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/ER-06/1-9/2024-25)

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**

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

Core Subject

1. Nature and development of social work
2. Sociological concepts and contemporary concerns, Urban community development, Human rights and social work practice, social policy
3. Human behavior and social environment, state, political economy and governance, social work with communities, social work with individuals, social work with group research in social work: quantitative approaches
4. Social action and social movements, social work with the elderly, environment and social work, social work with families and children, occupational social work
5. Research in social work, qualitative approaches
6. Administration of welfare and development services, organizational behavior and employee development, social defense and correctional services, rural community development
7. Social justice and empowerment, social development, management of development organizations Social work with persons with disabilities, aspects of applied social work in hospitals etc. Human rights and social work practice Social work practice in mental health settings
8. Social work and disaster management, conflict mitigation and peace building, gender and development
9. Counselling theory and practice
10. HIV/AIDS and social work practice, health care social work practice, General principles of Physiology

Receptionist

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

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

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

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

Core Subject

A. **Basics:**

1. Introduction of different dosage forms.
2. Metrology-System of weights and measures.
3. Packaging of pharmaceuticals-Desirable features of a container and types of containers.
4. Size separation
5. Mixing and Homogenization
6. Clarification and Filtration
7. Extraction and Galenicals
8. Heat process
9. Distillation
10. Introduction to drying process
11. Sterilization
12. Aseptic techniques
13. Processing of Tablets
14. Processing of Capsules
15. Study of immunological products like sera, vaccines, toxoids & their preparations.

B. 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 pharmacopoeia 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, lspaghula, Senna.
- Cardiotonics- Digitalis, Arjuna.
- Carminatives & G.I. regulators- Umbelliferous fruits, Coriander, Fennel, Ajowan, Cardamom, Ginger, Blackpepper, 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.
- Antitumour Vinca.
- Antileprotics- Chaulmoogra oil.
- Antidiabetics Pterocarpus, Gymnema sylvestro.
- Diuretics- Gokhru, Punarnava.
- Antidysenterics-Ipecacuanha.
- Antiseptics and disinfectants Benzoin, Myrrh, Neem, Curcuma.
- Antimalarials- Cinchona.
- Oxytocic- 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 and regenerated fibers. Gross anatomical studies aI-senna, Datura, cinnamon, cinchona, fennal, clove, Ginger, Nuxvomica & ipecacuanha.

C. Biochemistry and Clinical Pathology

1. Introduction to biochemistry. Brief chemistry and role of proteins, polypeptides and amino acids, classification, Qualitative tests, Biological value, Deficiency diseases.
2. Carbohydrates
3. Lipids
4. Vitamins
5. Therapeutics

D. Human Anatomy and Physiology

1. Definition of various terms used in Anatomy. Structure of cell, function of its components with special reference to mitochondria and microsomes.
2. Elementary tissues.
3. Skeletal System
4. Cardiovascular System
5. Respiratory system
6. Urinary System
7. Muscular System
8. Central Nervous System
9. Sensory Organs
10. Digestive System
11. Endocrine System
12. Reproductive system

E. Health Education and Community Pharmacy

1. Concept of Health
2. Nutrition and health
3. First aid
4. Environment and health;
5. Fundamental principles of microbiology
6. Communicable diseases
7. Intestinal infection
8. Arthropod borne infections
9. Surface infection-Rabies, Trachoma, Tetanus, Leprosy.
10. Sexually transmitted diseases
11. Non-communicable diseases
12. Epidemiology

F. Pharmaceutics (Dispensing Pharmacy)

1. Prescriptions
2. Posology
3. Dispensed Medications
4. Powders
5. Liquid oral Dosage forms:

a. Monophasic
b. Biphasic Liquid Dosage Forms

6. Semi-Solid Dosage Forms:

a. Ointments
b. Pastes.
c. Bellies
d. Dental and cosmetic preparations

7. Sterile Dosage forms:

a. Parenteral dosage forms

b. Ophthalmic products

G. 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 storage conditions and the different type of pharmaceutical formulations of these drugs and their popular brand names.
3. Antiseptics and Disinfectants
4. Sulphonamides
5. Antileprotic Drugs
6. Anti-tubercular Drugs
7. Antibiotics
8. Anti-Protozoal, Anti-Helminth.
9. Antifungal agents
10. Antimalarial Drugs
11. Tranquilizers-
12. Hypnotics-
13. Antidepressant Drugs
14. Analeptics
15. Autonomic Nervous System
16. Adrenergic Drugs
17. Diuretic Drugs
18. Cardiovascular Drugs
19. Hypoglycemic Agents
20. Local Anesthetics

21. Analgesics and Anti-pyretics
22. Non-steroidal anti-inflammatory agents
23. Thyroxine and Antithyroids
24. Diagnostic Agents
25. Anticonvulsants, cardiac glycosides, Antiarrhythmic, Antihypertensive & Vitamins.
26. Steroidal Drugs
27. Anti-Neoplastic Drugs

H. Pharmacology & Toxicology

1. Introduction to Pharmacology, Scope of Pharmacology
2. Routes of administration of drugs
3. General anesthetics
4. Anti-inflammatory drugs
5. Sedatives and Hypnotics, psychopharmacological agents, anticonvulsants, analeptics. Centrally acting muscle relaxants and anti-parkinsonism agents. Local anesthetics.
6. Drugs acting on autonomic nervous system. Neuron blockers and ganglion blockers. Neuromuscular blockers, used in myasthenia gravis.
7. Drugs acting on eye
8. Drugs acting on respiratory system
9. Autacoids
10. Cardio vascular drugs Cardiotonics, Antiarrhythmic 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, Homeostatic, Blood substitutes and plasma expanders.
11. Drugs affecting renal function Diuretics and anti-diuretics.
12. Hormones and hormone antagonists
13. Hypoglycemic agents, Anti--thyroid drugs, sex hormones and oral

contraceptives, corticosteroids.

14. Drugs acting on digestive system carminatives, digest ants, Bitters, Antacids and drugs used in peptic ulcer, purgatives and laxatives, Anti-diarrheals, Emetics, Anti-emetics, Antispasmodics. Prescription (Parts), Parts of Prescription.

I. Pharmaceutical Jurisprudence

1. Origin and nature of pharmaceutical legislation in India
2. Principles and significance of professional Ethics.
3. Pharmacy Act, 1948-
4. The Drugs and Cosmetics Act, 1940
5. Narcotic Drugs and psychotropic substances Act, 1985
6. Medicinal and Toilet preparations (excise Duties) Act, 1955 (as amended to date).Medical Termination of Pregnancy Act, 1971.

J. Drug Store and Business Management

1. Introduction-Trade, Industry and commerce, Functions and subdivision of commerce, Introduction to Elements for Economics and Management. Forms of Business Organizations. Channels of Distribution.
2. Drug House Management
3. 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.
4. Sales promotion, Market Research, Salesmanship, qualities of a salesman, Advertising and Window Display.
5. Recruitment, training, evaluation and compensation of the pharmacist.
6. Banking and Finance-Service and functions of bank, Finance planning and sources of finance.

K. Hospital and Clinical Pharmacy

1. Hospital-
2. Hospital Pharmacy

3. Drug Distribution system in Hospitals
4. Manufacturing: Economical considerations, estimation of demand.
5. Sterile manufacture
6. Non-sterile manufacture
7. Hospital Formulary system and their organization, functioning, composition.
8. Drug Information service and Drug Information Bulletin.
9. 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.
10. Application of computers in maintenance of records, inventory control, medication monitoring, drug information and data storage and retrieval in hospital retail pharmacy establishment.
11. Clinical Pharmacy:

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

b. Common daily 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.

c. Physiological parameters with their significance.

d. Drug interactions

e. Adverse Drug Reaction

f. Drugs in Clinical Toxicity-

g. 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

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.

Librarian Gr - 2

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

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

Core Subject

Electrical Circuits

Voltage and current sources: independent, dependent, ideal and practical; v-i relationships of resistor, inductor, mutual inductor and capacitor; transient analysis of RLC circuits with dc excitation.

Kirchhoff's laws, mesh and nodal analysis, superposition, Thevenin, Norton, maximum power transfer and reciprocity theorems.

Signals and Systems

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

Analog and Digital Electronics Characteristics and applications of diode, Zener diode, BJT and MOSFET; small signal analysis of transistor circuits, feedback amplifiers. Characteristics of operational amplifiers; applications of opamps: difference amplifier, adder, subtractor, integrator, differentiator, instrumentation amplifier, buffer.

Combinational logic circuits, minimization of Boolean functions. IC families: TL and CMOS.

Arithmetic circuits, comparators, Schmitt trigger, multi-vibrators, sequential circuits, flipflops, shift registers, timers and counters; sample-and-hold circuit, multiplexer. Characteristics of ADC and DAC (resolution, quantization, significant bits, conversion/settling time);

Sensors and Bioinstrumentation

Resistive-, capacitive-, inductive-, piezoelectric-, Hall Effect sensors and associated signal conditioning circuits; Optical sources and detectors: LED, Photo-diode, p-i-n and avalanche photo diode (APD), light dependent resistor and their characteristics; basics of magnetic sensing; Interferometer: applications in metrology; basics of fiber optic sensing. Basics of LASERs, Origin, nature, and types of Biosignals, Principles of sensing physiological parameters, types of transducers and their characteristics, Electrodes for bioelectric signals, Bioelectric signals and their characteristics. Biopotential Amplifiers, Noise and artefacts and their management, Electrical Isolation (optical and electrical) and Safety of Biomedical Instruments. Generation, Acquisition, and signal conditioning and analysis of of biosignals: ECG,EMG, EEG, EOG, Blood ERG, PCG, GSR.

Principles of measuring blood pressure, Core temperature, volume & flow in arteries, veins and tissues – Lung volumes, respiration and cardiac rate. Medical Image Systems Physics and Instrumentation of medical images in X-Ray, Ultrasound, CT, MRI, PET, and their characteristics.

Deputy Chief Security Officer

Part- A: General Aptitude - 40 Questions

Part-B: Core Subject - 60 Questions

Core Subject

a) Role & Aim of Security Department
b) Organization of Security Setup
c) Hospital Security Administration duties
d) Disaster Management, both Natural and Manmade Disasters
e) Role of intelligence in security
f) Morale and Motivation of team Members
g) Qualities of a good Security Professional
h) Environmental Conservation
i) Coordination with other Civil Agencies for Security
j) Theft/Pilferage-Preventive steps
k) Security Arrangements for VIP visits
l) Duties & Responsibilities of Assistant Security officer
m) Surface firefighting arrangement
n) Utilization of Modern Gadgets in overall security Management
o) Security Reports & Returns
p) Importance of Physical Fitness in Uniformed Forces
q) Lodging of FIR with Local Police in given situation
r) International Relations

(NOTE: Examination will be conducted in ENGLISH language only)