Kalyan Singh Super Specialty Cancer Institute

SYLLABUS

CBT - 2025

(Multiple Post Recruitment)

(Examination will be conducted in ENGLISH language only)

Computer Based Examination

(Advt. No. KSSSCI/CMS/77/1-8/2025-26)

NOTE:

1. **Syllabus is only Indicative**
2. **The questions can assess any aspect of knowledge, aptitude, attitude, subject and practical skills, which is expected from a trained person to work efficiently at the advertised post**.

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Syllabus

General Instructions

1. The Computer Based Test (CBT)-2025 will be of 02 hours duration & will be of 100 marks.
2. It will contain 100 multiple choice questions (MCQs)
3. **Examination Scheme:**

Part A	**General Aptitude** (Common for all the Posts)	General English	10 Questions
		General Knowledge	10 Questions
		Reasoning	10 Questions
		Mathematical Aptitude	10 Questions
Part B	**Core Subject**	Subject related to the post and level of the qualifications required	60 Questions

4. **There will be 1/3 negative marking**
5. **Examination will be conducted in English language Only**

Part- A

Indicative Syllabus: General Aptitude

(Common for all the Posts)

1. **General English**: Candidate's ability to understand correct English, his basic comprehension and writing ability would be tested, Questions in this section will be designed to test the candidates understanding and knowledge of English language and will be based on spot the error, fill in the blanks, synonyms, antonyms, spelling/detecting mis-spelt words, idioms and phrases. One word substitution, improvement of sentences, active/passive voice of verbs, conversion into direct/indirect narration, shuffling of sentence parts, shuffling of sentences in a passage, comprehension passage and any other English Language questions at the Level of Matriculation/Higher Secondary.

2. **General Knowledge**: Questions in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Questions will also be designed to test knowledge of current events and of such matters of everyday observations and experience in the scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighboring countries especially pertaining history, culture geography, economic scene general policy & scientific research.

3. **Reasoning**: It would include questions of both verbal and nonverbal type. This component may include questions on analogies, similarities and differences, spatial orientation, problem solving, Analysis, judgement, decision making, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, etc the topics are, symbolic/ number analogy, figural analogy semantic classification, symbolic/Number Classification, Figural Classification, semantic series, number series, Figural series, problem solving, word building, coding & decoding, Numerical operations, symbolic operations Trends, space orientation, space Visualization, Venn diagrams, Drawing inferences, Punched hole/pattern- folding & unfolding. Figural pattern- Folding and completion, indexing. Address matching, Date & city matching, Classification of center codes/roll numbers, small & capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thing, Emotional Intelligence, Social Intelligence, Other sub topics, if any.

4. **Mathematics Aptitude**: The questions will be designed to test the ability of appropriate use of numbers and number sense of the candidate. The scope of the test will be computation of whole numbers, decimals, fractions and relationship between numbers percentage, Ration & Proportion, Square roots, Averages, Interest, Profit & Loss, Discount, Partnership, Elementary Surds, Graphs of Linear Equation, Triangle and its various kinds of centers, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of a circle common tangents to two or more circles, Triangle, Quadrilaterals, Regular polygons, Circle, Right Prism, Right circular cone, Right circular cylinder, Sphere, Hemispheres, Rectangular Parallel piped, Regular right pyramid with triangular or square base, Trigonometric ration, Degree and radian Measures, Standard Identities, Complementary Angles, Heights and Distances, Histogram, Frequency, polygon, Bar diagram & pie chart.

Medical Social Service Officer GR-2

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

(Syllabus is only Indicative. The questions can assess any aspect of knowledge, aptitude, attitude and practical skills, which is expected from a trained person to work efficiently at the advertised post)

Core Subject:

1. Social Work: Definition, meaning, purpose, goals and objectives - Principles and assumptions of social work - basic and auxiliary methods of social work - tools, techniques, skills and abilities of a professional social worker.

2**.** Working with Individuals (Social Casework): Definition, nature, objectives, relevance and scope of - philosophy, principles and components of social case work and Social Casework Process: Exploration, Engagement, Assessment and Planning, Implementation, goal attainment, Termination and Evaluation Models of Social Case word Practice: - Skills and Techniques in Social Casework.

3. Working with Groups (Social Group Work): Meaning, type, Characteristic - stages of group development - goal setting, group norms, problem solving, decision making, conflict resolution.

4. Leadership: concept, theories types of leadership and contexts- role and qualities of a leader. Principles of Group Work. Social Group Work Process - Intake, Study, goal setting intervention, evaluation- programme as models - Group Worker - role, functions, skills and qualities. Group Process: Meaning, type (associative and dissociative group process) - bond, acceptance, isolation, rejection, conflict and control,

5. Society: Type and characteristics - tribal, rural urban, industrial and postindustrial - Culture, definition, nature, type material & non-material Socialization: importance and agencies of socialization Social Control: Types, process of social change-characteristic features of industrialization, modernization, globalization and secularization, social stratification - caste, class, gender and power. Social Problems: Poverty, unemployment, migration, alcoholism and substance abuse, domestic violence, dowry, crime and delinquency

6. Developmental psychology**:** Growth and Development - the major psychological and social theories of development - the biophysical psychological and socio- cultural changes happening during life span - parental, early childhood, late childhood, puberty, adolescence, young adulthood, middle adulthood and old age

7. Health And Illness Health - concept of health and ill health, determinants of health and indicators of health

status concept of community health and its various components, alternative systems of medicine and life style. Communicable and Non-communicable Disease-related concepts of epidemic, endemic, pandemic, incidence, prevalence, etiology, symptoms, treatment and prevention of Communicable disease and Non-communicable Diseases like Cancer, Coronary Artery Disease, Obesity, Diabetes, Trauma and Injuries.

8. National Health Policies and major National Health Programmes.

9. Medical Social Work & Multidisciplinary Medical Social Work- meaning, definition, importance of medical social work - Historic development of medical social work in the world and in India, functions and role of Medical Social Worker- preparing Individual Care Plan (ICP) - Case Recording - Medical ethics - issues and challenges (Patient rights, confidentiality, informed consent) Medico-legal issues Multidisciplinary Team: Team members and role of team members, role of social worker & essential aspects of team work.

Receptionist

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

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Core Subject-

BASIC COMPUTER KNOWLEDGE: Introduction to MS Windows, MS Office, Basics of Internet etc: Subject Knowledge Principles of Communication and Public Relations.

COMMUNICATION:

Definitions – Elements of Communication, Nature, Role and Scope of Communication, Communications, Public opinion and Democracy, Communication mass media and Socio-economic development.

METHODS OF COMMUNICATION: Face to face Communication, Group Communication, Mass Communication- Spoken, Written, Un-Spoken and Unwritten, Present state of Communication in India.

MASS COMMUNICATIONS AND MASS MEDIA: Marshal Mc Luchan's theory-the Medium is the message, One-step, two- step, multi-step flow of Communication, Mass Media and its characteristics What is Communication research, The nature and task of Communication research.

PRINCIPLES OF PUBLIC RELATIONS: Meaning and Definitions, Basic elements of PR, Nature, role and scope, PR as a tool of modern management – PR role in the Indian Setting-Developing economy. PR as distinct from other forms of Communication, PR and Publicity, Lobbying, Propaganda, Sales Promotion, and Advertising, PR and Corporate Marketing Services. Historical Perspective-Industrial revolution the beginnings of PR – Pioneers-Ivy Lee in America – Technological and media revolution in the Society-PR during First and Second World Wars – The Development of Indian PR, Early Phase, Professionalism, Genesis and Growth of PRSI – Present status and Future of PR in India. Public Opinion – Meaning and Definition- Opinion

Leaders-Individuals Institution, Roots of public attitudes – Culture, the family, religion, Economic and Social Classes – Role of PR in opinion formation-persuasion. The Ethics of PR – Social Responsibility Code of Professional Standards for the practice of PR – IRSI – Code of Ethics. Public Relations Media

MEDIA CLASSIFICATION: Introduction to Mass Media, Functions of Mass Media, Characteristics, Limitations, advantage and relative appeal of different media.

NEWS-PAPERS AND MAGAZINES: Principal categories of newspapers and periodicals, News Agencies, Government and Press – Mass Media as Social Instruments.

RADIO BROADCASTING: Ratio in India, Relative coverage and appeal of Radio and Press. Impact of Radio on rural India and rural development.

TV IN INDIA: A brief history of Television – Coverage, present status and impact on masses, Role of Satellite Communication, TV for Socio- Economic change, The future of Television in India.

FILM IN INDIA: Film as a tool of PR, Impact of films, Documentaries, PR Films, Feature Films, Script writing of newsreel and documentaries.

PHOTOGRAPHS: The Camera as a tool of PR, Uses of Photos in PR, News-photos, Photo features-photo Editing, Caption writing.

EXHIBITIONS: Exhibition as a PR tool, Types of Exhibitions, Planning an Exhibition- Theme and Display.

MEDIA RELATIONS: Strategy for good media relations, Inter-Media Publicity, Press Conference. -Traditional Media as a PR tool – Types – Advantages - Role of traditional Media in rural India. -Outdoor media as a PR tool – Hoardings – Posters – Transit media – Bus panels – Neon sings –Direct Mail – advantages. -The Art of News writing – What is News, Difference between newspapers writing and Broadcast writing, Language, content and style. -Writing for Newspapers and House Journals -
Reporting – How to write a press release, press release – Its parts, headline, subhead lines, the lead, paragraphs, essentials of writing a press release. -Feature writing, corporate features-Development-stories. -Editorial Writings: House Journal's Editorials, Writing for Radio & TV. Public Relations Practice.

PUBLIC RELATIONS PRACTICE: Scope of the Practice; Profile of the practitioner; Planning for Public Relations; Measuring Public Relations Objectives; Organizing Public Relations department; - Organizing Public Relations Agency.

PUBLIC RELATIONS SPECIALISATION: Public Relations in Employee Relations; Public Relations in Industrial Relations; Public Relations and the Community; Public Relations and the Govt.; Public Relations in Promotion of causes and Ideas.

Storekeeper

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

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Core Subject:

General Skills

- Communication Skills
- Management Skills
- Leadership
- Ability to Interpret Data and Statistics handling
- Knowledge in quality standards and processes

Computer skills

- Basic computer knowledge: Parts /Accessories
- Knowledge in MS Office /Excel / PowerPoint
- Writing Skills/ Typing / Communication skills

Inventory Management

- Maintaining and updating records
- Counting materials, equipment
- Merchandise or supplies in stock
- Reporting discrepancies between physical counts and computer records
- Developing or improving upon inventory management procedures
- Inventory Management Techniques (Distribution of Inventory).

Basic concepts of Material management

- Purchase management
- Logistic management

- Packaging etc.
- Latest Government initiatives in public procurement policy- GeM, GFR 2017 etc.
- Chain supply management
- Warehouse management
- Financial Statements and cash flow system
- Economic indicators and measurement

Dietician

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

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Core Subject:

- Energy requirements: Factors affecting energy requirements, BMR - activity, age, climate, diet induced thermo genesis (SDA) and Concept of Body Mass Index.
- Protein, Carbohydrate, Fat- Classification, Functions in body, Digestion & absorption.
- Basic understanding of the functions and role of nutrients (Micronutrients and macronutrients), their requirements and the effect of deficiency and excess.
- The concept of an adequate diet and the importance of nutrients in recommended Dietary Allowances (RDA).
- Fat- and water-soluble vitamins and the role of water and electrolytes in nutrition
- The physiology of digestion and the anatomy of digestive tract.
- Basic concepts of parenteral nutrition
- Nutrition in special conditions like pregnancy, lactating mothers, patients with liver disease and renal disorders etc.
- Food borne diseases and their preventive measures.

Pharmacist Grade-2

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

(Syllabus is only Indicative. The questions can assess any aspect of knowledge, aptitude, attitude and practical skills, which is expected from a trained person to work efficiently at the advertised post)

Core Subject

Introduction of different dosage forms. Their classification with examples-their relative applications Familiarization with new drug delivery systems. Introduction to Pharmacopoeias with special reference to the Indian Pharmacopoeia.

Metrology-System of weights and measures. Calculations including conversion from one to another system. Percentage calculations and adjustment of products. Use of allegation method in calculations, Isotonic solutions.

Packaging of pharmaceuticals-Desirable features of a container and types of containers. Study of glass &plastics as materials for containers and rubber as a material for closure-their merits and demerits. Introduction to aerosol packaging. Size reduction, objectives, and factors affecting size reduction, methods of size reduction- study of Hammer mill, ball mill, Fluid energy mill and Disintegrator

Size separation-size separation by sifting. Official standards for powders. Sedimentation methods of size separation. Construction and working of Cyclone separator.

Mixing and Homogenization-Liquid mixing and powder mixing, Mixing of semisolids. Study of silverson Mixer Homogenizer, planetary Mixer, Agitated powder mixer, Triple Roller Mill; Propeller Mixer, colloid Mill and Hand Homogeniser. Double cone mixer.

Clarification and Filtration-Theory of filtration, Filter media, Filter aids and selection of filters. Study of the following filtration equipments Filter Press, sintered filters, Filter candles, Meta filter.

Extraction and Galenicals-

Study of percolation and maceration and their modification, continuous hot extraction- Application in the preparation of tinctures and extracts.

Introduction to Ayurvedic dosage forms.

Heat process-Evaporation-Definition-Factors affecting evaporation-study of evaporating still and Evaporating pan.

Distillation-Simple distillation and Fractional distillation, steam distillation and vacuum distillation. Study of vacuum still, preparation of purified water I.P. and water for Injection I.P. construction and working of the still used for the same.

Introduction to drying process-Study of Tray Dryers, Fluidized Bed Dryer, Vacuum Dryer and Freeze Dryer.

Sterilization-Concept of sterilization and its differences from disinfection Thermal resistance of microorganisms. Detailed study of the following sterilization process. Sterilization with moist heat, Dry heat sterilization, Sterilization by radiation, Sterilization by filtration And Gaseous sterilization.

Aseptic techniques-Applications of sterilization process in hospitals particularly with reference to surgical dressings and intravenous fluids. Precautions for safe and effective handling of sterilization equipment.

Processing of Tablets-Definition; different type of compressed tables and their properties. Processes involved in the production of tablets; Tablets excipients; Defects in tablets; Evaluation of Tablets; Physical standards including Disintegration and Dissolution. Tablet coating-sugar coating; films coating, enteric coatirig and micro-encapsulation (Tablet coating may be done in an elementary manner.

Processing of Capsules Hard and soft gelatin capsules: different sizes of capsules, filling of capsules, handling and storage of capsules. Special applications of capsules.

Study of immunological products like sera, vaccines, toxoids & their preparations.

PHARMACOGNOSY

1. Definition, history and scope of Pharmacognosy including indigenous system of: medicine.

2. Various systems of classification of drugs and natural origin.

3. Adulteration and drug evaluation; significance of pharmacopoeial standards.

4. Brief outline of occurrence, distribution, outline of isolation, identification tests, therapeutic effects and pharmaceutical application of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.

5. Occurrence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficacy of following categories of drugs.

- **Laxatives -** Aloes, Rhubarb, Castor oil, Ispaghula, Senna
- **Cardiotonics-** Digitalis, Arjuna.
- **Carminatives & G.I. regulators-** Umbelliferous fruits, Corlander, Fennel, Ajowan, Cardamom, Ginger, Blackpepper, Asafoetida, Nutmeg, Cinnamon, Clove.
- **Astringents-** Catecheu
- **Drugs acting on nervous system-** Hyoscyamus, Belladonna, Aconite, Ashwagand ha, Ephedra, Opium, Cannabis, Nux vominca
- **Antihypertensive-**Rauwolfia.
- **Antitussives**-Vasaka, Tolu balsam, Tulsi.
- **Antirheumatics-**Guggal, Colchicum.
- **Antitumour** Vinca.
- **Antileprotics-**Chaulmoogra oil.
- Antidiabetics Pterocarpus, Gymnema sylvestro
- **Diuretics-** Gokhru,

Punarnava.
Antidysenterics-Ipecacuanha.
Antiseptics and
disinfectants Benzoin, Myrrh, Neem, Curcuma.

- **Antimalarials- Cinchona.**
- **Oxytocics-Ergot,**
- **Vitamins- Shark liver oil and Amla.**
- **Enzymes**- Papaya, Diastase, Yeast.

Perfumes and flavoring agents- peppermint oil, Lemon oil, Orange oil, lemon grass oil, sandalwood.
Pharmaceutical aids-Honey, Arachis oil, starch, kaolin, pectin, olive oil. Lanolin, Beeswax, Acacia,

Tragacanth, sodium Alginate, Agar, Guargum, Gelatin..

Miscellaneous-Liquorice, Garlic, picrorhiza, Dirscorea, Linseed, shatavari, shankhpushpi, pyrethrum, Tobacco. Collection and preparation of crude drugs for the market as exemplified by Ergot, opium, Rauwalfia, Digitalis, senna. Study of source, preparation and identification of fibers used in sutures and surgical dressings cotton, silk, wool andregenerated fibers.

Gross anatomical studies al-senna, Datura, cinnamon, cinchona, fennal, clove, Ginger, Nuxvomica & ipecacuanha.

BIOCHEMISTRY AND CLINICAL PATHOLOGY

Introduction to biochemistry: Brief chemistry and role of proteins, polypeptides and amino acids, classification, Qualitative tests, Biological value, Deficiency diseases.

Carbohydrates: Brief chemistry and role of carbohyd rates, classification, qualitative tests, Diseases related to carbohydrate metabolism.

Lipids: Brief chemistry and role of lipids, classification and qualitative tests. Diseases related to lipids metabolism

Vitamins: Brief chemistry and role of vitamins and coenzymes. Role of minerals and water in life processes.

Enzymes: Brief concept of enzymatic action. Factors affecting it.

Therapeutics: Introduction to pathology of blood and urine. Lymphocytes and platelets, their role in health and disesase.

HUMAN ANATOMY AND PHYSIOLOGY

Definition of various terms used in Anatomy. Structure of cell, function of its components with special reference

to mitochondria and microsomes. Elementary tissues: Elementary tissues of the body, le epithelial tissue, muscular tissue, connective tissue and nervous tissue.

Skeletal System: Structure and function of Skelton. Classification of joints and their function. Joint disorders.

Cardiovascular System: Composition of blood, functions of blood elements. Blood group and coagulation of blood. Brief information regarding disorders of blood. Name and functions of lymph glands. 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. Brief information about cardiovascular disorders.

Respiratory system: Various parts of respiratory system and their functions, physiology of respiration.

Urinary System: Various parts of urinary system and their functions, structure and functions of kidney. Physiology of urine formation. Patho-physiology of renal diseases and edema.

Muscular System: Structure of skeletal muscle, physiology of muscle contraction. Names, positions, attachments and functions of various skeletal muscles. Physiology of neuromuscular junction.

Central Nervous System: Various parts of central nervous system, brain and its parts, functions and reflex action. Anatomy and physiology of automatic nervous system.

Sensory Organs: Elementary knowledge of structure and functions of the organs of taste, smell, ear, eye and skin. Physiology of pain.

Digestive System: names of various parts of digestive system and their functions. Structure and functions of liver, physiology of digestion and absorption.

Endocrine System: Endocrine glands and Hormones. Location of glands, their hormones and functions. Pituitary, thyroid, Adrenal and pancreas.

Reproductive system: Physiology and Anatomy of Reproductive system.

HEALTH EDUCATION AND COMMUNITY PHARMACY

Concept of health: Definition of physical health, mental health, social health, spiritual health determinants of health, indicatory of health, concept of disease, natural history of diseases, the disease agents, concept of prevention of diseases.

Nutrition and health: Classification of foods, requirements, diseases induced due to deficiency of proteins, vitamins and minerals-treatment and prevention.

Demography and family planning: Demography cycle, fertility, family planning, contraceptive methods, behavioral methods, natural family planning methods, chemical methods, mechanical methods, hormonal contraceptives, population problem of India.

First aid: Emergency treatment in shock, snake-bite, burns, poisoning, heart disease, fractures and resuscitation methods, Elements of minor surgery and dressings.

Environment and health: Source of water supply, water pollution, purification of water, health and air, noise, light-solid waste disposal and control-medical entomology, arthropod borne diseases and their control. Rodents, animals and diseases.

Fundamental principles of microbiology: Classification of microbes, isolation, staining techniques of organisms of common diseases.

Communicable diseases: Causative agents, mode of transmission and prevention. Respiratory infections-chicken pox, measles, influenza, diphtheria, whooping cough and tuberculosis.

Intestinal infection-poliomyelitis, Hepatitis, cholera, Typhoid, food poisoning, Hookworm infection.

Arthropod borne infections-plague, Malaria, filariases.

Surface infection-Rabies, Tranchoma, Tetanus, Leprosy. Sexually transmitted diseases-syphilis, Gonorrhoea, AIDS.

Non-communicable diseases: causative agents, prevention, care and control.

Epidemiology: Its scope, methods, uses, dynamics of disease transmission. Immunity and Immunization. Immunological products and their dose schedule. Principles of disease control and prevention, hospital acquired infection, prevention and control. Disinfection, types ai disinfection procedures, for-faces, urine, sputum, room linen, dead-bodies, instruments

PHARMACEUTICS (Dispensing Pharmacy)

Prescriptions-Reading and understanding of prescriptions; Latin terms commonly used (Detailed study is not necessary). Modern methods of prescribing, adoption of metric system. Calculations involved indispensing Incompatibilities in prescriptions- study of various types of incompatibilities-physical, chemical and therapeutic.

Posology Dose and dosage of drugs, factors influencing dose, calculations of doses on the basis of age, sex, surface area and veterinary doses.

Dispensed Medications: (Note: A detailed study of the following dispensed medication is necessary. Methods of preparation with theoretical and practical aspects, use of appropriate containers and closures. Special labeling requirements and storage conditions should be highlighted).

Powders-Type of powders-Advantages and disadvantages of powders, Granules, cachets and tablet triturates. Preparation of different types of powders encountered in prescriptions. Weighing methods, possible errors in weighing, minimum weighable amounts and weighing of a material below the minimum weighable amount, geometric dilution and proper usage and care of dispensing balance.

Liquid oral Dosage forms:

Monophasic-Theoretical aspects including commonly used vehicles, essential adjuvant like stabilizers, colorants and flavors, with examples.

Review of the following monophasic liquids with details of formulation and practical methods. Liquids for internal administration Liquids for external administration or used on mucous membranes Mixtures and concentrates, Gargles, Syrups, Mouth wastes, Throat-paints, Elixirs, Doucyes, Ear Drops, Nasal Drops, Sprays, Liniments & Lotions.

Biphasic Liquid Dosage Forms:

Suspensions (elementary study)-Suspensions containing diffusible solids and liquids and their preparations. Study of the adjuvant used like thickening agents, wetting agents, their necessity and quantity to be incorporated, suspensions of precipitate forming liquids like tinctures, their preparations and stability. Suspensions produced by chemical reaction. An introduction to flocculated /non-flocculated suspension system.

Emulsions-Types of emulsions, identification of emulsion system, formulation of emulsions, selection of emulsifying agent. Instabilities in emulsions, preservation of emulsions.

Semi-Solid Dosage Forms:

Ointments: Types of ointments, classification and selection of dermatological vehicles. Preparation and ability

of ointments by the following processes.

Titrationfusion Emulsification
Chemical Reaction

Pastes. Differences between ointments and pastes, Bases of pastes. Preparation of pastes and their preservation

Bellies: An introduction to the different types of jellies and their preparation. An elementary study of poultice. Suppositories and peassaries-Their relative merits and demerits, types of suppositories, suppository bases, classification, properties, preparation and packing of suppositories. Use of suppositories of drug absorption.

Dental and cosmetic preparations: Introduction to Dentifrices, facial cosmetics, Deodorants. Anti- per spirants, shampoo, Hair dressings and Hair removers.

Sterile Dosage forms:

Parenteral dosage forms-Definition, General requirements for parenteral dosage forms. Types of parenteral formulations, vehicles, adjuvant, processing and personnel, Facilities and quality control.
Preparation of Intravenous fluids and admixtures-Total parenteral nutrition, Dialysis fluids.

Sterility testing: particulate matter monitoring-F-aculty seal packaging.

Ophthalmic products: study of essential characteristics of different ophthalmic preparations

PHARMACEUTICAL CHEMISTRY

1. Introduction to the nomenclature of organic chemical systems with particular reference to hetero-cyclic system containing up to 3 rings.

2. The chemistry of following pharmaceutical organic compounds covering their nomenclature, chemical structure, uses

and the important physical and chemical properties (chemical structure of only those compounds marked with asterisk ("). The stabil'ev and storage conditions and the different type of pharmaceutical formulations of these drugs and their popular brand names.

Antiseptics and Disinfectants-Proflavine", Benzalkonium chloride, Cetrimide, Phenal, chloroxylenol, Formaldehyde solution, Hexachlophene, Nitrofurantoin.

Sulphonamides-Sulphadiazine, Sulphaguanidine, Phthalylsulphathaizole, Succinylsulphathiazole, Sulphadimethoxine, Sulphamethoxypyridazine, Co-trimoxazole, sulfacetamide"

Antileprotic Drugs-Clofazimine, Thiambutosine, Dapsone", solapsone,

Anti-tubercular Drugs - Isoniazid, PAS, Streptomycin, Rifampicin, Ethambutol", Thiacetazone, Ethionamide, cycloserine, pyrazinamide".

Antimoebic and Anthelmintic Drugs Emetine, Metronidazole, Halogenated hydroxyquinolines, Diloxanide furoate, Paromomycin, Piperazine, Mebendazole, D.E.C."

Antibiotics- Benzyl penicillin, Phenoxy methyl penicillin, Benzathine penicillin, Ampicillin, Cloxacillin, Carbencicillin, Gentamicin, Neomycin, Erythromycin, Tetracycline, Cephalexin, Cephaloridine, Cephalothin, Griseofulvin, Chloramphenicol, Anti-Protozoal, Anti-Helminth.

Antifungal agents- Udecylenic acid, Tolnaftate, Nystatin, Amphotericin, Hamycin.

Antimalarial Drugs-Chloroquine, Amodiaquine, Primaquine, Proguanil, Pyrimethamine", Quinine, Trimethoprim

Tranquilizers-Chlorpromazine", Prochlorperazine, Trifluoperazine, Thiothixene, Haloperiodol", Triperiodol, Oxypertine, Chlordizepoxide, Diazepam, Lorazepam, Meprobamate.

Hypnotics-Phenobarbitone", Butobarbitone, Cylobarbitone, Nitrazepam, Glutethimide", Methyprylon, Paraldehyde, Triclofosodium.

General Anaesthetics-Halothane", Cyclopropane", Diethyl ether", Methohexital sodium, Thiopecal sodium, Trichloroethylene.

Antidepressant Drugs- Amitriptyline, Nortryptyline, Imperamine", Phepelzine, Tranylcypromine.

Analeptics- Theophylline, Caffeine, Coramine ', Dextro-amphetamine. Adrenergic drugs Adrenaline", Noradrenaline, Isoprenaline", Phenylephrine, Salbutamol, Terbutaline, Ephedrne*, Pseudoephedrine.

Autonomic Nervous System (Drugs acting on Autonomic Nervous System)

Adrenergenic Drigs & Biochems

Diuretic Drugs- Furosemide", Chlorothiazide, Hydrochlorothiazidc", Benzthiazide, Urea, Mannitol, Ethacrynic Acid.

Cardiovascular Drugs- Ethylnitrite', Glyceryl trinitrate, Alpha methyldopa, Guanethidine, Clofibrate, Quinidine.

Hypoglycemie Agents- Insulin, Chlorpropamide", Tolbutamide, Glibenclamide, Phenformin, Metformin.
Coagulants and Anti coagulants- Heparin, Thrombin, Menadio ne", Bisphydroxycouma rin, Warfarin sodium.

Local Anaesthetics- Lignocaine, Procaine", Benzocaine.
Histamine and anti-Histaminic Agents Histamine, Diphenhydramine", Promethazine, Cyproheptadine, Mepyramine",
Pheniramine, Chlorpheniramine*

Analgesics and Anti-pyretics-Morphine, Pethidine, Codeine, Mathadone, Aspirin, Paracetamol, Analgin, Dextropropoxphene, Pentazocine.

Non-steriodal anti-inflammatory agents- Indomethacin", Phenylbutazone", Oxyphenbutazone, Ibuprofen,

Thyroxine and Antithyroids- Thyroxine", Methimazole, Methyl thiouracil, Propylthiouracil.

Diagnostic Agents-Lopanoic Acid, Propyliodone, Sulfobromopthalein-sodium, Indigotindisulfonate, indigo Carmine, Evans blue, Congo Red, Fluorescein sodium.

Anticonvulsants, cardiac glycosides, Antiarrhythmic, Antihypertensives & Vitamins.

Steroidal Drugs Betamethasone, Cortisone, Hydrocortisone, Prednisolone, Progesterone, Testosterone, Oestradiol, Nandrolone.

Anti-Neoplastic Drugs- Actinomycin, Azathioprie, Busulphan, Chloramubucil, Cisplatin, Cyclophosphamide, Daunorubicin Hydrochoride, Fluorouracil, Mercaptopurine, Methotrexate, Mytomycin.

PHARMACOLOGY & TOXICOLOGY

Introduction to Pharmacology, Scope of Pharmacology.

Routes of administration of drugs, their advantages and disadvantages. Various processes of absorption of drugs and the factors affecting them. Metabolism, distribution and excretion of drugs.

General mechanism of drugs action and their factors which modify drugs action. Pharmacological classification of drugs.

The discussion of drugs should emphasize the following aspects:

Drugs acting on the central Nervous system.

General anaesthetics-adjunction to anaesthesia, intravenous anaesthetics. Analgesic antipyretics and non-steroidal.

Anti-inflammatory drugs- Narcotic analgesics. Antirheumatic and anti-gout remedies. Sedatives and Hypnotics, psychopharmacological agents, anticonvulsants, analeptics. Centrally acting muscle relaxants and anti-parkinsonism agents. Local anesthetics.

Drugs acting on autonomic nervous system.

Neurone blockers and ganglion blockers. Neuromuscular blockers, used in myasthenia gravis. Drugs acting on eye. Mydriatics, drugs used in glaucoma.

Drugs acting on respiratory system, Respiratory stimulants, Bronchodilators, Nasal decongestants, Expectorants and Antitussive agents.

Autocoids: physiological role of histamine and serotonin, Histamine and Antihistamines, prostaglandins.

Cardio vascular drugs

Cardiotonics, Antiarrhyth mic agents, Anti-anginal agents, Antihypertensive agents, peripheral Vasodilators and drugs used in atherosclerosis.

Drugs acting on the blood and blood forming organs. Haematinics, coagulants and anticoagulants, Haemostatic, Blood substitutes and plasma expanders.

Drugs affecting renal function Diuretics and anti-diuretics.

Hormones and hormone antagonists Hypoglycemic agents, Anti--thyroid drugs, sex hormones and oral contraceptives, corticosteroids.

Drugs acting on digestive system carminatives, digest ants, Bitters, Antacids and drugs used in peptic ulcer, purgativesand laxatives, Anti-diarrohoeals, Emetics, Anti-emetics, Antispasmodics.

Prescription (Parts), Parts of Prescription.

PHARMACEUTICAL JURISPRUDENCE

Origin and nature of pharmaceutical legislation in India, its scope and objectives. Evolution of the "Concept of pharmacy" as an integral part of the Health care system.

Principles and significance of professional Ethics. Critical study of the code of pharmaceutical Ethics drafted by pharmacy council of India.

Pharmacy Act, 1948-The General study of the pharmacy Act with special reference to Education Regulations, Working of state and central councils, constitution of these councils and functions, Registration procedures under the Act.

The Drugs and Cosmetics Act, 1940-General study of the Drugs and cosmetics Act and the Rules there under. Definitions and salient features related to retail and whole sale distribution of drugs. The powers of inspectors, the sampling procedures and the procedure and formalities in obtaining licenses under the rule. Facilities to be provided for running a pharmacy effectively. General study of the schedules with special reference to schedules C, C1,F,G,J,H,P and X and salient features of labeling and storage conditions of drugs. The Drugs and Magic Remedies (objectionable Advenisement) Act, 1954 General study of the Act, objectives, special reference to be laid on Advertisements, magic remedies and objections 1 and permitted advertisements-diseases which cannot be claimed to be cured.

Narcotic Drugs and psychotropic substances Act, 1985-A brief study of the act with special reference to its objectives, offences and punishment.

Medicinal and Toilet preparations (excise Duties) Act, 1955 (as amended to date). Medical Termination of Pregnancy Act, 1971.

DRUG STORE AND BUSINESS MANAGEMENT

Introduction-Trade, Industry and commerce, Functions and subdivision of commerce, Introduction to Elements for Economics and Management. Forms of Business Organizations. Channels of Distribution.

Drug House Management-selection of site, space Lay-out and legal requirements. Importance and objectives of purchasing, selection of suppliers, credit information, tenders, contracts and price determination and legal requirements thereto. Codification, handling of drug stores and other hospital supplies. Inventory Control objects and importance, modern techniques like ABC,VED analysis, the lead time, inventory carrying cost, safety stock, minimum and maxim um stock levels, economic order quantity, scrap and surplus disposal.

Sales promotion, Market Research, Salesmanship, qualities of a salesman, Advertising and Window Display.

Recruitment, training, evaluation and compensation of the pharmacist.

Banking and Finance-Service and functions of bank, Finance planning and sources of finance.

HOSPITAL AND CLINICAL PHARMACY

Hospital-Definition, Function, classifications based on various criteria, organization, Management and health delivery system in India.

Hospital Pharmacy: Definition Functions and objectives of Hospital pharmaceutical services. Location, Layout, Flow chart of materials and men. Personnel and facilities requirements including equipments based on individual and basic needs. Requirements and abilities required for Hospital pharmacists.

Drug Distribution system in Hospitals. Out-patient service, in-patient services-types of services detailed discussion of unit Dose system, Floor ward stock system, satellite pharmacy services, central sterile services, Bed side pharmacy.

Manufacturing: Economical considerations, estimation of demand.

Sterile manufacture-Large and small volume parenterals, facilities, requirements, layout production planning, man- power requirements.

Non-sterile manufacture-Liquid orals, externals, Bulk concentrates. Procurement of stores and testing of raw materials. Nomenclature and uses of surgical instruments and Hospital Equipments and health accessories.

Hospital Formulary system and their organization, functioning, composition.

Drug Information service and Drug Information Bulletin.
Surgical dressing like cotton, gauze, bandages and adhesive tapes including their pharmacopoeial tests for quality. Other hospital supply eg. I.V.sets, B.G. sets, Ryals tubes, Catheters, Syringes etc. Application of computers in maintenance of records, inventory control, medication monitoring, drug information and data storage and retrieval in hospital retail pharmacy establishment.

Clinical Pharmacy:

Introduction to Clinical pharmacy practice- Definition, scope.
Modern dispensing aspects- Pharmacists and patient counseling and advice for the use of common drugs, medication history,

Common dailv terminology used in the practice of Medicine.
Disease, manifestation and patho-physiology including salient symptoms to understand the disease like Tuberculosis, Hepatitis, Rheumatoid Arthritis, Cardio-vascular diseases, Epilepsy, Diabetes, Peptic Ulcer, Hypertension.

Physiological parameters with their significance.
Drug interactions: Definition and introduction, IV Mechanism of Drug Interaction. Drug-drug interaction with reference to analgesics, diuretics, cardiovascular drugs, Gastro-intestinal agents. Vitamins and Hypoglycemic agents. Drug-food interaction.

Adverse Drug Reaction: Definition and significance. Drug-induced diseases and Teratogenicity.

Drugs in Clinical Toxicity- Introduction, general treatment of poisoning, systemic antidotes, Treatment of insecticide poisoning, heavy metal poison, Narcotic drugs, Barbiturate, Organophosphorus poisons.
Drug **dependences,** drug abuse, addictive drugs and their treatment, complications.
Bio-availability of drugs, including factors affecting it.

Junior Physiotherapist

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

(Syllabus is only Indicative. The questions can assess any aspect of knowledge, aptitude, attitude and practical skills, which is expected from a trained person to work efficiently at the advertised post)

Core Subject

1. Human Anatomy: Head and Neck / Chest /Abdomen / Upper and Lower Limbs / Genito Urinary System Gastrointestinal System / Endocrine system
2. Applied anatomy related to different systems
3. Musculoskeletal system – Connective tissue & its modification, tendons, membranes, special connective tissue. Bone structure, blood supply, growth, ossification, and classification.
4. Muscle classification, structure and functional aspect. Joints – classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy.
5. Human Physiology related to CNS / Respiratory System. Cardiovascular System / Neuromuscular function
6. Physiology of exercise
7. Physiology of Acclimatization
8. Fundamentals of Occupational Therapy
9. Rehabilitation
10. Occupational performance: Model Generalized & specific principles of therapeutic exercises
11. Therapeutic modalities
12. Principles & methods of testing range of motion & muscle strength. Testing methods of sensation, perception
13. Coordination and muscle tone: relation to physiotherapy
14. Human development and its Activities of daily living Occupational therapy as Diagnostic & prognostic procedure.
15. Steps involved in preparing the client for return to work / Prevocational evaluation/ Evaluation of work capacity
16. Evaluation of physical capacity/ Evaluation of functional capacity

17. Different types of tools & equipment's & their uses in Occupational Therapy
18. Definition & classification of splints with their brief description, general principles of splinting and materials used.

DISABILITY PREVENTION AND REHABILITATION

1. Introduction
2. Definition concerned in the phases of disability process, explanation of its aims & principles, Scope of rehabilitation, (Impairment, Disability, Handicap)
3. Definition concerned with the causes of Impairment Functional limitation and Disability
4. Disability Prevention. Limitation & Rehabilitation.
5. Present Rehabilitation Services
6. Legislations for rehabilitation services for the Disabled. P.W.D.Act / Compensations and benefits available for disabled
7. Rehabilitation Team & its members, their role.
8. Contribution of Social Worker towards rehabilitation
9. Vocational evaluation & Goals for disabled, role of Vocational Counsellor.
10. Principles of Communication & its problems: -
    - Speech Production
    - Communication disorders secondary to Brain Damage.
    - Aphasia & its treatment.
    - Evaluating Language.
    - Dysarthria & its treatment
    - Non-Aphasic language disorders
11. Architectural barriers possible modifications in relation to different disabled conditions - namely Hemiplegia, Paraplegia, Amputees, Cerebral Palsy etc.
12. Community Health:

Introduction to community Health, Definition of Community and Health, Health Determinants

- ➤ Community and Rehabilitation - Definition, Concepts and Team, Community Health in relation to rural and urban health setup
- ➤ Community based rehabilitation Vs Institutional based rehabilitation - Merits and demerits
- ➤ Community Resources in rural and urban set up

Librarian Gr - 2

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

(Syllabus is only Indicative. The questions can assess any aspect of knowledge, aptitude, attitude and practical skills, which is expected from a trained person to work efficiently at the advertised post)

Core Subject

Library Methods and Techniques Library and Society: Laws of Library Science; Types of Libraries; Library Associations, Systems and Programmers; Library Movement and Library Legislation in India; Organizations and Institutions involved in the development of Library and Information Services-UNESCO, IFLA, FID, INIS, NISSAT, etc.;

Library Management: Collection development - Types of Documents and Selection Principles, Acquisition Procedure, Acquisition of Journals and Periodicals, Preparation of Documents for use; Library Personnel and Library Committee, Library Rules and Regulations; Library Finance and Budget; Principles of Library Management, Library Organization and Structure; Use and Maintenance of the Library - Circulation, Maintenance, Shelving, Stock Verification, Binding and Preservation, Weeding out, etc.; Library Classification Theory and Practice: Canons and Principles, Library Classification Schemes - DDC, CC, UDC;

Library Cataloguing Theory and Practice: Canons and Principles; Library Cataloguing Codes - CCC and AACR; Reference and Information Sources: Bibliography and Reference Sources - Types of Bibliography; Reference Sources- Dictionaries, Encyclopedias, Ready Reference Sources, etc.; Sources of Information - Primary, Secondary, Tertiary, Documentary, Non- Documentary; E-Documents, EBooks, E-Journals, etc.; Information Services: Concept and need for Information; Types of Documents; Nature and organization of Information Services, Abstracting and Indexing Services; Computer based Information Services - CAS, SDI;

Information Technology: Basics Introduction to Computers; Use of computers in Library housekeeping, Library Automation; Software and software packages; Networks - DELNET, NICNET, etc.; National and International Information Systems - NISSAT, NASSDOC, INSDOC, DESIDOC, etc.

Technical Officer (Bio-med)

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

(Syllabus is only Indicative. The questions can assess any aspect of knowledge, aptitude, attitude and practical skills, which is expected from a trained person to work efficiently at the advertised post)

Core Subject

- Subject knowledge of Biomedical Engineering:

- **Engineering Mathematics:** Linear Algebra: Matrix algebra, systems of linear equations, Eigenvalues and Eigenvectors. Calculus: Mean value theorems, theorems of integral calculus, partial derivatives, maxima and minima, multiple integrals, Fourier series, vector identities, line, surface and volume integrals, Stokes, Gauss and Green's theorems. Differential equations: First order linear and nonlinear differential equations, higher order linear differential equations with constant coefficients, method of separation of variables, Cauchy's and Euler's equations, initial and boundary value problems, solution of partial differential equations. Analysis of complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent's series, residue theorem. Probability and Statistics: Sampling theorems, conditional probability, mean, median, mode and standard deviation, random variables, discrete and continuous distributions: normal, Poisson and binomial distributions. Tests of Significance, statistical power analysis, and sample size estimation. Linear Regression and correlation analysis; Numerical Methods: Matrix inversion, numerical solutions of nonlinear algebraic equations, iterative methods for solving differential equations, numerical integration.

- **Electrical Circuits:** Voltage and current sources independent, dependent, ideal and practical; v-i relationships of resistor, inductor and capacitor, transient analysis of RLC circuits with de excitation; Kirchhoff's laws, superposition, Thevenin, Norton, maximum power transfer and reciprocity theorems, Peak, average and rms values of ac quantities; apparent, active and reactive powers; phasor analysis, impedance and admittance; series and parallel resonance, realization of basic filters with R. L and C elements, Bode plot.

- **Signals and Systems:** Continuous and Discrete Signal and Systems - Periodic, aperiodic and impulse signals; Sampling theorem; Laplace and Fourier transforms; impulse response of systems; transfer function, frequency response of first and second order linear time invariant systems, convolution, correlation. Discrete time systems impulse response, frequency response, DFT, Z-transform; basics of IIR and FIR filters.

- **Analog and Digital Electronics:** Basic characteristics and applications of diode, BJT and MOSFET; Characteristics and applications of operational amplifiers - difference amplifier, adder, subtractor, integrator, differentiator, instrumentation amplifier, buffer, filters and waveform generators. Number systems, Boolean algebra; combinational logic circuits arithmetic circuits, comparators, Schmitt trigger, encoder/decoder, MUX/DEMUX, multi-vibrators; Sequential circuits - latches and flip flops, state diagrams, shift registers and counters; Principles of ADC and DAC; Microprocessor-architecture, interfacing memory and input-output devices.
- **Measurements and Control Systems:** SI units, systematic and random errors in measurement, expression of uncertainty accuracy and precision index, propagation of errors, PMMC, MI and dynamo meter type instruments; de potentiometer, bridges for measurement of R, L and C, Q-meter. Basics of control system-transfer function.
- **Sensors and Bioinstrumentation:** Sensors-resistive, capacitive, inductive, piezoelectric, Hall effect, electro chemical, optical; Sensor signal conditioning circuits; application of LASER in sensing and therapy. Origin of bio-potentials and their measurement techniques- ECG, EEG, EMG, ERG, EOG, GSR, PCG, Principles of measuring blood pressure, body temperature, volume and flow in arteries, veins and tissues, respiratory measurements and cardiac output measurement. Operating principle of medical equipment -sphygmomanometer, ventilator, cardiac pacemaker, defibrillator, pulse oximeter, hemodialyzer, Electrical Isolation (optical and electrical) and Safety of Biomedical Instruments.
- **Human Anatomy and Physiology:** Basics of cell, types of tissues and organ systems; Homeostasis; Basics of organ systems musculoskeletal, respiratory, circulatory, excretory, endocrine, nervous, gastro-intestinal and reproductive.
- **Medical Imaging Systems:** Basic physics, Instrumentation and image formation techniques in medical imaging modalities such as X-Ray, Computed Tomography, Single Photon Emission Computed Tomography, Positron Emission Tomography, Magnetic Resonance Imaging, Ultrasound.
- **Biomechanics:** Kinematics of muscles and joints - free-body diagrams and equilibrium, forces and stresses in joints, biomechanical analysis of joints, Gait analysis; Hard Tissues - Definition of Stress and Strain, Deformation Mechanics, structure and mechanical properties of bone cortical and cancellous bones; Soft Tissues Structure, functions, material properties, viscoelastic properties, Maxwell & Voight models; Bio-fluid mechanics - Flow properties of blood in the intact human cardiovascular system.
- **Biomaterials:** Basic properties of biomaterials- Metallic, Ceramic, Polymeric and Composite; Fundamental characteristics of implants biocompatibility, bioactivity, biodegradability; Basics of drug delivery; Basics of tissue engineering. Biomaterial characterization techniques - Rheology, Atomic Force Microscopy, Electron Microscopy. Transmission Electron Microscopy Fourier Transform Infrared Spectroscopy. Entrepreneurship Development. History of Technology and Science. Intellectual Property

Rights. Industrial Sociology. Organizational and Industrial Psychology. Ethics, Philosophy, and Values. Energy Management. Industrial Sociology.

- Basic Knowledge regarding regulatory process of Medical Equipment.
- **Patient Monitoring & Recording system:** Bedside multi para monitors, ECG machine, EMG machine, EEF machine, EOG machine.
- **Life saving equipment's :** Ventilators, Defibrillator, transport monitors, BIPAP, C- PAP, Infusion pump (volume & syringe)
- **Power conditioning equipment's :** Online UPS, Servo stabilizers, battery power bank, Modular UPS.