

**Kalyan Singh Super Specialty Cancer Institute**

कल्याण सिंह अति विशिष्ट कैंसर संस्थान

C.G. City, Sultanpur Road, Lucknow-226002

सी.जी. सिटी, सुल्तानपुर रोड, लखनऊ-226002

(An Autonomous Institute of the Govt. of Uttar Pradesh)

(उत्तर प्रदेश सरकार का स्वायत्तशासी संस्थान)

Email: executiveregistrar.ksssci@gmail.com

**Advt. No KSSSCI/ER-6/1-9/2023-24**

**PART (A) – General Aptitude**

**For all posts of Advt. No KSSSCI/ER-6/1-9/2023-24**

(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)

**Indicative Syllabus: For General Aptitude**

**A] 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, nonverbal 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 centre codes/roll numbers, small & capital letters/numbers coding, decoding and classification, Embedded Figures, Critical thing, Emotional Intelligence, Social Intelligence, Other sub topics, if any.

**B] 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.

**C] 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, Ratio & Proportion, Square roots, Averages, Interest, Profit & Loss, Discount, Partnership, Elementary Surds, Graphs of Linear Equation, Triangle and its various kinds of centres, 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 Parallelepiped, Regular right pyramid with triangular or square base, Trigonometric ratio, Degree and radian

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Measures, Standard Identities, Complementary Angles, Heights and Distances, Histogram, Frequency, polygon, Bar diagram & pie chart.

**D] General English:** Candidates ability to understand correct English, his basic comprehension and writing ability would be tested, Questions in this computer 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.



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**Part – B (Core Subject)**

**Syllabus for the post of Assistant Accountant**

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1. Accounting – meaning, nature, functions and usefulness, types of accounting, accounting equation, generally accepted accounting principles, concepts and conventions.
2. Accounting process: journals and ledger leading to the preparation of trial balance and preparation of final accounts with adjustments.
3. Preparation of bank reconciliation statement.
4. Rectification of errors.
5. Accounting for depreciation – need, significance and methods of providing depreciation.
6. Receipts and payments account and income and expenditure account and balance sheet.
7. Single entry system – Preparation of accounts from incomplete records.
8. Cash and fund flow statements
9. Working knowledge of Accounting software
10. Basic Knowledge of GFR
11. Basic understanding of NPS/Gratuity
12. Taxation - Income tax, GST, BOCW
13. Preparation financial details for Certification of Statement of Expenditure and Utilization Certificate as per the requirement of funding agencies.
14. Prepare / assist in preparing monthly, quarterly and yearly budgets and perform variance analysis reports.

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15. Financial ratios
16. Complete knowledge of TDS
17. Negotiable Instruments: Meaning and types (Promissory Note, Bills of Exchange and Cheques).
18. Sources of Finance.
19. Working knowledge of financial modeling in Microsoft excel, financial formulas in excel.
20. Financial Statement Close process
21. Working knowledge of Ind AS.
22. Working knowledge of accounting for Accrued/deferred/prepaid income & expenses
  - a) Auditing: meaning, objectives, types of audit, planning and procedures, audit programme, working papers, test checking, routine checking.
  - b) Vouching: concepts, importance and procedures.
  - c) Internal Control: meaning, objectives, internal check and internal audit.
  - d) Valuation and verification of assets and liabilities.
  - e) Rights, Duties and Liabilities of Auditor.
  - f) Audit of Government Companies.
  - g) Audit Reports and Audit Certificates.
  - h) Basic knowledge of Standards on auditing (SA).



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### **Part – B (Core Subject)**

### **Syllabus for the post of OT Technician**

**Advt. No KSSSCI/ER-6/2/2023-24**

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#### **ANATOMY & PHYSIOLOGY**

1. Elementary Physics & Chemistry
2. Characteristics of Living Matter
3. Structure of Living Matter
4. Anatomy and Physiology related to cardiovascular system, Nervous system, respiratory system, circulatory system, digestive system, hepatobiliary system, endocrine glands and exocrine glands, urinary system, reproductive system, musculoskeletal system

#### **SURGICAL INSTRUMENTS AND PROCEDURES**

(Including Sterilization and Disinfection, Different Methods, Protection of Patients in Surgery.

Preparation of Patients)

Preoperative Consideration Psychological Support of the Surgical Patient

Protection of the Patient in Surgery

- Transfer Procedure Position
- Environmental Controls
- Electro Surgery
- Operative Records
- Counting Procedure
- Sterilization
- Emergencies & Disaster management

#### **Surgical Instruments**

- Instruments for General Surgery
- Operation of Face & Neck
- Operation of Nose, Throat and accessory Nasal Sinuses
- Ophthalmic Surgery
- Sinuses, Ear and Throat
- Operations on the Chest
- Operations on the Genito-Urinary Tract
- Gynaecological & Obstetric Operations
- Orthopedic Operations
- Neuro-Surgical Operations
- Operations on the Vascular System
- Radium Insertion

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### ➤ Traumatic Surgery

#### Surgical procedures

- Neck Surgery
- Breast Procedures
- Abdominal Extra intestinal Surgery
- Gastrointestinal Surgery
- Gynaecological and Obstetric Surgery
- Genito-Urinary Surgery

- Thoracic Procedures
- Cardiovascular Surgery
- Orthopedic Surgery
- Neurological Surgery
- Plastic Surgery
- Otorhinolaryngologic (ENT) Surgery
- Ophthalmic Surgery
- Pediatric Procedures

#### ANAESTHESIA

##### 1. General anaesthesia

##### 2. Regional anaesthesia

- Spinal
- Epidural
- Caudal
- Local
- Topical

##### 3. Methods for preparation of the patients for anaesthesia

##### 4. Pharmacology and clinical use of intravenous and inhalational anesthetic agents, opioids, NSAIDS, neuromuscular blocking agents, reversal agents, autonomic nervous system, local anesthesia agents.

##### 5. Emergency resuscitation, ALS and BLS protocols

##### 6. Emergency drugs

##### 7. Vasopressor and inotropic drugs

##### 8. Sterilisation & Maintenance of anesthesia equipment

##### 9. Difficult airway management, laryngoscopes, bronchoscopes.

##### 10. Instruments and tubes used in anesthesia practices

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**SURGICAL PROCEDURES AND MONITORING, OPERATION THEATRE ETHICS DISCIPLINE, SAFETY FOR OPERATING ROOM PERSONNEL, PREPARATION OF INSTRUMENTAL TRAYS**

- Surgical Procedures & Monitoring
- Safety for operation room personnel
- Preparation of Instrumental Trays eg: Gynaecological And Obstetric Trays, Genito-Urinary Tray, Cardiovascular trays, Orthopaedic tray. Neurologic Procedures Tray, Otorhinolaryngologic (ENT) Tray, Ophthalmic Trays, Paediatric Tray

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**Part – B (Core Subject)**

**Syllabus for the post of Pharmacist**

**Advt. No KSSSCI/ER-6/3/2023-24**

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**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 equipment's 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.



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**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 coating 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**- Aloe, Rhubarb, Castor oil, Ispaghula, Senna.

• **Cardiotonics**- Digitalis, Arjuna.

• **Carminatives & G.I. regulators**- Umbelliferous fruits, Coriander, Fennel, Ajowan, Cardamom, Ginger, Blackpepper, Asafoetida, Nutmeg, Cinnamon, Clove.

• **Astringents**- Catechu.

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

• **Antihypertensive**- Rauwolfia.

• **Antitussives**- Vasaka, Tolu balsam, Tulsi.

• **Antirheumatics**- Guggal, Colchicum.

• **Antitumour** Vinca.

• **Antileprotics**- Chaulmoogra oil.

• **Antidiabetics** Pterocarpus, Gymnema sylvestre.

• **Diuretics**- Gokhru, Punarnava.



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- 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, Guar gum, Gelatin.
- **Miscellaneous**- Liquorice, Garlic, picrorhiza, Dipscorea, 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 *al-senna*, Datura, cinnamon, cinchona, fennel, 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 carbohydrates, 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 disease.

### 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, i.e. 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.



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**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, indicator 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, Trachoma, 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.



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Disinfection, types of 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 in dispensing. 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 labelling 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 flavours, 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 washes, 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 stability of ointments by the following processes.

Titration fusion Chemical reaction Emulsification.

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**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 passerines- 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-acuity 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 stability 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, Phenol, chloroxylenol, Formaldehyde solution, Hexachlophene, Nitrofurantoin.

**Sulphonamides**-Sulphadiazine, Sulphaguanidine, Phthalylsulphathiazole, Succinylsulphathiazole, Sulphadimethoxine, Sulphamethoxypyridazine, Cotrimoxazole, 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, Carbenicillin, 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-**



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Chlorpromazine", Prochlorperazine, Trifluoperazine, Thiothixene, Haloperidol", Triperiodol, Oxypertine, Chlordizepoxide, Diazepam\*, Lorazepam, Meprobamate.

**Hypnotics**- Phenobarbitone", Butobarbitone, Cylobarbitone, Nitrazepam, Glutethimide\*, Methypylon, Paraldehyde, Triclofosodium.

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

**Antidepressant Drugs**- Amitriptyline, Nortriptyline, Imperamine", Phepeline, Tranylcypromine. **Analeptics**- Theophylline, Caffeine\*, Coramine", Dextro-amphetamine.

Adrenergic drugs Adrenaline", Noradrenaline, Isoprenaline", Phenylephrine, Salbutamol, Terbutaline, Ephedrine\*, Pseudoephedrine.

**Autonomic Nervous System** (Drugs acting on Autonomic Nervous System)

**Adrenergic Drugs & Biochems**

**Diuretic Drugs**- Furosemide", Chlorothiazide, Hydrochlorothiazide", Benzthiazide, Urea\*, Mannitol\*, Ethacrynic Acid. **Cardiovascular Drugs**- Ethylnitrite", Glyceryl trinitrate, Alpha methyl dopa, Guanethidine, Clofibrate, Quinidine. **Hypoglycemic Agents**- Insulin, Chlorpropamide", Tolbutamide, Glibenclamide, Phenformin\*, Metformin. Coagulants and Anti coagulants- Heparin, Thrombin, Menadiol ne\*, Bisphosphoryl coumarin, 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, Methadone, Aspirin\*, Paracetamol, Analgin, Dextropropoxyphene, Pentazocine.

**Non-steroidal anti-inflammatory agents**- Indomethacin", Phenylbutazone", Oxyphenbutazone, Ibuprofen. **Thyroxine and Antithyroids**- Thyroxine", Methimazole, Methyl thiouracil, Propylthiouracil. **Diagnostic Agents**- Lipoic Acid, Propyl iodine, Sulfobromophthalen-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, Azathioprine, Busulphan, Chlorambucil, Cisplatin, Cyclophosphamide, Daunorubicin Hydrochloride, Fluorouracil, Mercaptopurine, Methotrexate, Mitomycin.

## 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:

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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, 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, 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, purgatives and laxatives, Anti-diarhoeals, 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 Advertisment) 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.

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**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 maximum 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.



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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 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.

### 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.

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### **Part – B (Core Subject)**

#### **Syllabus for the post of Assistant Store Keeper**

**Advt. No KSSSCI/ER-6/4/2023-24**

(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)

#### **1. General Skill**

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

#### **2. Computer skills**

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

#### **3. 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

#### **4. 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



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**Part – B (Core Subject)**

**Syllabus for the post of JE Mechanical**

**(Advt. No KSSSCI/ER-6/5/2023-24)**

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**Mechanical Engineering:**

Theory of Machines and Machine Design

Concept of simple machine, Four bar linkage and link motion, Flywheels and fluctuation of energy, Power transmission by belts – V-belts and Flat belts, Clutches – Plate and Conical clutch, Gears – Type of gears, gear profile and gear ratio calculation, Governors – Principles and classification, Riveted joint, Cams, Bearings, Friction in collars and pivots.

**Engineering Mechanics and Strength of Materials:**

Equilibrium of Forces, Law of motion, Friction, Concepts of stress and strain, Elastic limit and elastic constants, Bending moments and shear force diagram, Stress in composite bars, Torsion of circular shafts, Buckling of columns – Euler's and Rankin's theories, Thin walled pressure vessels.

**Thermal Engineering:**

**Properties of Pure Substances:** p-v & P-T diagrams of pure substance like H<sub>2</sub>O, Introduction of steamtable with respect to steam generation process; definition of saturation, wet & superheated status. Definition of dryness fraction of steam, degree of superheat of steam. H-s chart of steam (Mollier's Chart).

**1<sup>st</sup> Law of Thermodynamics:** Definition of stored energy & internal energy, 1<sup>st</sup> Law of Thermodynamics of cyclic process, Non Flow Energy Equation, Flow Energy & Definition of Enthalpy, Conditions for Steady State Steady Flow; Steady State Steady Flow Energy Equation.

**2<sup>nd</sup> Law of Thermodynamics:** Definition of Sink, Source Reservoir of Heat, Heat Engine, Heat Pump & Refrigerator; Thermal Efficiency of Heat Engines & co-efficient of performance of Refrigerators, Kelvin – Planck & Clausius Statements of 2<sup>nd</sup> Law of Thermodynamics, Absolute or Thermodynamic Scale of temperature, Clausius Integral,

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Entropy, Entropy change calculation of ideal gas processes. Carnot Cycle & Carnot Efficiency, PMM-2; definition & its impossibility.

**Air standard Cycles for IC engines:** Otto cycle; plot on P-V, T-S Planes; Thermal Efficiency, Diesel Cycle; Plot on P-V, T-S planes; Thermal efficiency.

IC Engine Performance, IC Engine Combustion, IC Engine Cooling & Lubrication.

**Rankine cycle of steam:** Simple Rankine cycle plot on P-V, T-S, h-s planes, Rankine cycle efficiency with & without pump work.

Boilers; Classification; Specification; Fittings & Accessories: Fire Tube & Water Tube Boilers.

Air Compressors & their cycles; Refrigeration cycles; Principle of a Refrigeration Plant; Nozzles & Steam Turbines

### **Fluid Mechanics & Machinery**

**Properties & Classification of Fluid:** ideal & real fluids, Newton's law of viscosity, Newtonian and Non-Newtonian fluids, compressible and incompressible fluids.

**Fluid Statics:** Pressure at a point.

**Measurement of Fluid Pressure:** Manometers, U-tube, Inclined tube.

**Fluid Kinematics:** Stream line, laminar & turbulent flow, external & internal flow, continuity equation.

**Dynamics of ideal fluids:** Bernoulli's equation, Total head; Velocity head; Pressure head; Application of Bernoulli's equation.

**Measurement of Flow rate Basic Principles:** Venturimeter, Pilot tube

**Hydraulic Turbines:** Classifications, Principles.

**Centrifugal Pumps:** Classifications, Principles, Performance. Production Engineering

**Classification of Steels:** mild steel & alloy steel, Heat treatment of steel, Welding – Arc Welding, Gas Welding, Resistance Welding, Special Welding Techniques i.e. TIG, MIG, etc. (Brazing & Soldering), Welding Defects & Testing; NDT, Foundry & Casting – methods, defects, different casting processes, Forging, Extrusion, etc, Metal cutting principles, cutting tools, Basic Principles of machining with (i) Lathe (ii)



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Milling (iii) Drilling (iv) Shaping (v) Grinding, Machines, tools & manufacturing processes.



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**Part – B (Core Subject)**

**Syllabus for the post of JE (Electrical)**

**Advt. No KSSSCI/ER-6/6/2023-24**

(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)

**Electrical Engineering:**

- **Basic concepts:** Concepts of resistance, inductance, capacitance, and various factors affecting them. Concepts of current, voltage, power, energy and their units.
- **Circuit law:** Kirchhoffs law, Simple Circuit solution using network theorems.
- **Magnetic Circuit:** Concepts of flux, mmf, reluctance, Different kinds of magnetic materials, Magnetic calculations for conductors of different configuration e.g. straight, circular, solenoidal, etc. Electromagnetic induction, self and mutual induction.
- **AC Fundamentals:** Instantaneous, peak, R.M.S. and average values of alternating waves, Representation of sinusoidal wave form, simple series and parallel AC Circuits consisting of R.L. and C, Resonance, Tank Circuit. Poly Phase system–star and delta connection, 3 phase power, DC and sinusoidal response of R-Land R-C circuit.
- **Measurement and measuring instruments:** Measurement of power (1 phase and 3 phase, both active and reactive) and energy, 2 wattmeter method of 3 phase power measurement. Measurement of frequency and phase angle. Ammeter and voltmeter (both moving oil and moving iron type), extension of range wattmeter, Multimeters, Megger, Energy meter AC Bridges. Use of CRO, Signal Generator, CT, PT and their uses. Earth Fault detection.
- **Electrical Machines:** (a) D.C. Machine–Construction, Basic Principles of D.C. motors and generators, their characteristics, speed control and starting of D.C. Motors. Method of braking motor, Losses and efficiency of D.C. Machines. (b) 1 phase and 3 phase transformers–Construction, Principles of operation, equivalent circuit, voltage regulation, O.C. and S.C. Tests, Losses and efficiency. Effect of voltage, frequency and wave form on losses. Parallel operation of 1 phase /3 phase transformers. Auto transformers. (c) 3 phase induction motors, rotating magnetic field, principle of operation, equivalent circuit, torque-speed characteristics, starting and speed control of 3 phase induction motors. Methods of braking, effect of voltage and frequency variation on torque speed characteristics. Fractional Kilowatt Motors and Single Phase



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- **Induction Motors:** Characteristics and applications. Synchronous Machines- Generation of 3-phase e.m.f. armature reaction, voltage regulation, parallel operation of two alternators, synchronizing, control of active and reactive power. Starting and applications of synchronous motors. Generation, Transmission and Distribution-Different types of power stations, Load factor, diversity factor, demand factor, cost of generation, interconnection of power stations. Power factor improvement, various types of tariffs, types of faults, short circuit current for symmetrical faults. Switchgears-rating of circuit breakers, Principles of arc extinction by oil and air, H.R.C. Fuses, Protection against earth leakage / over current, etc. Buchholtz relay, Merz-Price system of protection of generators & transformers, protection of feeders and bus bars. Lightning arresters, various transmission and distribution system, comparison of conductor materials, efficiency of different system. Cable Different type of cables, cable rating and derating factor.
- **Estimation and costing:** Estimation of lighting scheme, electric installation of machines and relevant IE rules. Earthing practices and IE Rules.
- **Utilization of Electrical Energy:** Illumination, Electric heating, Electric welding, Electroplating, Electric drives and motors.
- **Basic Electronics:** Working of various electronic devices e.g. P N Junction diodes, Transistors (NPN and PNP type), BJT and JFET. Simple circuits using these devices.

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**Part – B (Core Subject)**

**Syllabus for the post of AC Technician**

**Advt. No KSSSCI/ER-6/7/2023-24**

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1. Safety Precautions, study the function and working of Air conditioning tools, Instruments & Equipment's.
2. Study the construction and working of V.C. Cycle of Window and Split A.C.
3. Study the current, voltage, resistance measuring.
4. Study the open circuit, short circuit and earth testing.
5. Study the compressor, condenser, capillary tube, drier, and evaporator used in the window and split A.C.
6. Study the different types of motors used in Air Conditioners.
7. Study the different types of relays, OLP, thermostat, fan, Capacitors, oscillating motors in window and split A.C.
8. Study the trouble shooting in Air Conditioners.
9. Care and maintenance of air conditioner.
10. Wiring Circuit of Air conditioner.
11. Installation method of Air conditioner



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सी.जी. सिटी, सुल्तानपुर रोड, लखनऊ-226002

(An Autonomous Institute of the Govt. of Uttar Pradesh)

(उत्तर प्रदेश सरकार का स्वायत्तशासी संस्थान)

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### **Part – B (Core Subject)**

#### **Syllabus for the post of Staff Nurse**

**Advt. No KSSSCI/ER-6/8/2023-24**

(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)

#### • **Basic Sciences**

1. Anatomical and Biochemical structures to explain the physiological functions of human body and factors. Which may disturb these and mechanism of such disturbances.
2. Various groups of micro-organisms of clinical importance.
3. Disinfection and Sterilization for the prevention of diseases in the Hospital and Community.
4. Collect and handle specimens of various diagnostic tests.
5. Enumerate weights and measures and demonstrate skill in calculation of dosage and preparation of solutions.
6. Read and Interpret prescriptions and care for drugs according to the regulations.
7. Describe various groups of Drugs acting on different systems of the body.
8. Recognize the toxic symptoms related to common drugs and poisons.

#### • **Nutrition & Dietetics**

1. Various Nutrients and their importance in the maintenance of health.
2. Plan diets suitable to socio economic status for different age groups and physiological conditions.
3. Nutritional deficiencies and their prevention and management.
4. Plan therapeutic diets for various disease conditions.

#### • **Psychology, Mental Health & Psychiatric Nursing**

1. Normal and deviations in behavior among various age groups and their cause.
2. Explain the principles of psychology and its application in health and diseases.
3. Interpret behavior of self and others.
4. Recognize deviations from normal behavior and provide guidance and

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counseling.

5. Dynamics of patient's behavior and its application in providing nursing care.
6. Communication and maintain interpersonal relations.
7. Therapies utilized in psychiatry and the various roles of nurses in psychiatric nursing.

- **Fundamental Nursing**

1. Describe Nursing as a profession, its scope, etiquettes & ethics.
2. First aid Treatments.
3. Congenital and Safe Environment to the patient.
4. Carry out basic nursing procedures for the care of the patients with an understanding of the scientific principles involved.
5. Make observations and records
6. Administer prescribed medications and carry out treatments.
7. Maintain records of patients and nursing care.

- **Community Health Nursing**

1. Personal, environmental, Social and cultural factors contributing to health of individual, family and community.
2. Methods of control of spread of diseases.
3. Needs for health education and evaluate the effect of the same to patients, families and community.
4. Prepare and use appropriate audio-visual aids for imparting health education.
5. Symptoms of social disorganization and social pathology.
6. Demonstrate skills in medico-social work.
7. Principles of health care to mothers and children and the services available for them in urban and rural communities.
8. Deviations from normal amongst mother and children and take necessary action in clinics, health centres and homes.
9. Educate the community about need and methods of Family Planning.
10. Demonstrate skill in community diagnosis and in delivery of community nursing services in accordance with the national health care system.

- **Medical & Surgical Nursing**



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1. Causes, pathophysiology, symptoms, treatment and prophylactic measures in common medical and surgical conditions affecting various systems of the body.
2. Provide patient centered nursing care in patients with common medical and surgical conditions affecting various systems of the body.
3. Prepare operation theatre for surgery and assist in operative procedure.
4. Identify common equipment used in operation theatre.
5. Explain the anesthesia used, with their effects and dangers, and care for an anesthetized patient until such time as he recovers from the effect of anesthesia.
6. Recognize and provide first aid in case of common emergencies using the resuscitation equipment including intubation.
7. Care of critically ill patients who required support for maintaining vital functions.
8. Provide first aid in case of disaster, emergency and accidents and demonstrate skill in transporting the casualties.
9. Organize casualty emergency services.
10. Explain Infectious diseases, their transmission and barrier nursing in hospital and community.

### • **Pediatric Nursing**

1. Describe Growth and development, nutritional and psychological needs of children at different age group.
2. Explain basic principles involved in pediatric nursing.
3. Provide nursing management to neonates and children with medical and surgical disorders.
4. Recognize emergencies in neonates and children and take appropriate first aid measures.
5. Manage normal newborn and low birth weight baby.
6. Describe various aspects of preventive pediatric nursing and be able to practice them while nursing care in a hospital or community.

### • **Obstetrical Nursing**

1. Anatomy & Physiology of pregnancy, child birth and puerperium.
2. Antenatal care to mothers.
3. Episiotomy and suture a first and second-degree tear.
4. Domiciliary services to mothers and children.

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5. Management of common obstetrical emergencies needing immediate treatment.
6. Family welfare advice.

- **Principles of Administration and Supervision, Education and Trends in Nursing**

1. Principles of administration and its application to health administration at different levels.
2. Organizational pattern for nursing components of hospital and public health service.
3. Effective human relations to improve efficiency of the staff.
4. Principles of supervision and develop skill in supervisory techniques.
5. Trends in Nursing and nursing education in India and Abroad.
6. Nursing as a profession and the rights, responsibilities and adjustment in professional life.
7. Methods of teaching applicable to nursing.



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**Part – B (Core Subject)**

**Syllabus for the post of Junior Assistant Record**

**Advt. No KSSSCI/ER-6/9/2023-24**

(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)

- Characteristics of computers, Computer organization including RAM, ROM, File system.
- Input Devices, Software understanding.
- Relationship between hardware and software.
- Operating system, MS Office, Information Technology.
- Society Indian IT act, Digital signature.
- Application of Information Technology in Government, E-office management.
- File Maintenance and Record Keeping.

