on rabbit cornea.
4. Effect of mydriatics and miotics on rabbit's eye.
5. Effect of digitalis on frog's heart.
6. Effect of hypnotics in mice.
7. Effect of convulsants and anticonvulsant in mice or rats.
8. Test for pyrogens.

Pharmacognosy
THEORY (75 Hours)

- Definition, history and scope of Pharmacogonosy
- Various systems of classification of drugs and natural origin.
- Adulteration and drug evaluation; significance of pharmacopoeial standards.

- Identification tests, therapeutic effects and pharmaceutical application of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.
- Occurrence, distribution, chemical constituents ,therapeutic efficacy of following categories of drugs.

  Laxatives- Aloes, Rhubarb, Castor oil, Ispaghula, Senna.

  Cardiotonics- Digitalis, Arjuna.

  Carminatives & G.I. regulators- Umbelliferous fruits, Coriander, Fennel, Ajowan, Cardamom, Ginger, Black pepper , Asafoetida, Nutmeg, Cinnamon, Clove.

  Astringents- Catecheu.

  Drugs acting on nervous system- Hyoscyamus, Belladonna, Aconite, Ashwagandha, Ephedra, Opium, Cannabis, Nux -vominca.

  Antihypertensive- Rauwolfia.

  Antitussives- Vasaka, Tolu balsam, Tulsi.

  Antirheumatics- Guggal, Colchicum.

PRACTICAL
(50 hours)

1. Identification of drugs by morphological characters. Physical and chemical tests for evaluation of drugs wherever applicable.
2. Gross anatomical studies(t.s.)of the following drugs :Senna, Datura, cinnamon, cinchona, coriander, fennel , clove, Ginger, Nux-vomica, Ipecacuanha.
3. Identification of fibers and surgical dressing.

Fundamental computer
THEORY (50 Hours)

- Computer: Definition, Characteristics of Computers, Basic Applications of Computer, Generations of computers.
- Components of Computer System: Central Processing Unit (CPU), input/output Devices,
- computer Memory: primary and secondary memory, magnetic and optical storage devices, Concepts of Hardware and Software.
- Operating system-MS-Windows
- Operating system-Definition & functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders.
- Control panel – display properties, adding and removing software and hardware, setting date and time, screensaver and appearance.
- Word Processing-MS Word
- Word Processing Basic: MS-Word, Working with documents, using tables, pictures, and charts, using mail merge and sending a letter to a group of people, creating form letters and labels, collaborating with workgroups, modifying a report, macros.

Pratical
THEORY (30 Hours)

Windows

1. Create a new folder and do the following:
    1. Make a word document in it.
    2. Make an Excel document in it.
    3. Make a new folder in it
    4. Rename the initial folder
    5. Move the initial folder
    6. Copy the initial folder.
    7. Delete the initial folder
2. Implement the various well known features of Windows operating system such as Notepad, WordPad, Paint, System tools, Entertainment etc. enclosed in Start→Programs→Accessories.
3. Implement various display properties by right clicking on the Windows Desktop.
4. Explore the taskbar of Windows.
5. Set the wall paper and screen saver.
6. Set the data/time.

MS-Word

1. Create a document and
    a. Put Bullets and Numbers
    b. Apply various Font parameters.
    c. Apply Left, Right, and Centre alignments.
    d. Apply hyperlinks
    e. Insert pictures
    f. Insert ClipArt
    g. Show the use of WordArt
    h. Add Borders and Shading
    i. Show the use of Find and Replace.
    j. Apply header/footers
2. Create any document and show the use of File→versions.
3. Create any document and show the difference between paste and paste special.
4. Create a document to show the use of Washout/Watermark.
5. Implement the concept of mail merge.
6. Implement the concept of macros.
7. Implement the concept of importing a file/document.
8. Implement the concept of merging the documents.
9. Crate a student table and do the following:
    a. Insert new row and fill data
    b. Delete any existing row
    c. Resize rows and columns
    d. Apply border and shading
    e. Apply merging/splitting of cells
    f. Apply sort
    g. Apply various arithmetic and logical formulas.
10. Create your resume using General Templates.