



अखिल भारतीय आयुर्विज्ञान संस्थान (एम्स) कल्याणी
All India Institute of Medical Sciences (AIIMS) Kalyani
(स्वास्थ्य एवं परिवार कल्याण मंत्रालय, भारत सरकार के तत्वावधान में एक सांविधिकनिकाय)
(A Statutory Body under the Aegis of Ministry of Health and Family Welfare, GOI)
राष्ट्रीय राजमार्ग - 34, बसन्तपुर, सागूना, कल्याणी, ज़िला - नदिया, पश्चिम बंगाल - 741245
NH - 34 Connector, Basantapur, Saguna, Kalyani, District Nadia, West Bengal - 741245

No. 2201/E-12014/5/23- (NON-FAC)

Date: 14.10.2023

NOTICE

SCHEME OF EXAMINATION AND INDICATIVE SYLLABUS FOR VARIOUS NON-FACULTY (GROUP-B & C) POSTS ADVERTISED BY AIIMS KALYANI

With reference to the advertisement vide no. 1855/E-12014/4/23- (NON-FAC) dated: 13.09.2023 uploaded on the official website of AIIMS Kalyani for filling up of various Group- 'B' and 'C' Non-faculty posts at AIIMS Kalyani, the indicative syllabus and scheme of examination for all the posts are annexed.

Important Terms and conditions:

- I. As per practice, the Online Computer Based Test (CBT) for the advertised posts will be conducted without pre-examination screening of the applications of the candidates with regard to their eligibility. Hence, the candidate will be allowed **PROVISIONALLY** to appear in the online (CBT) Recruitment Examination.
- II. However, the original documents of all selected candidates related to fulfilment of eligibility criteria, experience etc. will be verified by the Institute before final appointment.
- III. Success in Computer Based Test (CBT) followed by Skill Test/Computer Proficiency Test (if any) **confers no right of appointment** to candidates unless AIIMS Kalyani is satisfied after such verification as may be deemed necessary that the candidate is suitable in all respect for appointment to the post for.
- IV. Online application link for the posts as advertised vide no. 1855/E-12014/4/23- (NON-FAC) dated: 13.09.2023 will be activated shortly and notification in this regard shall be published in the Institute website.
- V. Any corrigendum or revision and addendum, if so, of the advertisement or any other information regarding this recruitment will be posted on the Official website of AIIMS, Kalyani only. Candidates are advised to visit institute website i.e. **WWW.AIIMSKALYANI.EDU.IN** regularly for updated information.
- VI. **Resolution of Tie Cases:** In cases where more than one candidate secures equal MARKS, tie will be resolved.
 - a) Accuracy in Skill Test (if applicable), otherwise
 - b) Date of birth shall be used [candidates who are older / born earlier will be placed above candidates who are younger / born later].
- VII. **Medium of Examination:** Hindi/English
- VIII. 01 mark will be awarded for each correct answer and there will be negative marking of 0.25 marks for each wrong answer.

By order of the Executive Director
Sd/-
Recruitment Cell
AIIMS Kalyani

SYLLABUS FOR THE POST OF ASSISTANT ADMINISTRATIVE OFFICER

A. General Intelligence & Reasoning (05 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

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 relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, 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 Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (5 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Central Govt. Service Rules (75 Marks):

Central Government Rules: Questions relating to CCS (Leave) Rule, CCS (Conduct) Rules, GFR, FR/SR, General Service Condition, Office Procedures, Types of correspondence, General Knowledge about IPC/CRPC, CPC/CAT/High Court, RTI Act, 2005, Establishment, Reservation, Roster, LTC, Travelling Allowance etc.

SYLLABUS FOR THE POST OF ASSISTANT STORES OFFICER

A. General Intelligence & Reasoning (5 marks):

It would include question of both verbal and non- verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Series, Number Series, Figural Series, problem Solving, Word Building, Coding & decoding Numerical Operations, symbolic Operations, Trends, Space Orientation, Space Visualization, Venn Diagrams, Drawing interfaces, Punched hole/pattern -folding & unfolding, Figural Pattern -folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small & Capital letter/number coding, decoding and classification, Embedded Figures, Critical thinking Emotional Intelligence, Social Intelligence, other sub-topics, if any.

B. General Awareness (5 marks):

Question in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Question will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person, the test will also include questions related to India and its neighbouring countries especially pertaining History, Cultural, Geography, Economic Scene, General Policy & scientific Research.

C. Quantitative Aptitude (5 marks):

The questions will be designed to test the ability of appropriate use of number and number sense of the candidates. The scope of the test will be computation of whole number, decimals, fractions and relationship between numbers, Percentage, Ratio and Proportion, square roots, Average, Interest, profit and loss, Discounts, Partnership Business, Mixture and allegation, Time and Distance, Time and work, Basic algebraic identities of school algebra & Elementary surds, Graphs of linear Equations, Triangle and its various kind of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of 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 Measures, Standard Identities Complementary angle, Heights and Distance Histogram, Frequency polygon, Bar diagram & Pie Chart.

D. English Language and Comprehension (5 marks):

Candidates ability to understand correct English, his basic comprehension and writing ability, etc. would be tested.

The questions in Part A, B, & D will be of level commensurate with the essential qualification and questions in Part C will be of 10th standard level.

E. Material Management: (80 marks):

Objectives and Advantages of Materials Management. Interfaces of Materials Management: Internal and external interfaces. Organization for Material Management. Supply Chain Management: Concept, objectives of supply- production and distribution system, Role and Management of flow of material in supply chain management. Material Management Linkages: Linkages with other functional areas of Management i.e. production, Accounting and finance, Marketing, HRM, IT, TQM. A Brief discussion on the functions of each functional area of Management. Cost involved in material management: Concept of costs and cost classification, specific costs associated with Material Management. Storekeeping: Objectives and functions of storekeeping, location and layout of stores. Types of stores. Receipt of Materials: Receipt procedure, inspection and testing of materials, Rejection and Returns of materials. Forms used in receiving of materials like Material Received Note, Inspection Report and Rejection Report etc. Passing of Bills/invoices for payment. Issue procedure and documents used, store records like bin card and store ledger→pricing of material issues- different methods like FIFO, LIFO, simple average, weighted average, standard price, Replacement/ market price etc. Material losses: Meaning, accounting treatment and control of different type of material losses (waste, scrap, spoilage, defectives, obsolescence etc.). Store Handling Equipment: Advantages of using stores handling equipment, Types of handling equipment: manual and mechanical devices. Purchase Procedure: Pre- purchase considerations, standard purchase procedure, post-purchase issues. Standard form used in purchasing like purchase requisition, tender/ quotation documents, schedule of quotations, purchase order, follow- up order, cancellation of order, Bill of Materials etc. Special Purchase Systems- Forward Purchase, Tender purchase, Blanket order zero stock, Rate contract etc. Price Forecasting: Price and Pricing impact, price negotiations and fixing. Purchasing under fluctuating prices, purchasing under uncertainty, Negotiations regarding quality, terms of contract, delivery, payment schedule, cash discount, quality considerations, etc. Public Buying: DGS&D Rate contract, GeM, GFR. Online Purchasing: Concept, advantages, procedure of online purchasing and current online purchase practices. Buyer-seller Relationship: Importance of good buyer-seller relationship, Relation with supplier-policies and issues in relationship, Ethical issues in purchasing. Quality Control in Purchasing: Concept of Total Quality Management (TQM), Certification, role of Material Management in TQM. Value Analysis and Value Engineering. Business Correspondence: Letter Writing, presentation, inviting quotations, sending quotations Placing orders, inviting tenders, Sales letters, claim & adjustment letters and social correspondence, Memorandum, Inter-office Memo, Notices, Agenda, Minutes, job application letter, preparing the Resume. Inventories: Meaning, types of inventories, definition as per relevant accounting standard, Need and benefit of holding inventories, objectives of inventory management. Financial Accounting: Nature and scope, Limitations of Financial Accounting. Basic Concepts and Conventions, Accounting Standards: Meaning Significance, Generally Accepted Accounting Principles (GAAP). Accounting Process: From recording of transactions to preparation of final accounts. Rectification of errors and Bank Reconciliation statement. Depreciation Accounting: Meaning of depreciation, causes, objects of providing depreciation, factors affecting depreciation, accounting treatment including provision for depreciation accounting. Methods of depreciation: straight line method and diminishing balance method. Accounting for Hire Purchase Transactions, Journal entries and ledger accounts in the books of Hire Vendors and Hire Purchaser for large value items including Default and repossession. Work Study: Importance of work study- Method Study and Work Measurement- Pioneers of performance Measurement. Method Study: Method and Method Study- Need for Method Study- Procedure of Method Study- Principles of Motion Economy. Work Measurement: Techniques of Work Measurement including Estimating, Stopwatch Time Study, Predetermined Time Standards, Synthetic Estimates of Work Times, Activity Sampling. Computation of Standard Time- Elements- Types of Elements- Performance Rating- Allowances- Need for Allowances- Types of Allowances TPM: Meaning and objectives of TPM; Methodology of TPM, gains of TPM. Material Logistics: Concept and Importance of Material Logistics. Logistic Tasks: follow-up of Order, Transportation, Warehousing, Inventory Control, Information Monitoring. Logistic Planning: Major Aspects and Factors. Transportation: A Brief Study of different modes of transport used for movement of materials, their relative advantages, disadvantages and suitability. Road Transport: Consignment Note, Rail transport: consignment. Note. Air transport: Air Waybill, Contract of Affraightment. Ocean transport: Bill of Lading and Charter party. Warehousing: Concept of (Warehousing (Warehouse, Depositor and Warehouseman), Elements and Functions of Warehousing. Role of Warehousing in Economic Development, Types of Warehousing, Advantages of a Public Warehouse, Costs Associated with Warehousing, Warehousing Corporations in India, Objectives and functions of Warehousing

corporations. Quality Management Concepts: ISO Certification. Methods of Control: Product Process, Risk, evolution, Management Approaches, quality Management Support System. R Chart, P Chart and X Charts; Acceptance Sampling & OC Curve in production Control. Supply Chain Management: Supply management and organization spanning activity. How purchasing becomes supply management? Supply Management and the Bottom line. The four phase of supply management. (Generation of requirement, sourcing, pricing and post award activities). Supply management systems: B2B, Strategic Supply Management. Enabling Concepts in Supply: Buyer-Supplier relationship: Developing and Managing collaboration and Alliance relationship. Cross-functional teams and supply -Management Activities. Challenges and problems with cross functional approach, ERP Systems, Negotiations and Bidding, information sharing. The Indian Contract Act, 1872: Contract- meaning, characteristics and kinds, Essentials of valid contract- Offer and acceptance, consideration, contractual capacity, free consent, legality of objects, Void agreements, Discharge of contract- modes of discharge including breach and its remedies, Contingent contracts, Quasi contracts The Indian Contract Act, 1872: Specific Contracts: Contract of indemnity and Guarantee, Contract of Bailment, Contract of Agency The Sale of Goods Act, 1930: Contract of sale, meaning and difference between sale and agreement to sell, Conditions and warranties, Transfer of ownership in goods including sale by non-owners, performance of contract of sale, Unpaid seller- meaning and rights of and unpaid seller against the goods and the buyer. Partnership Law the Partnership Act, 1932: Nature and Characteristics of Partnership, Registration of Firms, Types of Partners, Rights and Duties of Partners, Implied Authority of a Partner, Incoming and outgoing Partners, Mode of Dissolution of Partnership. The Limited Liability Partnership Act, 2008: Salient Features of LLP, Difference between LLP and Partnership, LLP and Company, LLP Agreement, Partners and Designated Partners, Incorporation Document, Incorporation by Registration, Partners and their Relations, winding up. The Negotiable Instruments Act-1881. Meaning and Characteristics of Negotiable Instruments: Promissory Note, bill of exchange, Cheque, Holder and Holder in due Course, Privileges of Holder in Due Course, Negotiation: Types of Endorsements, Crossing of Cheque, Bouncing of Cheques Computers in Material.

Management: Use of Computers in Material Planning, Purchase, Store, Issue and Inventory Control. Integrated Information System for material Management. Evaluation of Material Management Function: Meaning and Procedure.

SYLLABUS FOR THE POST OF DIETICIAN

Subject Knowledge (100 Marks)

A. Human Physiology (10 Marks):

General principles of Physiology

The Skeleton-General Account

- The Muscular System - General Account -Types of muscles, characteristics of each, Similarities and Differences.
- Blood and Circulatory System - Blood and its composition, Functions of each constituent of blood, Blood groups, Blood transfusion and its importance, Coagulation of blood, Blood vessels, Structure and functions of heart, Blood pressure, heart rate, Cardiac output and their regulation.
- Lymphatic System Lymph, Lymph glands and functions, Spleen Structure and Functions.
- Respiratory System Organs, Structure and Functions, Mechanism of Respiration, Chemical Respiration.

- Digestive System - Structure and Functions of Alimentary tract. Functions of various secretions and juices - Saliva, Gastric, Bile, Intestinal, Pancreatic. Functions of enzymes in digestion. Digestion of nutrients - Proteins, Fats, Carbohydrates. Common problems of Digestive tract - Vomiting, Constipation, Diarrhoea.
- Excretory System - Structure and Functions of (a) Kidney (b) Ureter (c) Bladder (d) Skin. Urine -Formation of urine, Composition of normal and abnormal urine. Role of excretory system in homeostasis, fluid balance, Regulation of body temperature.
- Nervous System Structure of Nerve Cell, Fibre, Classification of Nervous System, Central Nervous System - Brain, Lobes of brain, Cerebrum, Cerebellum, Medulla oblongata, Hypothalamus. Pituitary Gland - structure, Functions, Spinal Cord - structure and functions, Autonomic and Sympathetic nervous system.
- Reproductive System - Female reproductive system - organs, structure and functions Male reproductive system - structure and functions, Menstruation, menstrual cycle, Puberty, Menarche, Menopause, Fertilization of ovum, Conception, Implantation.
- Sense Organs - Eye - structure and function, Ear - structure and function, Skin -structure and function.
- Glands and Endocrine System – o Liver - structure and function o Gall Bladder - structure and function o Enterohepatic circulation o Pancreas - structure and function o Endocrine system o Endocrine glands - structure and function. Hormone types and functions, role in metabolism.
- Endocrine disorders o Regulation of Hormone Secretion

B. Biochemistry (10 Marks):

- Introduction to Biochemistry Significance of pH, Acid-Base Balance, Cell Structure, Composition, Organelles, Membrane and Function Alterations and Significance.
- Carbohydrates - Structure and properties of Mono-saccharides, Disaccharides, Poly - saccharides. Study of intermediary metabolism of carbohydrates, Glycolysis, Aerobic, Anaerobic, Tricarboxylic acid cycle, Significance of TCA cycle integrating metabolism of carbohydrates protein and lipid, Gluconeogenesis, Glycogenesis, Glycogenolysis, Hexose monophosphate shunt.
- Proteins - Structure, composition Classification and Function, Structure of important proteins with special reference to Insulin, myoglobin, and hemoglobin, Binding proteins and their functions - nutritional implications, Chemistry of amino acids, Metabolism of Proteins and amino acids – Build-up of amino acid pool. Urea Cycle, Creatinine and Creatine Synthesis, Biochemical parameters and alterations in disease states and Protein malnutrition, Pregnancy, Inborn errors of metabolism.
- Lipids - Definition, Composition, Classification, Structure and Properties, Lipoproteins, Metabolism of Lipids, Oxidation of fatty acids, Unsaturated fatty acids, Metabolism of ketone bodies, Biosynthesis of fatty acids, Phosphoglycerides, Biosynthesis of cholesterol and regulation, Bile acids and their metabolism, Plasma lipoproteins - Synthesis and Metabolism, Biochemical profile, alterations and significance, Prostaglandins.
- Enzymes - Definition, Classification specificity of enzymes -Intracellular distribution, kinetics, inhibition, Factors affecting enzyme activity, Enzymes in clinical diagnosis.
- Nucleic Acids - Composition, Functions, Classification, Structure and properties of DNA and RNA, Replication and transcription of genetic information, Mechanics of DNA replication, transcription, translation, Genetic code - Protein biosynthesis, Regulation of biosynthesis recombinant DNA Technology. Breakdown of purine and pyrimidine nucleotides.

- Biological Oxidation, Electron Transport Chain, Oxidative Phosphorylation.
- Hormones - Mode of Action, Regulation of Metabolism Biochemical parameters. Endocrinological abnormalities and clinical diagnosis.

C. Food Microbiology, Sanitation And Hygiene (10 Marks):

- Introduction to Microbiology - Mold, Yeast, Bacteria, Viruses, Protozoa, General Classification Family, Genus, Species. Study of their morphology, cultural characteristics and biochemical activities. Important microorganisms in foods, general.
- Growth curve of a typical bacterial cell - Effect of intrinsic and extrinsic factors on growth of organisms, pH, water activity, O - R potential, nutritional requirements, temperature, relative humidity and gaseous environment.
- Primary sources of micro-organisms in foods - Physical and chemical methods used in the destruction of micro-organisms, pasteurization, sterilization.
- Fundamentals of control of micro-organisms in foods - Extrinsic and intrinsic parameters affecting growth and survival of organisms. Use of high and low temperature, controlling moisture as water content, freezing, freezing-drying, irradiation, and use of preservatives in food. Storage of food correct handling and techniques of correct storage, Temperatures at which growth is retarded and bacteria are killed, Storage temperatures for different commodities to prevent growth or contamination and spoilage.
- Food spoilage and contamination indifferent kinds of foods and their prevention - Cereal and cereal products, pulses and legumes, Vegetables and fruits, Meat and meat products, Eggs and poultry, Milk and milk products.
- Public health hazards due to contaminated foods - Food poisoning and infections - Causative agents, symptoms, sources and mode of transmission, foods involved, Method of prevention, Fungal toxins, Investigation and detection of food-borne disease outbreak.
- Microbes used in biotechnology - Useful micro-organisms, Fermented foods - raw material used, organisms and the product obtained, Benefits of fermentation.
- Indices of food, milk and water sanitary quality. Microbiological criteria of food, water and milk testing. Food standards, PFA, FPO, BNS, MPO, Agmark, Codex Alimentarius.
- Hygiene and its importance and application - Personal hygiene care of skin, hair, hands, feet, teeth, Use of cosmetics and jewellery, Grooming, Uniform, Evaluation of personal hygiene, Training staff.
- Safe handling of food - Control measures to prevent food borne diseases and precautions to be taken by food handlers. Reporting of cold, sickness, boils, septic wounds etc.
- Rodents and Insects as carriers of food-borne diseases. Control techniques.
- Disinfectants, sanitizers, antiseptic and germicide. Common disinfectants used on working surfaces, kitchen equipment, dish washing, hand washing etc. Care of premises and equipment, cleaning of equipment and personal tools immediately after use, use of hot water in the washing process.
- Waste disposal, collection, storage and proper disposal from the premises.
- Legal administration and quality control, laws relating to food hygiene.

D. Human Nutrition and Meal Management (10 Marks):

- Concept and Definition of terms Nutrition, Malnutrition, Health, Brief history of Nutritional Science.
Scope of Nutrition
Minimum Nutritional Requirements and RDA. Formulation of RDA and Dietary Guidelines - Reference Man and Reference Woman.
- Body Composition and Changes through the Life Cycle.
- Energy in Human Nutrition - Energy Balance, Assessment of Energy Requirements.
- Proteins - Protein Quality (BV, PER, NPU), Digestion and Absorption, Factors affecting protein bio-availability including Anti nutritional factors.
- Requirements.
- Lipids - Digestion and Absorption, Intestinal resynthesis of triglycerides - Types of fatty acids, Role and nutritional significance (SFA, MUFA, PUFA, W-3).
- Carbohydrates - Digestion and Absorption. Blood glucose and Effects of different carbohydrates on blood glucose, glycaemic index.
- Dietary Fibre - Classification, Composition, Properties and Nutritional status significance.
- Minerals and Trace Elements - Physiological role, Bioavailability and Requirements.
- Vitamins - Physiological role, Bioavailability and Requirements.
- Water - Functions, Requirements.
- Nutritional requirements for different age groups with rationale. Factors affecting these requirements.
- Effect of cooking and home processing on digestibility and nutritive value of foods

E. Community Nutrition (10 Marks):

- Improving nutritional value through different methods - germination, fermentation, combination of foods.
- Basic principles of meal planning.
- Nutritional considerations for planning meals for Adults male and female, different levels of physical activity.
- Pregnancy and Lactation
- Feeding of young children 0 -3 years
- Old age
- Athletes
- Nutritional considerations in brief for the following: Military, naval personnel.
- Astronauts and food for space travel. Emergencies such as drought, famine, floods etc.
- Concept and Scope of Community Nutrition.
- Food availability and factors affecting food availability and intake.
- Agricultural production, post-harvest handling (storage & treatment), marketing and distribution, industrialization, population, economic, regional and socio-cultural factors. Strategies for augmenting food production.
- Assessment of Nutritional status - meaning, need, objectives and importance. Use of clinical signs, anthropometry, biochemical tests, and biophysical methods. Assessment of food and nutrient intake through recall, record, weighment. Food security and adequacy of diets.
- Use of other sources of information for assessment.
- Sources of relevant statistics.
- Infant, child and maternal mortality rates
- Epidemiology of nutritionally related diseases
- Nutritional problems of communities and implications for public health. Common Nutritional Problems in India. Incidence National, Regional.
- Causes: Nutritional and Non Nutritional signs, symptoms, effect of deficiency and treatment.
- PEM

- Micronutrient Deficiencies Fluorosis o Correction/Improvements in Diets 6. Schemes and Programs in India to combat Nutritional Problems in India. Role of International, National and Voluntary agencies and Government departments.
- Hazards to Community Health and Nutritional status
 - Adulteration in food
 - Pollution of water, air
 - Waste management
 - Industrial effluents, sewage
 - Pesticide residue in food
 - Toxins present in food my cotoxins etc.
- Nutrition Policy of India and Plan of Action.
- Health and Nutrition Education - Steps in planning, implementation, and evaluations. Use of educational aids - visual, audio, audio-visual, traditional media etc.

F. Diet Therapy (30 Marks):

- Diet Therapy and Nutritional Care in Disease
 - i. The Nutritional Care Process
 - ii. Nutritional Care Plan
 - iii. Assessment and Therapy in Patient Care
 - iv. Implementation of Nutritional Care
- Nutritional Intervention Diet Modifications
 - i. Adequate normal diet as a basis for therapeutic diets
 - ii. Diet Prescription
 - iii. Modification of Normal Diet
 - iv. Nomenclature of Diet Adequacy of Standard Hospital Diets
 - v. Psychological factors in feeding the sick person
- Interactions between Drugs, Food Nutrients and Nutritional Status
- Effect of drugs on Food and Intake, Nutrient Absorption, Metabolism, and Requirements.
 - i. Drugs affecting intake of food and nutrients
 - ii. Absorption
 - iii. Metabolism and excretion
 - iv. Nutritional status
 - v. Summary of action of some common drugs
 - vi. Effect of food, nutrients and nutritional status on absorption and metabolism of drugs
- Disease of the G. I. System Nutritional Assessment
- Pathogenesis of G.I. Disease with special reference to upper G. I. Tract and ulcers.
- Diseases of esophagus and dietary care
- Diseases of stomach and dietary care
- Gastric and duodenal ulcers
- Predisposing factors and Treatment
- Brief medical therapy, rest, antacids, other drugs and dietary care
- Food acidity, foods that cause flatulence, factors that damage G. I. Mucosa
- Foods stimulating G. I. Secretion
- Diet and Eating Pattern
- Diet Recommendations
- Liberal Approach Vs Traditional Approach
- Possible nutritional and dietary inadequacies
- Gastrostomy
- Intestinal Diseases
- Flatulence, Constipation, Irritable Bowel, Haemorrhoids, Diarrhoea, Steatorrhoea, Diverticular disease, Inflammatory Bowel Disease, Ulcerative Colitis.

- Treatment and Dietary Care in the above mentioned conditions.
- Malabsorption Syndrome
- Celiac Sprue, Tropical Sprue
- Intestinal Brush border deficiencies (Acquired Disaccharide Intolerance)
- Protein Losing Enteropathy
- Dietary Care Process
- Diet in Diseases of the Liver, Pancreas and Biliary System
- Nutritional care in Liver disease in the context of results of specific Liver Function Tests.
- Dietary Care & Management in Viral Hepatitis, Cirrhosis of Liver, Hepatic Encephalopathy, Wilson's disease.
- Dietary care and management in diseases of Gall Bladder and Pancreas.
- Biliary Dyskinesia, Cholelithiasis, Cholecystitis, Cholecystectomy, Pancreatitis, Zollinger-Ellison Syndrome.
- Diet in Disease of the Endocrine Pancreas Diabetes Mellitus and Hypoglycaemia Classification.
- Physiological symptoms and disturbances, diagnosis (FBG and OGTT)
- Management of Diabetes Mellitus
- Clinical Vs Chemical control
- Hormonal Therapy
- Oral Hypoglycemic Agents
- Home Glucose Monitoring
- Glycosylated Hemoglobin
- Urine Testing
- Exercise
- Dietary care and Nutritional Therapy- The Diet Plan, Meal planning with and without Insulin, Special Dietetic Foods, Sweeteners and Sugar Substitutes.
- Diabetes in Pregnancy, Elderly, Surgery, Diabetic diets in Emergency, Illness, Diabetic coma, Insulin reaction, Juvenile diabetes, Patient Education in Diabetes.
- Hypoglycaemia -classification, symptoms, fasting state hypoglycaemia, Postprandial or reactive hypoglycaemia, Early alimentary and late reactive hypoglycaemia, Idiopathic hypoglycaemia, Dietary treatment in reactive hypoglycaemia.
- Dietary care in diseases of the Adrenal Cortex, Thyroid gland and Parathyroid gland.
- Functions of the gland and hormones and their insufficiency, metabolic implications, clinical symptoms.
- Dietary treatment as supportive to other forms of therapy
- Adrenal cortex insufficiency, Hyper and Hypothyroidism (goitre), Hypoglycaemia.
- Nutritional care for Weight Management
- Regulation of energy intake and balance of body weight
- Control of appetite and food intake - Neural control, hormonal control, insulin, estrogen and other peptides and hormones.
- Identifying the obese
- Types of obesity, Health risks
- Causes, Psychology of obesity, Theories of obesity, Physiology of the obese state
- Thermogenesis, Thyroid hormones
- Treatment of Obesity
- Diets in Obesity Starvation, Fasting
- Evaluation of some common diets, Protein-sparing modified fast, High protein diets
- Balanced Energy Reduction
- Foods to include, fibre foods allowed as desired, alcohol, snacks and beverages.
- Psychology of weight reduction - Behavioural Modification - Psychotherapy, pharmacology, exercise & physical activity, Surgery, prevention of weight gain & obesity.
- Underweight Etiology and Assessment, High calorie diets for weight gain, Diet plan, Suggestions for increasing calories in the diet, Anorexia Nervosa and Bulimia.
- Diseases of the Circulatory System
 - Atherosclerosis Etiology, risk factors, diet
 - Hyperlipidemias
 - Brief review of Lipoproteins and their metabolism
 - Clinical and nutritional aspects of Hyperlipidemias
 - Classification and Dietary care of Hyperlipidemias

- Nutritional care in Cardiovascular disease
- Ischemic heart disease Pathogenesis of sodium and water retention in Congestive Heart Disease. Acute and Chronic Cardiac Disease, Acute.
- Stimulants, food & consistency, Chronic Compensated and decompensated states, Sodium Restriction in Cardiac Diseases, Diet in Hypertension Etiology, Prevalence, Renin
- Angiotensin mechanism, Salt and Blood pressure, Drugs and Hypertension, Cerebrovascular diseases and diet in brief.
- Anemia
- Resulting from Acute Haemorrhage
- Nutritional anaemia
- Sickle cell anaemia
- Thalassemia
- Pathogenesis and dietary management in the above conditions
- Renal Disease
- Physiology & function of normal kidney – a brief review
- Diseases of the kidney, classification
- Glomerulo nephritis – Acute and Chronic– Etiology, Characteristics, Objectives, Principles of Dietary
- Treatment and Management
- Nephrotic syndrome – objectives, principles of Dietary Treatment and Management.
- Uremia and Renal Failure.
- History, General Principles of Protein
- Nutrition in Renal Failure and Uremia.
- Acute Renal Failure– Causes, dietary management fluid, sodium and potassium balance, protein and energy requirements
- Chronic renal failure medical treatment, Renal transplants. Dialysis and types haemodialysis, Peritoneal Dialysis & Continuous Ambulatory Peritoneal Dialysis (CAPD). Dietary Management in conservative treatment, dialysis and after renal transplantation.
- Use of Sodium and Potassium
- Exchange lists in Renal (diet planning). Chronic renal failure in patients with diabetes mellitus.
- Chronic renal failure in children
- Nephrolithiasis – Etiology, types of stones, Nutritional care, alkaline-ash diets
- Allergy
- Definitions, symptoms, mechanism of food allergy
- Diagnosis– History, Food record
- Biochemical and Immunotesting (Brief)
- Elimination diets
- Food selection Medications (brief)
- Prognosis food Allergy in infancy
- Milk sensitive enteropathy; Colic, Intolerance to breast milk, prevention of Food Allergy.
- Diseases of Nervous System, Behavioural Disorders and Muscular Skeletal System.
- Neuritis and polyneuritis
- Migraine, headache
- Epilepsy
- Multiple sclerosis
- Hyperkinetic Behaviour Syndrome. Orthomolecular psychiatry and mental illness (Brief) Definition, etiology, dietary treatment and prognosis in the above conditions.
- Arthritis– Rheumatoid Arthritis, Osteoarthritis, Symptoms, dietary management
- Nutrition in Cancer- Types, symptoms, detection
- Cancer therapies and treatment – side effects and nutritional implications
- Goals of care and guidelines for oral feeding
- Accommodating side effects
- Enteral tube feeding – Nasogastric, Gastrostomy, Jejunostomy
- Parenteral Nutrition
- Paediatric patients with cancer
- The terminal cancer patient
- Nutrition in Physiological Stress
- Physiological stress and its effect on body, nutritional implications.

- Fevers and infections
- Surgery and Management of Surgical Conditions
- Parenteral Nutrition – Types, mode, and composition of feeds
- Tube feeding – Routes, modes, composition, care to be taken during feeding
- Dietary guidelines
- Burns

G. Nutrition Education and Dietetic Counselling (10 Marks):

- Metabolic implications – nutritional requirement
- Management and nutritional care
- Nutritional Management of Patients with HIV, AIDS
- Nutritional Management – Counselling and Management
- Goals of care
- Timing of food presentation
- Guidelines for oral feeding anti-tumour therapy
- Accommodating taste changes
- External tube feeding
- Parenteral nutrition
- Patient co-operation
- Paediatric patients with cancer
- The terminal cancer patient
- Misconceptions in nutritional care
- Dietician as part of the Medical Team and Outreach Services.
- Clinical Information – Medical History and Patient Profile Techniques of obtaining relevant information, Retrospective information, Dietary Diagnosis, Assessing food and nutrient intakes, Lifestyles, Physical activity, Stress, Nutritional Status. Correlating Relevant Information and identifying areas of need.
- The Care Process – Setting goals and objectives short term and long term, Counselling and Patient Education, Dietary Prescription, Motivating Patients, working with – Hospitalized patients (adults, paediatric, elderly, and handicapped), adjusting and adopting to individual needs.
- Outpatients (adults, paediatric, elderly, handicapped), patients' education, techniques and modes.
- Follow up, Monitoring and Evaluation of outcome, Home visits vii. Maintaining records, reporting findings, applying findings, Resources and Aids for education and counselling, Terminating counselling, Education for individual patients, Use of regional language, linguistics in communication process, Counselling and education.

H. Food Services Management (10 Marks):

- Introduction to food services and catering industry, Development of Food Service Institutions in India, Types of Services as affected by changes in the environment. ii. Hospital food service as a speciality – Characteristics, rates and services of the food production, service and management in hospitals. Role of the Food Service Manager /Dietician.
- Organizations – Types of organizations and characteristics.
- Organizational charts.
- Catering Management Definition, Principles and Functions, Tools of Management Resources. Attributes of a successful manager.
- Approaches to Management Traditional, Systems Approach, Total Quality Management.
- Management of Resources – Capital, Space, Equipment and Furniture, Materials, Staff, Time and Energy, Procedures Physical facility design and planning. Equipment selection.
- Purchase and store room management – Purchase systems, specifications, food requisition and inventory systems, quality assurance.
- Human Resource Management
- Definition, Development and policies
- Recruitment Selection, Induction
- Employment procedures: Employee Benefits, Training and Development, Human Relations, Job description, Job specifications, Job evaluation, Personnel appraisal.
- Trade Union
- Negotiations and Settlement.

- Financial Management (in brief since there is a separate subject Food Cost and Quality Control) – Elements of Financial management, Budget Systems and accounting, Budget preparation.
- Food Production and Service Operations
- General Planning
- Preliminary planning
- Consideration of patients with specific nutritional and dietary needs, labour use and productivity.
- Flow pattern.

SYLLABUS FOR THE POST OF EXECUTIVE ASSISTANT (N.S)

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

Question 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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

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 relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, 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 Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (5 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Central Govt. Service Rules (75 Marks):

Central Government Rules: Questions relating to CCS (Leave) Rule, CCS (Conduct) Rules, GFR, FR/SR, General Service Condition, Office Procedures, Types of correspondence, General Knowledge about IPC/CRPC, CPC/CAT/High Court, RTI Act, 2005, Establishment, Reservation, Roster, LTC, Travelling Allowance etc.

SYLLABUS FOR THE POST OF HINDI OFFICER

A. General Hindi and Grammar (35 Marks)

B. General English (30 Marks):

General English Questions in this component will be designed to test the Candidate's understanding and knowledge of Hindi & English Languages and will be based on error recognition, fill in the blanks (using verbs, preposition, articles etc.), vocabulary, spellings, grammar, Sentence structure, synonyms, antonyms, sentence completion, correct use of words, phrases and idioms, ability to write language correctly, precisely and effectively.

C. Translation of small paragraphs consisting of 1-2 sentences from Hindi to English and vice versa (35 Marks):

Questions in this part should be designed to test the knowledge of translation.

SYLLABUS FOR THE POST OF JUNIOR ACCOUNTS OFFICER

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

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 relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, 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 Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (5 Marks):

Candidates' ability to understand correct English, his basis comprehension and writing ability, etc. would be tested.

E. Government Accounting System & Budgeting (40 Marks):

Introduction of Government Accounting System and Government Budgeting, GFR, GeM, PFMS, Role & Functions of RBI.

F. Fundamental Principles and Basic Concepts of Accounting (40 Marks):

Financial Accounting - Nature and scope, Limitations of Financial Accounting, Basic Concepts and Conventions, Generally Accepted Principles. Basic Concepts of Accounting: Single and Double Entry System, Books of Original Entry, Bank Reconciliation, Journal, Ledgers, Trial Balance, Rectification of Errors, Manufacturing, Trading, Profit & Loss Appropriation Accounts, Balance Sheet, Distinction between Capital and Revenue Expenditure, Depreciation Accounting, Valuation of Inventories, Non-profit making organizations' Accounts, Receipts and Payments, Income & Expenditure Accounts, Bills of Exchange, Self-Balancing Ledgers.

SYLLABUS FOR THE POST OF JUNIOR ENGINEER (A/C & R)

A. General Intelligence & Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Subject knowledge (85 Marks):

General - Knowledge of Indian Electricity Act, Indian Elect. Rules as amended up-to date. General conditions of supply and charges to be paid to licences for obtaining connection. CPWD General Specifications for Electrical Works, Principles of analysis of rates. General Principles in preparation of estimates, project reports, award of works and execution of works and measurement. ISI/BIS Standards and Codes of practices.

Internal Electrical Installations -

Systems of wiring and their design, distribution system. Apparatus for control, protection and Testing.

Earthing, Lighting Protection, Safety & Maintenance -

Necessity of earthing, earthing resistance, type of earthing. Lighting protection design, layout, material and installation. Safety procedures and practices, principles of equipment installation, preventive maintenance and testing of equipment.

Sub-Station up to 33 KV and Distribution -

Layout and Design for indoor and outdoor application. Specifications for equipment, Sub- Station earthlings, stand-by generating sets, commissioning procedures and tests. Distribution: Design of overhead line and underground distribution systems. Specification for cables, conductors, Supports etc. Cable joining and termination methods, power factor improvement, service connection to buildings.

Air-Conditioning Ventilation -

General principles of Refrigeration, Air-conditioning, evaporative cooling and ventilation, Heating and cooling load estimation. Classification of systems, their design and application, structural requirements, specifications for installations.

Water Supply -

Types of pumps and their characteristics. Prime movers, pumping systems and application. Specification for equipment and installation.

ELECTRICAL APPARATUS-

- i. Single and poly phase A.C. Circuit. Effects of resistance inductance and capacitance.
- ii. Single and poly phase transformers– constructional features, equivalent circuits performance, parallel operation, phase conversion. Separation of losses and determination of efficiency by various methods. Auto transformers.
- iii. Alternators, Constructional features, regulation, parallel operation and Protection. Automatic Voltage regulators, Emergency generating sets, automatic change over.
- iv. Induction machines, polyphasemotor and its principle of operation and equivalent circuit. Torque, slip characteristics. Crawling, methods of starting, single phase motor, its theory, characteristics and application.

INSTRUMENT TRANSFORMERS, PROTECTIVE RELAYING, MEASUREMENTS –

Current, Voltage transformers. Constructional features of IDMT relays, instantaneous relays including knowledge of overload earth fault, undervoltage, Buchholz relays. Connection diagrams, settings. Electrical instruments and Measurements, principles of construction and theory of measuring instruments for direct and alternating currents. Commercial types. Measurement of resistance, Voltage, current, power, power factor and energy. Watt meters, energy meters. Thermocouples, Resistance Thermometers, Pyro-meters. Fault locating bridges for cables. Measurements of resistance, inductance and capacitance, Wheatstone bridge.

INTERNAL COMBUSTION ENGINES

Fuels and Combustion. Fuels and their properties, combustion calculations. Analysis of products of combustion. Power cycles. Vapor power cycles Carnot and Rankine. Gas Power- Otto and Diesel cycles. Deviation of actual cycles from theoretical cycles. Internal combustion engines – Two and four stroke compression ignition and spark ignition engines. Combustion phenomena. Detonation, Knocking, scavenging of two stroke engines. Fuel injection and carburation. Lubrication and cooling system performance and testing of IC engines. Pollution control requirements/standards.

HEATING, AIR CONDITIONING AND REFRIGERATION

Refrigeration – Refrigeration and heat pump cycles. Vapour compression, absorption Cycles. Refrigerants and their characteristics. Air Conditioning – Psychrometric chart, comfort air-conditioning, comfort indices, ventilation requirements. Cooling and dehumidification methods. Industrial air-conditioning processes. Different methods of electric heating. Construction and performance of Electric heating equipment.

WORKSHOP TECHNOLOGY

Estimation of power and energy requirements of electric welding, different types of equipments used and their characteristics. Manufacturing and fabricating methods and practices for various electrical and mechanical equipment such as pumps, switch boards, light fittings, AHUs etc.

ENERGY CONSERVATION, POWER FACTOR IMPROVEMENT

Comparison of different types of lamps from the point of energy conservation, calculation of payback period. Power factor improvement, Reduction of load current and transformer losses due to power factor improvements. KVA requirement for power factor improvement.

SOLAR ENERGY UTILISATION

Solar Hot Water system, principles, constructional features, constituent parts, installation, operation & maintenance, solar photo voltaic system, advantages/disadvantages of solar heating & solar photo voltaic system.

GENERAL SPECIFICATION OF AIR-CONDITIONING, REFRIGERATION & VENTILATION: -

Execution of installation, drawings and manual, air conditioning equipment, duct work, air handling and treatment, automatic control, general control and monitoring systems, general refrigeration machine, electric motors and electrical equipment noise vibration control, pipe work, valves, cocks and strainers, system monitoring instruments, thermal insulation, unitary air conditioners, water handling equipment, indoor air quality (IAQ), inspection and commissioning, operation and maintenance, painting, finishing and protective treatment.

SYLLABUS FOR THE POST OF JUNIOR ENGINEER (CIVIL)

A. General Intelligence and Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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, Embedded Figures, Critical thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Subject knowledge (85 Marks):

Building Materials: Physical and Chemical properties, classification, standard tests, uses and manufacture/quarrying of materials e.g. building stones, silicate based materials, cement (Portland), asbestos products, timber and wood based products, laminates, bituminous materials, paints, varnishes. Estimating, Costing and Valuation: estimate, glossary of technical terms, analysis of rates, methods and unit of measurement, Items of work – earthwork, Brick work (Modular & Traditional bricks), RCC work, Shuttering, Timber work, Painting, Flooring, Plastering. Boundary wall, Brick building, Water Tank, Septic tank, Bar bending schedule, Centre line method, Mid-section formula, Trapezoidal formula, Simpson's rule. Cost estimate of Septic tank, flexible pavements, Tube well, isolates and combined footings, Steel Truss, Piles and pile-caps. Valuation – Value and cost, scrap value, salvage value, assessed value, sinking fund, depreciation and obsolescence, methods of valuation.

Surveying : Principles of surveying, measurement of distance, chain surveying, working of prismatic compass, compass traversing, bearings, local attraction, plane table surveying, theodolite traversing, adjustment of theodolite, Levelling, Definition of terms used in levelling, contouring, curvature and refraction corrections, temporary and permanent adjustments of dumpy level, methods of contouring, uses of contour map, tachometric survey, curve setting, earth work calculation, advanced surveying equipment.

Soil Mechanics: Origin of soil, phase diagram, Definitions-void ratio, porosity, degree of saturation, water content, specific gravity of soil grains, unit weights, density index and interrelationship of different parameters, Grain size distribution curves and their uses. Index properties of soils, Atterberg's limits, ISI soil classification and plasticity chart. Permeability of soil, coefficient of permeability, determination of coefficient of permeability, Unconfined and confined aquifers, effective stress, quick sand, consolidation of soils, Principles of consolidation, degree of consolidation, pre-consolidation pressure, normally consolidated soil, e-log p curve, computation of ultimate settlement. Shear strength of soils, direct shear test, Vane shear test, Triaxial test. Soil compaction, Laboratory compaction test, Maximum dry density and optimum moisture content, earth pressure theories, active and passive earth pressures, Bearing capacity of soils, plate load test, standard penetration test. Hydraulics: Fluid properties, hydrostatics, measurements of flow, Bernoulli's theorem and its application, flow through pipes, flow in open channels, weirs, flumes, spillways, pumps and turbines.

Irrigation Engineering: Definition, necessity, benefits, 2II effects of irrigation, types and methods of irrigation, Hydrology – Measurement of rainfall, run off coefficient, rain gauge, losses from precipitation – evaporation, infiltration, etc. Water requirement of crops, duty, delta and base period, Kharif and Rabi Crops, Command area, Time factor, Crop ratio, Overlap allowance, Irrigation efficiencies. Different type of canals, types of canal irrigation, loss of water in canals. Canal lining – types and advantages. Shallow and deep to wells, yield from a well. Weir and barrage, Failure of weirs and permeable foundation, Slit and Scour, Kennedy's theory of critical velocity. Lacey's theory of uniform flow.

Definition of flood, causes and effects, methods of flood control, water logging, preventive measure. Land reclamation, Characteristics of affecting fertility of soils, purposes, methods, description of land and reclamation processes. Major irrigation projects in India.

Transportation Engineering: Highway Engineering – cross sectional elements, geometric design, types of pavements, pavement materials – aggregates and bitumen, different tests, Design of flexible and rigid pavements – Water Bound Macadam (WBM) and Wet Mix Macadam (WMM), Gravel Road, Bituminous construction, Rigid pavement joint, pavement maintenance, Highway

drainage, Railway Engineering- Components of permanent way – sleepers, ballast, fixtures and fastening, track geometry, points and crossings, track junction, stations and yards. Traffic Engineering – Different traffic survey, speed-flow-density and their interrelationships, intersections and interchanges, traffic signals, traffic operation, traffic signs and markings, road safety.

Environmental Engineering: Quality of water, source of water supply, purification of water, distribution of water, need of sanitation, sewerage systems, circular sewer, oval sewer, sewer appurtenances, sewage treatments. Surface water drainage. Solid waste management – types, effects, engineered management system. Air pollution – pollutants, causes, effects, control. Noise pollution – cause, health effects, control.

Structural Engineering:

Theory of structures: Elasticity constants, types of beams – determinate and indeterminate, bending moment and shear force diagrams of simply supported, cantilever and over hanging beams. Moment of area and moment of inertia for rectangular & circular sections, bending moment and shear stress for tee, channel and compound sections, chimneys, dams and retaining walls, eccentric loads, slope deflection of simply supported and cantilever beams, critical load and columns, Torsion of circular section.

General Specification:

General specification of earth work, Cement Contract Work, RCC Work, Brick Work, Stone Work, Wood & PVC Work, Flooring Work, Roofing Work, Finishing Work, Sanitary & Water supply work, Road work, File work, Water proofing treatment, Aluminium work & horticulture work i.e. mode of measurements of all above work.

SYLLABUS FOR THE POST OF JUNIOR ENGINEER (ELECTRICAL)

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

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 relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs

of Linear Equations, 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 Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (5 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Subject Knowledge (75 Marks):

Basic concepts: Concepts of resistance, inductance, capacitance, and various factors affecting them. Concepts of current, voltage, power, energy and their units.

Circuit law: Kirchhoff's 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-L and 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 coil 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 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.

SYLLABUS FOR THE POST OF JUNIOR HINDI TRANSLATOR

A. General Hindi and Grammar (35 Marks)

B. General English (30 Marks):

General English Questions in this component will be designed to test the Candidate's understanding and knowledge of Hindi & English Languages and will be based on error recognition, fill in the blanks (using verbs, preposition, articles etc.), vocabulary, spellings, grammar, Sentence structure, synonyms, antonyms, sentence completion, correct use of words, phrases and idioms, ability to write language correctly, precisely and effectively.

C. Translation of small paragraphs consisting of 1-2 sentences from Hindi to English and vice versa (35 Marks):

Questions in this part should be designed to test the knowledge of translation.

SYLLABUS FOR THE POST OF MEDICAL SOCIAL SERVICE OFFICER GRADE-I

Subject Knowledge (100 Marks):

A. Nature and development of social work (10 Marks)

B. Sociological concepts and contemporary concerns (10 Marks):

Sociological concepts and contemporary concerns urban community development Human rights and social work practice, social policy

C. Human behaviour and social environment (10 Marks):

Human behaviour 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

D. Social action and social movements (10 Marks):

Social action and social movements, social work with the elderly, environment and social work, social work with families and children, occupational social work.

E. Research in social work (10 Marks):

Research in social work, qualitative approaches

F. Administration of welfare and development services (10 Marks):

Administration of welfare and development services, organizational behaviour and employee development, social defense and correctional services, rural community development.

G. Social justice and empowerment (10 Marks):

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

H. Social work and disaster management (10 Marks):

Social work and disaster management, conflict mitigation and peace building, gender and development.

I. Counselling (10 Marks):

Counselling theory and practice

J. HIV/AIDS (10 Marks):

HIV/AIDS and social work practice, health care social work practice

SYLLABUS FOR THE POST OF MEDICAL SOCIAL WORKER (MSW)

A. General Intelligence and Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. The test will include questions on analogies, similarities and differences, space visualization, problem solving, analysis, judgement, decision making, visual memory, discriminating observation, relationship concepts, arithmetical reasoning, verbal and figure classification, arithmetical number series, non-verbal series etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationship, arithmetical computation and other analytical functions.

B. English Language (10 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

C. Subject Knowledge (80 Marks):

Framework: Social Welfare- The concept of Social Welfare Social Welfare: Concept, need and objectives Philosophy of Social Welfare and Social Work Social welfare in historical perspective Changing concepts and practices of social welfare in relation to social, economic and industrial development Changing political philosophy and its impact on social welfare Social Welfare and related terms:

- 1) Social Development
- 2) Social Planning and social administration
- 3) Social reform
- 4) Social Security
- 5) Social Policy
- 6) Social Action
- 7) Social justice
- 8) Social and welfare services
- 9) Social legislation
- 10) Human Rights Professional Social work an Introduction The concept of professional social work-alignment of scientific and humanitarian motives for promoting social welfare.

Framework: Social Welfare- The basic principles and values of professional social work and their relationship to the values of Indian Society Evolution of professional social work in UK, USA, Evolution of Professional Social work in India. Social work as a profession Nature and characteristics of a profession.

The basic values and Principles of professional social work Professional status of Social work in India Code of ethics for social workers.

Methods of Social Work Primary Methods of Social Work Secondary methods of Social Work Integrated approach of social work Interface between Professional and voluntary social work.

Psychology and Mental Health: Fundamentals –

Mental Health & Psychology, Psychology: Definitions and Fields, Mental Health: Meaning, Definitions, Characteristics.

Developmental Sociology:

Characteristics Normal & Abnormal Behaviour: Meaning, Characteristics

Human Development: Heredity and Environment Meaning, Definition and scope of Mental Hygiene Characteristics and Importance of Mental Hygiene Aims of Mental Hygiene.

Principles of Mental Hygiene Programme of Mental Hygiene

Developmental Stages

Developmental Stages I: Prenatal, Infancy

Developmental Stages II: Babyhood, Childhood

Developmental Stages III: Puberty, Adolescence, Adulthood.

Developmental Stages IV: Middle age, Old age.

Personality Development

Psycho-Sexual development theory:

- 1) Sigmund Freud
- 2) Psycho Social development theory: Erick Erickson
- 3) Defence Mechanism
- 4) Perspectives of Psychopathology Unit Social Psychology Nature and scope of social psychology Attitude: nature and measurement of attitude prejudice and discrimination Communication: concept, methods, skills in communication, major obstacles Mass communication, public opinion, propaganda, fashion, social facilitation crowd behaviour.

Normal & Abnormal Behaviour: Meaning, Characteristics

Human Development: Heredity and Environment Meaning, Definition and scope of Mental Hygiene Characteristics and Importance of Mental Hygiene Aims of Mental Hygiene

Principles of Mental Hygiene Programme of Mental Hygiene Developmental Stages

Developmental Stages I: Prenatal, Infancy

Developmental Stages II: Babyhood, Childhood

Developmental Stages III: Puberty, Adolescence, Adulthood.

Developmental Stages IV: Middle age, Old age.

Personality Development

- 1) Psycho-Sexual development theory: Sigmund Freud
- 2) Psychosocial development theory: Erick Erickson
- 3) Defence Mechanism
- 4) Perspectives of Psychopathology Unit Social Psychology Nature and scope of social psychology Attitude: nature and measurement of attitude prejudice and discrimination Communication: concept, methods, skills in communication, major obstacles Mass communication, public opinion, propaganda, fashion, social facilitation crowd behaviour.

Sociology: Theoretical Perspective

Conceptual & Theoretical Perspectives to Understand Society

- 1) Society: Nature, Approaches, Functions, Theories of Society (Evolutionary, Cyclical, Conflict and Systems theories).
- 2) Social Group: Concept & Characteristics of Primary Group, Secondary Group, Reference Group.
- 3) Social Institutions: Family, Marriage, Kinship, Property (Present trends).
- 4) Perspectives of Psychopathology Unit Social Psychology Nature and scope of social psychology Attitude: nature and measurement of attitude prejudice and discrimination Communication: concept, methods, skills in communication, major obstacles Mass communication, public opinion, propaganda, fashion, social facilitation crowd behaviour.

Sociology: Theoretical Perspective

Conceptual & Theoretical Perspectives to Understand Society

- 1) Society: Nature, Approaches, Functions, Theories of Society (Evolutionary, Cyclical, Conflict and Systems theories).

- 2) Social Group: Concept & Characteristics of Primary Group, Secondary Group, Reference Group.
- 3) Social Institutions: Family, Marriage, Kinship, Property (Present trends)
- 4) Culture: Concept of Culture, Traditions, Customs, Values and Norms Social System and Social Process of Contemporary Society
- 5) Social System & Sub system: Structure & Function, Classification of System.
- 6) Social Structures: Status & Role
Social Process: Meaning and kinds of Social Interaction, Socialization, Cooperation, Conflict, Assimilation, Social control.

SYLLABUS FOR THE POST OF OPTOMETRIST

Subject Knowledge (100 Marks):

ANATOMY AND PHYSIOLOGY

- **Basic Human Anatomy:** 1. Cell and various tissues of the body. 2. Skeletal system of human body 3. Muscular system. 4. Embryology and development (including Embryology of the eye).
- **Basic Human Physiology:** 1. Cardio-vascular system. 2. Digestive system. 3. Respiratory system. 4. Endocrine organs. 5. Excretory system. 6. Reproductive system. 7. Central nervous system. 8. Peripheral nervous system. 9. Autonomic nervous system. 10. Organs of taste, smell and hearing.
- **Ocular Anatomy:** 1. Orbit & it's immediate relations. 2. Lids & their glands. 3. Conjunctiva, Cornea, Sclera and Limbus. 4. Iris & Ciliary body. 5. Lens and Vitreous. 6. Retina & Choroid. 7. Ocular muscles. 8. Visual pathways. 9. Lacrimal apparatus. 10. Higher visual centres.
- **Ocular Physiology:** 1. An introduction to general physiology of the eye. 2. Maintenance of transparency of the cornea 3. Maintenance of transparency of the lens. 4. Visual acuity & form sense. 5. Pupillary reflexes. 6. Accommodation. 7. Convergence. 8. Intra-ocular pressure. 9. Night vision. 10. Colour vision. 11. Visual fields. 12. Extrinsic muscles, actions and ocular movements. 13. Higher visual centres and righting reflexes. 14. Electro-physiological aspects (ERG, EOG & VER). 15. Functions of lacrimal apparatus and tears.

OCULAR PATHOLOGY, MICROBIOLOGY AND BIOCHEMISTRY

- **Ocular Pathology:** 1. Blood sample collection and preservation. 2. Routine Haematological examinations: Hb, BT, CT, TLC, DLC and ESR. 3. Peripheral Blood Film (PBF)- staining & its significance. 4. Urine sample collection methods. 5. Urine: Physical, Chemical & Microscopic examination. 6. Grossing of tissue. 7. Tissue processing. 8. Fixation of tissue. 9. Section cutting. 10. Staining: Haematoxylin, Eosin & Special stains.
- **Ocular Microbiology:** 1. Introduction to Microbiology & classification. 2. Normal flora of eye. 3. Sterilization /Aseptic techniques. 4. Culture media for Bacteria, fungi & Virus. 5. Bacteria: Gram positive & negative. 6. Fungi: Saprophytic and Pathogenic. 7. Virus. 8. Chlamydia & parasites. 9. Microbial diseases of the eye. 10. Staining procedures: Gram & KOH.
- **Ocular Bio-chemistry:** 1. Introduction to basic Biochemistry (carbohydrates, lipids, proteins and vitamins). 2. Tear film. 3. Metabolism of cornea and lens. 4. Aqueous & Vitreous. 5. Rhodopsin cycle.

BASIC ORTHOPTICS

- **Basic Orthoptics:** 1. General introduction. 2. Binocular vision & Space perception (Fusion, Diplopia, Correspondence, Stereopsis, Panum's area, Fixation disparity, Horopter, BSV, Retinal rivalry, Physiological diplopia, Stereopsis & monocular clues, Egocentric localization, Theories of Binocular vision). 3. Extra-ocular muscles Anatomy and Physiology. 4. Laws of ocular motility. 5.

Uni-ocular & Binocular movements (Version & Vergence, Fixation & field of fixation). 6. Near vision complex (Accommodation, Convergence & Pupillary constriction). 7. Confusion & Diplopia. 8. Suppression. 9. Stereopsis. 10. Asthenopia & Diplopia. 11. Visual acuity assessment in children. 12. Cover, cover-uncover & alternate cover tests. 13. Heterophoria: Classification, examination & management. 14. Orthoptic instruments: Near point ruler, Prism-Bar, Maddox-rod, Maddox-wing, Synoptophore.

OPTICS & REFRACTION

- **Physical & Visual Optics:** 1. Elementary basis of light (Interference, Diffraction, Scattering, Dispersion, Polarization & Spectrum). 2. Illumination & Photometry. 3. Laws of reflection. 4. Principles of refraction. • Refraction by Glass plate with parallel sides. • Refraction by Prisms (including nomenclature of prisms). • Refraction at Curved surfaces (Convex, Concave, Cylindrical & Sphero-cylindrical/Sturm's conoid). • Refraction by Optical systems (Combination of lenses, Compound homocentric system & Thick lenses). 5. Power specification (Refractive, Approximate, Back Vertex, Front Vertex, Equivalent & Effective Power). 6. Power measurement (Hand neutralization, lensometry & Lens surface power measurement/ Geneva lens measure). 7. Optical system of eye (Corneal & Lenticular system). 8. Catoptric images (Principle and utility of Purkinje's image in keratometry and pachymetry). 9. Schematic & Reduced eye. 10. Physiological optical defects of eye. 11. Correction of Ammetropia: Myopia, Hypermetropia and Astigmatism (Spectacle magnification & Relative spectacle magnification). 12. Anisometropia and Aniseikonia. 13. Optics of Retinoscopy & Ophthalmoscopy.
- **Dispensing Optics:** 1. Ophthalmic lens materials and their characteristics. 2. Ophthalmic Prisms & Decentration (Prentice's rule). 3. Manufacturing of various types of spectacle lenses (Glass). 4. Manufacturing of various types of spectacle lenses (Plastic). 5. Aberrations & Ophthalmic lens design. 6. Transpositions – Simple and Toric. 7. Absorptive lenses & Lens coatings. 8. Bifocals & Trifocals. 9. Multi-focal lenses/ Progressive addition lenses (PALs). 10. Lenses for High refractive errors. 11. Spectacle frame materials & their characteristics. 12. Spectacle frame types & its parts. 13. Measurement for ordering spectacle, I.P.D. (Distance & near), Marking/ centration, V.D. Calculation. 14. Frame selection: Cosmetic & fitting considerations. 15. Spectacle frames fitting, alignment & adjustment. 16. Special purpose spectacles.

OCULAR PHARMACOLOGY

- **Ocular Pharmacology:** 1. Ocular Pharmacology: an introduction. 2. Autonomic nervous system. 3. Routes of drug administration. 4. Miotics, Mydriatics & Cycloplegics. 5. Anti-bacterial drugs & therapy. 6. Anti-fungal drugs & therapy. 7. Anti-viral drugs & therapy. 8. Anti-inflammatory drugs & therapy. 9. Anti-glaucoma drugs & therapy. 10. Ocular Preservatives. 11. Ocular Lubricants. 12. Local Anaesthetics. 13. Ocular dyes. 14. Ocular Antiseptics & Disinfectants. 15. Anti-Vascular Endothelial Growth Factor (Anti-VEGF) drugs. 16. Contact lens solutions.

CLINICAL REFRACTION & CONTACT LENSES

- **Clinical Refraction:** 1. Myopia 2. Hypermetropia 3. Astigmatism 4. Aphakia & Pseudophakia 5. Presbyopia 6. Keratoconus 7. Anisometropia and Aniseikonia 8. Accommodation and convergence. 9. Refraction room & test chart standards. 10. Retinoscopy (Principle & Method)-Static and Dynamic 11. Objective methods of refraction (Ophthalmoscopy, Auto-refraction & Keratometry). 12. Monocular subjective refraction methods. 13. Binocular subjective refraction methods. 14. Near correction methods. 15. Recent refraction methods: Phorometry. 16. Prescription of glasses.
- **Contact Lenses:** 1. Historical development of Contact lenses. 2. CL material & manufacturing of soft & RGP. 3. Optics of CL. 4. Design of CL & effect of parameter changes in the fitting. 5. Verification & Modification of CL. 6. Review of Anatomy & Physiology of anterior segment. 7. Cornea & CL wear. 8. Routine pre-fitting examinations. 9. Slit Lamp Techniques. 10. Fitting philosophies of Soft & RGP CL. 11. Care & Maintenance.

CLINICAL ORTHOPTICS

- **Clinical Orthoptics:** 1. General introduction. 2. Binocular vision & Space perception (Fusion, Diplopia, Correspondence, Stereopsis, Panum's area, Fixation disparity, Horopter, BSV, Retinal rivalry, Physiological diplopia, Stereopsis & monocular clues, Egocentric localization, Theories of Binocular vision). 3. Extra-ocular muscles Anatomy and Physiology. 4. Laws of ocular motility. 5. Uni-ocular & Binocular movements (Version & Vergence, Fixation & field of fixation). 6. Near vision complex (Accommodation, Convergence & Pupillary constriction). 7. Confusion & Diplopia. 8. Suppression. 9. Stereopsis. 10. Asthenopia & Diplopia. 11. Visual acuity assessment in children. 12. Cover, cover-uncover & alternate cover tests. 13. Heterophoria: Classification, examination & management. 14. Amblyopia: Definition, types, examination & management. 15. Anomalous retinal correspondence (ARC): types & examination. 16. Pseudotropia & measurement of angle kappa. 17. Measurement of ocular deviation: Objective & subjective methods. 18. Exotropia: Classification, examination & management. 19. Esotropia: Classification, examination & management. 20. Alphabet Phenomena/ Pattern. 21. Cyclo-vertical deviations: Classification, examination & management. 22. Orthoptic instruments.

BASIC INVESTIGATIVE OPTOMETRY:

- **Basic Investigative Optometry:** 1. Syringing and lacrimal function tests. 2. Ophthalmoscopy: Direct & Indirect. 3. Tonometry: Schiottz, Applanation & Non-contact. 4. Colour vision testing. 5. Contrast sensitivity. 6. Glare testing. 7. Perimetry: Goldmann, Humphrey & FDT. 8. Pachymetry: Optical & Ultrasonic. 9. Keratometry. 10. Auto-refraction. 11. Lensometry. 12. Exophthalmometry. 13. Specular microscopy. 14. Fluorescein staining techniques. 15. Slit lamp Biomicroscopy.

COMMUNITY OPTOMETRY AND EYE BANKING

- **Community Optometry:** 1. Concepts of community Optometry. 2. Epidemiology of Blindness (General Principles). 3. Epidemiology of Blindness (Disease specific strategies). 4. Survey methodology. 5. Screening procedures in Optometry. 6. School Eye screening programme. 7. Primary eye care. 8. Organization of Out-reach services. 9. Organization of Reach-in programmes. 10. Rehabilitation of the visually impaired. 11. National programme for the control of Blindness (NPCB). 12. Vision 2020: The right to sight.
- **Eye Banking:** 1. Publicity. 2. How to donate your eyes. 3. Collection of donor eyes. 4. Preservation of eyes. 5. General concepts about corneal transplantation.

ADVANCED CONTACT LENSES AND LOW VISION

- **Advanced Contact lenses:** 1. Historical development of Contact lenses. 2. CL material & manufacturing of soft & RGP. 3. Optics of CL. 4. Design of CL & effect of parameter changes in the fitting. 5. Verification & Modification of CL. 6. Review of Anatomy & Physiology of anterior segment. 7. Cornea & CL wear. 8. Routine pre-fitting examinations. 9. Slit Lamp Techniques. 10. Fitting philosophies of Soft & RGP CL. 11. Care & maintenance. 12. CL fitting in astigmatism. 13. CL fitting in Keratoconus. 14. Bifocal & Multifocal CL. 15. CL in aphakia. 16. Paediatric CL fitting. 17. Disposable CL & Frequent Replacement Program. 18. Cosmetic & Prosthetic CL. 19. Therapeutic CL. 20. CL fitting in Post-refractive surgery cases. 21. CL for sports vision. 22. Scleral lens fitting. 23. Ortho-Keratology (Ortho-K). 24. Complications of soft CL & their management. 25. Complications of RGP CL & their management. 26. Diagnosis & management of Dry eye in CL wear. 27. Review of contact lenses available in INDIA.
- **Low Vision:** 1. Low vision: definition & psychosocial implications. 2. Classification & Management of functional visual deficit: Cloudy media, Central field deficit & Peripheral field deficit. 3. Low vision examination. 4. Specialized testing in low vision. 5. Magnification associated with low vision devices. 6. Low vision devices (Distance). 7. Low vision devices (Near). 8. Low vision devices (Non-optical). 9. Rehabilitation of low vision patient.

ADVANCED OPTICS AND ORTHOPTICS

- **Advanced Optics:** 1. Physiological optical defects of eye. 2. Correction of Ammetropia: Myopia, Hypermetropia and Astigmatism (Spectacle magnification & Relative spectacle magnification). 3. Anisometropia and Aniseikonia. 4. Optics of Retinoscopy & Ophthalmoscopy. 5. Aberrations & Ophthalmic lens design. 6. Absorptive lenses & Lens coatings. 7. Bifocals & Trifocals. 8. Multi-

focal lenses/ Progressive addition lenses (PALs). 9. Lenses for High refractive errors. 10. Special purpose spectacles.

- **Advanced Orthoptics:** 1. General introduction. 2. Binocular vision & Space perception (Fusion, Diplopia, Correspondence, Stereopsis, Panum's area, Fixation disparity, Horopter, BSV, Retinal rivalry, Physiological diplopia, Stereopsis & monocular clues, Egocentric localization, Theories of Binocular vision). 3. Extra-ocular muscles Anatomy and Physiology. 4. Laws of ocular motility. 5. Uni-ocular & Binocular movements (Version & Vergence, Fixation & field of fixation). 6. Near vision complex (Accommodation, Convergence & Pupillary constriction). 7. Confusion & Diplopia. 8. Suppression. 9. Stereopsis. 10. Asthenopia & Diplopia. 11. Visual acuity assessment in children. 12. Cover, cover-uncover & alternate cover tests. 13. Heterophoria: Classification, examination & management. 14. Amblyopia: Definition, types, examination & management. 15. Anomalous retinal correspondence (ARC): types & examination. 16. Pseudotropia & measurement of angle kappa. 17. Measurement of ocular deviation: Objective & subjective methods. 18. Exotropia: Classification, examination & management. 19. Esotropia: Classification, examination & management. 20. Alphabet Phenomena/ Pattern. 21. Cyclo-vertical deviations: Classification, examination & management. 22. Orthoptic instruments. 23. Neurogenic palsies (acquired & congenital). 24. Myogenic palsies (Myasthenia gravis, Chronic progressive external Ophthalmoplegia & Orbital pseudotumour). 25. Mechanical disorders of ocular motility (Duane's retraction syndrome, Brown's syndrome, Strabismus fixus & Adherence syndrome). 26. Nystagmus: Classification, examination & management. 27. Principles of non-surgical treatment.

CLINICAL INVESTIGATIVE OPTOMETRY

- **Clinical Investigative Optometry:** 1. Syringing and lacrimal function tests. 2. Ophthalmoscopy: Direct & Indirect. 3. Tonometry: Schiottz, Applanation & Non-contact. 4. Colour vision testing. 5. Contrast sensitivity. 6. Glare testing. 7. Perimetry: Goldmann, Humphrey & FDT. 8. Pachymetry: Optical & Ultrasonic. 9. Keratometry. 10. Auto-refraction. 11. Lensometry. 12. Exophthalmometry. 13. Specular microscopy. 14. Fluorescein staining techniques. 15. Slit lamp Biomicroscopy. 16. Gonioscopy. 17. Corneal Topography. 18. Ultrasonography. 19. Fluorescein angiography. 20. ERG, EOG & VER. 21. Dark adaptometry. 22. Ocular Photography (Anterior segment). 23. Laser-interferometry/ PAM (Potential Acuity Meter) 24. Refractive surgery (RK, PRK, Excimer laser & Lasik). 25. Paediatric eye examination. 26. Recent advances.

SYLLABUS FOR THE POST OF PERSONAL ASSISTANT/PA TO PRINCIPAL (S)

PART-I

A. General Intelligence & Reasoning (20 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (20 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (20 Marks):

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 relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, 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 Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (20 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homononyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (20 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

PART-II

Skill Test in Stenography:

The Skill Test will be of qualifying nature. Candidates will have to qualify the test for English or Hindi at the prescribed speed on Computer as per the advertisement.

SYLLABUS FOR THE POST OF TECHNICIAN (PROSTHETICS AND ORTHOTICS)

A. General Intelligence & Reasoning (5 Marks):

It would include question of both verbal and non- verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, Symbolic/Number Analogy, Figural Analogy, Semantic Series, Number Series, Figural Series, problem Solving, Word Building, Coding & decoding Numerical Operations, symbolic Operations, Trends, Space Orientation, Space

Visualization, Venn Diagrams, Drawing interfaces, Punched hole/pattern -folding & unfolding, Figural Pattern -folding and completion, Indexing, Address matching, Date & city matching, Classification of centre codes/roll numbers, Small& Capital letter/number coding, decoding and classification, Embedded Figures, Critical thinking Emotional Intelligence, Social Intelligence, other sub-topics, if any.

B. General Awareness (5 Marks):

Question in this component will be aimed at testing the candidate's general awareness of the environment around him and its application to society. Question will also be designed to test knowledge of current events and of such matters of every day observations and experience in their scientific aspect as may be expected of any educated person, the test will also include questions related to India and its neighbouring countries especially pertaining History, Cultural, Geography, Economic Scene, General Policy & scientific Research.

C. Quantitative Aptitude (5 Marks):

The questions will be designed to test the ability of appropriate use of number and number sense of the candidates. The scope of the test will be computation of whole number, decimals, fractions and relationship between numbers, Percentage. Ratio and Proportion, square roots, Average, Interest, profit and loss, Discounts, Partnership Business, Mixture and allegation, Time and Distance, Time and work, Basic algebraic identities of school algebra & Elementary surds, Graphs of linear Equations, Triangle and its various kind of centres, Congruence and similarity of triangles, Circle and its chords, tangents, angles subtended by chords of 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 Measures, Standard Identities Complementary angle, Heights and Distance Histogram, Frequency polygon, Bar diagram & Pie Chart.

D. English Language and Comprehension (5 Marks):

Candidates ability to understand correct English, his basic comprehension and writing ability, etc. would be tested.

The questions in Part A, B, & D will be of level commensurate with the essential qualification and questions in Part C will be of 10th standard level.

E. Subject knowledge of the related subjects for the post of Technician Prosthetics or Orthotics (80 Marks):

- General Anatomy: - Histology. Embryology. Thorax: (a) Cardio- Vascular System, (b) Respiratory system, (c) Abdomen, (d) Musculo Skeletal Anatomy. Upper Extremity: (a) Osteology, (b) Soft parts, (c) Joints, (d) Arches of hand, skin of the palm and dorsum of hand. Lower Extremity: (a) Osteology, (b) Soft parts, (c) Joints. Trunk & Pelvis: (a) Osteology, (b) Soft tissue, (c) Pelvic girdle and muscles of the pelvic floor. Head and Neck Anatomy.
- General Physiology: - General Physiology. Blood; Nerve Muscle Physiology. Cardiovascular System. Respiratory System. Nervous System. Kidney and micturition. Integumentary system. Endocrinology. Nutrition & Metabolism.
- **General Biochemistry**
- **General Microbiology**
- **General Psychiatry**
- Material and Workshop Technology Material Science: - Metal & Alloys. Wood. Leather. Fabric. Foams. Workshop Technology.
- Applied Mechanics and Strength of Materials: - General Mechanics. Simple stress & Strain-General. Design concept. Control systems. Economics with applied mechanics- General.
- Engineering Drawing: - General Principles. Fundamentals. Design. General Sketching.
- Biomechanics-I: - Basic Concepts in Biomechanics. Kinematics and Kinetics. Joint structure and Function. Human Movements. Joint Force Analysis. Human locomotion and Gait analysis.
- Prosthetic Science-I: - Prosthetic Feet. Partial Foot. Syme's. Trans Tibial. Gait Deviations and Analysis. Prosthetics.

- Orthotic Science-I: - General. Different types of Orthoses. Shoe Modification. AFO (Ankle foot orthosis). Club foot Orthosis.
- Pathology: – General.
- Orthopaedics & Amputation Surgery: - Orthopaedics. Traumatology. Inflammatory and Degenerative Conditions. Disease of Bones and Joints. Congenital Deformities. Acquired Deformities. Cervical and Lumbar Pathology. Regional 15 Conditions. Hip. Knee. Ankle & foot. Shoulder. Elbow and forearm. Wrist & Hand. Specific Disorders. Amputation Surgery. General. Orthopaedics.
- Physical Medicine and Rehabilitation:-(a) Psychology & Social work: Disability & Development. (b) Physiotherapy and Occupational Therapy Introduction to Physiotherapy, Normal Posture, Movements, Traction, Muscle Testing, Introduction to Occupational Therapy. (c) Physical Medicine and Rehabilitation: Community Based Rehabilitation, Specific disorders, Sports Injuries.
- Fundamentals of Electricity and Electronics: - Electricity, Basic Concepts, Resistors, Transformers, Semiconductors, Amplifiers, Feed Back, Measurements, Myoelectrodes, Electrical Safety, Bio-Electricity.
- Biomechanics-II: - Through Knee Biomechanics, Trans Femoral Prosthetics Biomechanics, Gait deviation, Above knee Orthotics Biomechanics.
- Prosthetics Science-II: - Knee Joints, Hip Joints, Through Knee Prosthesis, Trans Femoral Prosthesis, Endoskeleton/modular, Prosthetics.
- Orthotics Science-II: - Above Knee Orthotics. Orthotics Components. Fabrication.
- Computer Science: - Computer Aided Design & Manufacturing (CAD & CAM)
- P&O Workshop Management: - Practical:
- Mobility and Rehabilitation Aids
- Prosthetic Science-III
- Orthotic Science-III
- Research Methodology: - Introduction to Biostatistics. Research methodology:
- Prosthetic Science-IV: - Prosthetics:
- Orthotic Science –IV: - Spinal Biomechanics. Spinal Orthoses. Cervical Orthoses. ThoracoLumbo Sacral Orthoses. Orthotics.

Note: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.

SYLLABUS FOR THE POST OF TECHNICIANS (LABORATORY)- FOR THE POST OF LABORATORY

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

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 relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, 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 Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (5 Marks):

Candidates' understanding of the Basics of English Language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. his/her writing ability would be tested.

E. Subject Knowledge (80 Marks):**Biochemistry –**

- Cleaning and care of general laboratory glass ware and equipment. Types of pipettes, calibration of pipettes.
- Distilled water. Method of preparation and storage of distilled water. Type of water distillation plants.
- Preparation of solutions – units of weights and volume, Calculation of concentration and methods of expressing concentration of solution.
- Units of Measurement - S.I unit and CGS units. Normality, Molarity, Molality
- Calibration of volumetric apparatus
- Principle, working and maintenance of Analytical balance
- Quality control and quality assurance in a clinical biochemistry laboratory
- Laboratory organization, management and maintenance of records
- Principles of assay procedures, Normal range in blood, Serum, Plasma and Urine and reference values.
- pH – Definition, Henderson Hasselbach equation, Pka value, pH indicator, Methods of measurement of pH, pH paper, pH meter, Principle, working, maintenance and calibration of pH meter
- Volumetric analysis- Normal and molar solutions, Standard solutions, Preparation of reagents, Storage of chemicals
- Working Principles Types and applications of Electrophoresis – Paper, Agarose Gel, Cellulose Acetate and PAGE.
- Working principles, types and applications of Chromatography - Paper Chromatography, TLC, Ion Exchange, Affinity Gel, Filtration, Gas Chromatography and HPLC.
- Working principles, types and application of centrifugation

- Working Principles and application of photometry, and atomic absorption, Spectrophotometry and colorimetry.
- Definition, basic concepts of classification mechanism of action and properties of enzymes, factors influencing enzyme action
- Basic and elementary concepts of chemistry and properties of carbohydrates as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)
- Overview of metabolism of carbohydrates – Methods for determining glucose, ketones, lactate, pyruvate reducing sugars and mucopolysaccharides and their clinical significance.
- Biochemistry, types, criteria parameters in diagnosis and prognosis of Diabetes mellitus.
- Basic and elementary concepts of chemistry and properties of lipids as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)
- Overview of lipid. Importance of lipids in the body in body basic metabolic aspects and analytical importance. Disorders of lipid metabolism. Lipoproteins patterns in disease – analytical methods and procedures applicable to detecting and monitoring such disorders.
- Basic and elementary concepts of chemistry and properties of proteins & amino acids as applicable to the human body. (Classification, Digestion and Absorption, Metabolism, Disorders of metabolism)
- Overview of metabolism of amino acids and proteins – current methodologies for their determination and identification in biological specimens – disease associated with alternation in or deficiencies of amino acids and proteins.
- Basic and elementary concepts of chemistry and properties of nucleic Acids as applicable to the human body.
- Basic concepts of principles of nutrition and nutrients macro and micro nutrients. Vitamins & Minerals. Vitamins- Fat soluble vitamins, Water soluble vitamins sources, Biochemical role, RDA, deficiency manifestations Minerals – Calcium, Phosphorous, Iron, Copper, Zinc, Magnesium, Manganese, Iodine.
- Analytical methods and recommendations for testing and assessing nutritional deficiency – Methods for assessing concentration of vitamins in biological samples.
- General requirements for laboratory assessment of trace elements including specimen collection, handling, selection of analytical methodology and establishing quality.
- Overview of Biochemical roles of major electrolytes and blood gases and their changes in pathological states – relationship between major electrolytes and acid base balance – application of physical and chemical principles to biological system – laboratory measurements of electrolytes and blood gases. Acid base balance disorders
- Overview of current concepts in endocrinology RIA, ELISA, chemiluminescence assay procedure for hormones – physiological effects produced by normal and abnormal levels of various hormones. Thyroid function test and Adrenal function test.
- Introduction to molecular Biology. Recombinant DNA technology, Role of recombinant DNA technology as diagnostic tool. Polymerase chain reaction.
- Overview of porphyrins, their precursors, primary and secondary disorders of porphyrin metabolism – diagnostic laboratory methodologies including appropriate specimen collection and preservation techniques related to porphyrins
- Laboratory tests and analytical methods used in identification and evaluation of hepatobiliary disorders, renal disorders and disorders of Stomach, pancreas and intestinal tract
- Overview of calcium and inorganic phosphate metabolism current laboratory analytical.

Microbiology –

- History of Medical Microbiology - Host-Microbe relationship.
- Safety Measures in clinical microbiology
- Cleaning, care and handling of glassware
- Care and maintenance of Equipment in Microbiology.
- Microscopy: Principle, types and uses of microscope
- Sterilization and Disinfection - Definition, Types, principles, mode of action and methods.
- Qualities of a good disinfectant. Assay for various disinfectants.

- Biomedical waste management in a lab
- General characteristics & classification of Microbes: Classification of microbes.
- Morphological classification of bacteria, Bacterial anatomy (Bacterial cell structures)
- Growth and nutrition of bacteria, Culture media and culture methods-aerobic and anaerobic
- Quality control and safety in microbiology.
- Handling and care of laboratory animals.
- Antimicrobial agents, Antimicrobial susceptibility tests.
- Stains used in bacteriology Principle, procedures, significance and interpretation - Simple staining, Gram stain, Ziehl –Neelsen staining, Albert’s stain, Capsule staining.
- Principle, procedures and interpretation of the biochemical tests for identification of different bacteria.
- Immunity – innate and acquired immunity, humoral and cell mediated.
- Antigen antibody reactions and their applications
- Complement
- Hypersensitivity
- Vaccines
- Gram positive & Gram negative cocci – Staphylococci, Streptococci, Enterococci,
- Pneumococci, Neisseria
- Gram positive bacilli – Corynebacterium, Mycobacterium, Actinomyces, Listeria, Bacillus, Clostridia
- Gram negative bacilli – Enterobacteriaceae, Pseudomonas, Vibrio, Aeromonas, Plesiomonas, Campylobacter, Bacteroides, Fusobacterium, Brucella, Haemophilus, Bordetella, Pasteurella, Francisella
- Spirochaetes, Chlamydia, Rickettsia, Mycoplasma, L forms
- General properties of viruses – Structure, classification and replication
- Laboratory diagnosis of virus
- DNA virus –Adenovirus, Papova virus, Herpes virus, Varicella zoster virus, Cytomegalo virus, Hepatitis B virus
- RNA virus – Polio virus, Influenza virus, Para influenza virus, Mumps virus, Measles virus, Rubella virus, Respiratory syncytial virus, Rhinovirus, Rotavirus, Hepatitis virus, Arbo viruses prevalent in India (Dengue, West Nile, Japanese Encephalitis, KFD), HIV, Rabies virus, SARS virus.
- Bacteriophage
- Introduction to Parasitology –Common definitions, Types and Classification of parasites.
- Collection transport and preservation of specimens for parasitological examination
- Protozoa: Entamoeba Trichomonas, Trypanosomes, Leishmania, Giardia, Plasmodium, Isospora, Balantidium, and Toxoplasma.
- Cestodes - Diphyllbothrium, Taenia, Echinococcus, Hymenolepis.
- Trematodes - Schistosoma, Fasciola, Fasciolopsis, Clonorchis, Paragonimus
- Intestinal Nematodes - Ascaris, Ancylostoma, Necator, Strongyloides, Trichinella, Enterobius, Trichuris
- Tissue Nematodes - Wucherei, Brugia, Loa loa, Onchocerca, Dracunculus
- Collection and preservation of specimens for parasitological examination, preservation of specimens of parasitic eggs and embryos, Preserving Fluids, Transport of specimens.
- Morphology and classification of fungus
- Laboratory diagnosis of fungus- Culture media used in mycology, Direct microscopy in Medical
- mycology laboratory, Processing of clinical samples for diagnosis of fungal infections i.e. Skin,
- nail, hair, pus, sputum, CSF and other body fluids.
- Superficial fungal infections
- Subcutaneous fungal infections
- Deep fungal infections
- Opportunistic fungal infections
- Techniques used for isolation and identification of medically important fungi
- Methods for identification of yeasts and moulds
- Preservation of fungal cultures

Pathology –

- General-Haematology: Origin, development, morphology, maturation, function and fate of blood cells, nomenclature of blood cells.
- Various methods of blood collection, anticoagulants-mechanism and uses.
- Basic concepts of automation in haematology
- Counting chamber- hemocytometry. Enumeration of RBC including various counting chambers, diluting fluids for RBC count.
- Haemoglobinometry. Principles and methods of quantitating Hb. Concentration of blood including knowledge of errors and quality control in various method. Abnormal hemoglobin and its investigation.
- ESR: introduction, factors affecting ESR, principles and methods of determining ESR, increasing and decreasing conditions of ESR.
- WBC: introduction, development of WBC, diluting fluids. Absolute eosinophil count, errors in sampling, mixing, diluting and counting.
- Cell counting, advantages and disadvantages, uses and mechanism of cell counting, quality control in cell counts.
- Preparation of peripheral smear and bone marrow smear. Thin smear, thick smear. Buffy coat smear, wet preparation. Romanowsky stain. Preparation advantages and disadvantages.
- Principle and methods of staining of Blood smears and bone marrow smears. Supravital stain. Reticulocyte count. Heinz bodies.
- Description of morphology of normal and abnormal red cells. Blood differential WBC counting. Recognition of abnormal cell. Anaemia – definition etiology classification and laboratory diagnosis.
- Methods of identification and estimation of abnormal hemoglobin including spectroscopy. HB electrophoresis. Alkali denaturation Test. Sickle cell preparation.
- Various benign leucocyte reaction – Leukocytosis. Neutrophilia, Eosinophilia, Lymphocytosis.
- Infectious mononucleosis. leucopenias.
- Leukemias – definition, causes, classification, detection of leukemia. Total leucocyte count in leukemias. Multiple myeloma.
- Blood Coagulation and disorders of hemostasis. Classification of coagulation factors, Principles and methods of assessment of coagulation. BT, CT, Prothrombin time, partial thromboplastin time, thromboplastin regeneration time
- Thrombocytopenia, thrombocythemia, platelet function test, platelet count. Clot retraction test.
- Platelet factor III Test.
- LE cell – definition, morphology causative agents. Various methods of demonstrating LE cells.
- Blood parasites. Malaria, LD bodies, microfilaria and methods of demonstration.
- Preparation of donor and collection of blood. Solution and apparatus used. Storage of blood.
- Preparation and storage of plasma. Preparation of packed red cells.
- Principles involved in Blood grouping. ABO system and the methods used. Factors influencing the results of blood grouping, Rh system. Rh antigen. Principles and methods used.
- Cross matching. Compatibility test, direct and indirect Coomb's test – Principle involved and the methods used. Blood transfusion and its Hazards.
- Definition, sources and types histological specimens, kinds of histological presentations
- Labelling, fixation, properties of fixing fluids, classification and composition of fixing fluids. Advantages and disadvantages of secondary fixatives. Post chroming.
- Tissue processing, dehydration and cleaning.
- Embedding. Water soluble substances, embedding in paraffin nitrocellulose
- Equipment for sectioning microtome, knife, honing and stropping. Types, care and use of microtome.
- Technique for sectioning – frozen section. Technique for sectioning – Paraffin embedded tissue.
- Errors in sectioning and remedies. Attaching blocks to carriers.

- Technique of processing bone for histological studies. Mounting and covering. Mounting media.
- Staining – theory, types of staining agent. Mordents and differentiation. H & E staining. Types of hematoxylin and its preparation. Eosin stock stain and other counter stain used.
- Demonstration of collagen, reticulin, elastin, fat, amyloid, glycogen, mucin, pigments and minerals (malarial, mercury, bile, lipofuscin, calcium, iron, copper).
- Principles of histochemistry and its application
- Demonstration of neuron, neuroglia, myelin and axon. Processing of eye ball for histology.
- Demonstration of fat, iron, amyloid, bile in large sections of tissue.
- Cytology – introduction, definition, types of cytological specimen, preparation of slide for microscopic studies, stains used.
- Museum technique. Preparation, setting up of and arrangement of museum.
- Preparation of cell blocks, mailing of slides.
- FNAC, definition, techniques involved in preparation of smear and staining. PAP smear.
- Calibration and Validation of Clinical Laboratory instruments

SYLLABUS FOR THE POST OF TECHNICIANS (LABORATORY)- FOR ANESTHESIA/OPERATION THEATRE

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

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 relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, 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

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

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homononyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

E. Subject Knowledge (80 Marks):

1. BASIC ANATOMY OF HUMAN BODY

Systemic Anatomy

- Respiratory System: Parts, Nasal cavity and Paranasal air sinuses, trachea, Gross and microscopic structure of lungs, Diaphragm and Pleura.
- Cardiovascular System: Circulatory system – Structure of the Heart, Structure of Blood Vessels – arterial and venous system.
- Nervous System: Structure of Neuroglia and neurones Parts and classification
 - o CNS – Structure of Brain and spinal cord and their functions.
 - o PNS - Cranial nerves and spinal nerves
 - o ANS - Sympathetic and Parasympathetic
- Musculoskeletal system: Bones – types, structure, Axial & appendicular skeleton.
- o Bone formation and growth,
- o Joints – classification and structure.
- o Types and structure of muscles. Movements at the joints and muscles producing movements.

2. PHYSIOLOGY

- Blood: Blood cells, names of developmental stages of RBC, functions and fate of RBC. Functions of WBC and platelets. Hemoglobin, Haematocrit & ESR, blood groups- ABO & Rh, basics of coagulation, classification of anaemia.
- Respiratory System: Principles of respiration, respiratory muscles, lung volumes and capacities, collection and composition of inspired alveolar and expired airs. Transport of oxygen and carbon dioxide. Brief account of respiratory regulation. Definition of hypoxia, Cyanosis, asphyxia. Methods of artificial respiration.
- Cardiovascular system: Cardiac cycle, heart sounds, definitions of cardiac output, stroke volume, principles of measurements of cardiac output. ECG – methods of recording and ECG waves. Normal values of blood pressure, heart rate and their regulation in brief.
- Nervous System: Structure of neuron, nerve impulse, myelinated and non-myelinated nerve. Brief account of resting membrane potential, action potential and conduction of nerve impulse Neuro-muscle transmission. Various parts of nervous system, C.S.F., Functions of muscle spindle and motor tracts including reflexes , cutaneous receptors, joint receptors, sensory pathways. Ascending reticular formation, EEG, functions of cerebellum, basal ganglia, thalamus & hypothalamus, vestibular apparatus and functions. Autonomic nervous system.
- Sensory System: Vision: Structure of eyeball, retina, visual pathway, accommodation, visual acuity, error of refraction, color vision. Hearing: Brief account external, middle and inner ear, hearing tests. Taste & smell: receptors, pathways, method of transduction.
- Endocrine System : Names of endocrine glands & their secretions, functions of various hormones, Brief account of endocrine disorders.

3. BIOCHEMISTRY

- Carbohydrates – Glucose and Glycogen Metabolism
- Proteins-Classification of proteins and functions
- Lipids- Classification of lipids and functions

4. BIOMEDICAL SCIENCE

- Operating Rooms & Anesthetic Equipments
- List of OR equipment (Anesthesia machine, Monitor, Defibrillators, Electrocautery, Laparoscopes, Pulse Oximeter, Suction Apparatus etc)
- Gas Plant, Oxygen Concentrator Plant- Introduction, usage, safety features & application
- Electrodes, Sensors & Transducers: Signal acquisition, transduction, active & passive sensors, sensor technology, electrodes for biophysical sensing, medical surface electrodes, and micro electrodes. Strain Gauges, inductive transducers, quartz pressure sensors, capacitive transducers, temperature transducers and piezoelectric transducers.
- Introduction to Electronics & Semi-conductors: Basic terminology & definitions – Voltage, Current, resistance, capacitance, inductance, conductor, semi-conductor, power, energy, rectifier, transformer, impedance. Ohm's law, difference between resistance & impedance, basic network analysis concepts, types of current-AC & DC; electrical receptacle; difference between AC & DC, fuses & circuit breakers.

5. APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA

ANATOMY AND PHYSIOLOGY

Respiratory System

- Trachea & Bronchial tree - vessels, nerve supply, respiratory tract, reflexes, bronchospasm.
- Respiratory movements under anesthesia
- Pulmonary Gas Exchange and Acid Base Status
- Pulmonary circulation
- Pulmonary oedema
- Pulmonary function tests
- Respiratory failure, type, clinical features, causes.
- Cardiovascular system
- Anatomy
- Chambers of the heart, major vasculature
- Coronary supply, innervation.
- Cardiac output - determinants, heart rate, preload, after load
- ECG: Arrhythmias, cardiovascular response to anesthetic & surgical procedures.
- Hypotension - causes, effects, management
- Cardio-pulmonary resuscitation
- Myocardial infarction, hypertension
- Fluids and electrolytes

CLINICAL PATHOLOGY

- Oedema, hyperemia or congestion, thrombosis, embolism, infarction shock, ischemia, over hydration, dehydration
- Hemorrhage, various types of anemia, leucopenia, leukocytosis, bleeding disorders coagulation mechanism.

6. PRINCIPLES OF ANAESTHESIA

Medical Gas Supply

- Compressed gas cylinders
- Color coding
- Cylinder valves; pin index
- Gas piping system
- Recommendations for piping system
- Alarms & safety devices
- Scavenging of waste anesthetic gases

Anesthesia machine

- Hanger and yoke system
- Cylinder pressure gauge
- Pressure regulator
- Flow meter assembly
- Vaporizers - types, hazards, maintenance, filling and draining, etc

Breathing system

- General considerations: humidity & heat
- Common components - connectors, adaptors, reservoir bags
- Capnography
- Pulse oximetry
- Methods of humidification
- Classification of breathing system
- Mapleson system - a b c d e f
- Jackson Rees system, Bain circuit
- Non rebreathing valves - AMBU valves
- The circle system

Face masks & Airway laryngoscopes

- Types, sizes
- Endotracheal tubes - Types, sizes
- Cuff system
- Fixing, removing and inflating cuff, checking tube position, complications

Anesthesia ventilator and working principles

Monitoring

- Electrocardiography(ECG)
- Pulse oximetry(SpO₂)
- Temperature- central and peripheral
- End tidal carbon dioxide(EtCO₂)
- Anesthesia gas monitoring
- Non-invasive blood pressure (NIPB) and Invasive blood pressure(IBP)
- Central venous pressure(CVP)
- PA Pressure, LA Pressure & cardiac output
- Anesthesia depth monitor

Basic techniques of anaesthesia

Resuscitation techniques

- Basic life support (Airway, breathing, circulation) and the equipment used for it
- Drugs used in CPR
- AED and Defibrillators

Anesthesia drugs and techniques

- Techniques of general anesthesia
- Various intravenous and inhalational agents
- Regional anesthesia, spinal and epidural, posture and drugs
- Local Anaesthetic agents
- Neuro muscular blocking agents
- Principles of oxygen administration along with the apparatus
- Care of patient in the recovery room
- Post-operative pain: evaluation and management
- Types of fluid and therapy
- Blood and blood components transfusion
- Preparation of anesthesia machine, intubation kit, suction machine, anesthesia drugs

7. PRINCIPLES OF ANAESTHESIA AND BASIC ANAESTHETIC TECHNIQUES (INCLUDING MEDICAL ETHICS AND MEDICINE)

- Airway management including tracheostomies
- Positioning issues under anesthesia
- Impact of co-existing diseases on anesthesia
- Specifics of invasive and non-invasive monitoring
- Monitored anesthesia care
- Anesthesia in remote locations
- Principles of organ protection

Medical Ethics

- Autonomy and informed consent - Right of patients

8. CLINICAL PHARMACOLOGY & MICROBIOLOGY

CLINICAL PHARMACOLOGY

- Antisialagogues: Atropine, Glycopyrrolate
- Sedatives & Anxiolytics: Diazepam, Midazolam, Phenergan, Lorazepam, Chlorpromazine, and Triclofos
- Narcotics: Morphine, Pethidine, Fentanyl, Pentazocine, tramadol
- Antiemetics: Metoclopramide, Ondansetron, Dexamethasone
- Induction Agent: Thiopentone, Diazepam, Midazolam, Ketamine, Propofol, Etomidate
- Muscle Relaxants: Depolarizing – Suxamethonium; Non depolarizing – Pancuronium, Vecuronium, Atracurium, Rocuronium
- Inhalational Gases: Gases-O₂, N₂O, Air; Volatile Agents-Halothane, Isoflurane, Sevoflurane, Desflurane
- Reversal Agents: Neostigmine, Glycopyrrolate, Atropine, Naloxone, Flumazenil
- Local Anesthetics: Xylocaine, Bupivacaine; Topical, Prilocaine-jelly, Emla - Ointment, Etidocaine. Ropivacaine.
- Emergency Drugs: Mode or administration, dilution, dosage and effects
- Adrenaline, Atropine
- Ephedrine, Mephentramine, phenyl-epherine
- Bicarbonate, calcium, potassium
- Inotropes: dopamine, dobutamine, noradrenaline
- Anti-arrhythmics- amiodarone, xylocard
- Aminophylline, hydrocortisone, antihistaminics
- Antihypertensive –Beta-blockers, Ca-channel blockers, ACE inhibitors
- Vasodilators- nitroglycerin & sodium nitroprusside
- Respiratory system- Bronchodilators
- Renal system- Diuretics, frusemide, mannitol

CLINICAL MICROBIOLOGY

- Sterilization and Disinfection

Principles and use of equipment of sterilization namely hot air oven, autoclave and serum inspissator, pasteurization, antiseptic and disinfectants

9. PRINCIPLES OF SURGERY

- Haemorrhage-signs and symptoms of internal and external; classification and management; Identification of types of tourniquets reasons for use and duration of application, dangers of use
- Operating tables: structure, material used, maintenance, control, Hydraulic system and Electrical system
- Total thyroidectomy—with emphasis on proper positioning
- Breast surgery
- Positioning of patient for different operations: Problems and hazards
- Hypothermia and hyperthermia

CSSD PROCEDURES

- Principles of sterilization and disinfection
- Methods of sterilization
- Dry Sterilization
- Wet sterilization
- Gaseous sterilization
- Chemical sterilization
- Sterilization by radiation (Gamma rays, ultraviolet rays)
- Techniques of sterilization of rubber articles. (LMA, FOB, ETT, Laryngoscopes, Anesthesia machines and circuits.)
- Methods of disinfection
- Boiling
- Chemical disinfection
- Hazards of sterilization
- Prevention of hazards of sterilization
- Precautions to be taken during sterilization
- Recent advances in the methods of sterilization

10. ADVANCED ANAESTHESIA TECHNIQUES AND ANAESTHESIA FOR SPECIALITY SURGERY

Advanced anesthesia techniques

- Cardiac Arrhythmias (atrial fibrillation, ventricular tachycardia, extra systoles)
- Circulatory shock and its physiology
- Measurement of blood flow
- Artificial ventilation and related equipment:
 - Physiology of IPPV (Intermittent positive pressure ventilation)
 - General care of a patient on ventilator

ANAESTHESIA FOR SPECIALTY SURGERY

Neuro-anaesthesia

- Glasgow coma scale
- Reinforced Endotracheal tubes
- I.C.P
- Dealing with the head injury patient

Obstetrics anaesthesia

- Differences between a pregnant and a normal lady

- Risks for anaesthesia including full stomach
- Check list (WHO Check list)
- Regional v/s General Anaesthesia
- Antepartum haemorrhage (APH)
- Postpartum hemorrhage (PPH)

Paediatric Anaesthesia

- NYHA classification

11. BASIC INTENSIVE CARE

- Care and maintenance of ventilators, suction machine, monitoring devices
- Air conditioning and control of pollution in ICU
- Care of unconscious adult and pediatric patients
- Assist in setting up central venous access, and other forms of invasive monitoring
- DVT prophylaxis
- Care of bed sores
- Antibiotics in the ICU
- Indications for blood and component transfusion
- Sepsis and septic shock syndrome

12. Book keeping and Stock maintenance

SYLLABUS FOR THE POST OF CASHIER

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

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 relationships between numbers, Percentage. Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and

distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, 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 Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language & Comprehension (5 Marks):

Candidates' ability to understand correct English, his basic comprehension and writing ability, etc. would be tested.

E. Basic Computers (5 Marks):

- a) General Computer Processing ability in MS-Office like Word Processing, Excel, PowerPoint etc. & Operating Systems
- b) Professional Software/Hardware System relevant to the Post
- c) Any other Computer/IT related questions

F. Fundamental Principles and Basic Concepts of Accounting (75 Marks):

Financial Accounting - Nature and scope, Limitations of Financial Accounting, Basic Concepts and Conventions, Generally Accepted Principles. Basic Concepts of Accounting: Single and Double Entry System, Books of Original Entry, Bank Reconciliation, Journal, Ledgers, Trial Balance, Rectification of Errors, Manufacturing, Trading, Profit & Loss Appropriation Accounts, Balance Sheet, Distinction between Capital and Revenue Expenditure, Depreciation Accounting, Valuation of Inventories, Non-profit making organizations' Accounts, Receipts and Payments, Income & Expenditure Accounts, Bills of Exchange, Self-Balancing Ledgers.

SYLLABUS FOR THE POST OF LAUNDRY SUPERVISOR

A. General Intelligence & Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. This component may include questions on analogies, similarities and differences, space visualization, spatial orientation, problem solving, analysis, judgement, decision making, visual memory, discrimination, observation, relationship concepts, arithmetical reasoning and figural classification, arithmetic number series, non-verbal series, coding and decoding, statement conclusion, syllogistic reasoning etc. The topics are, Semantic Analogy, 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 thinking, Emotional Intelligence, Social Intelligence, Other sub-topics, if any.

B. General Awareness (5 Marks):

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 every day observations and experience in their scientific aspect as may be expected of any educated person. The test will also include questions relating to India and its neighbouring countries especially pertaining History, Culture, Geography, Economic Scene, General Policy & Scientific Research.

C. Quantitative Aptitude (5 Marks):

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 relationships between numbers, Percentage, Ratio & Proportion, Square roots, Averages, Interest, Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time & Work, Basic algebraic identities of School Algebra & Elementary surds, Graphs of Linear Equations, 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 Measures, Standard Identities, Complementary angles, Heights and Distances, Histogram, Frequency polygon, Bar diagram & Pie chart.

D. English Language (5 Marks):

Candidates' understanding of the Basics of English Language, its vocabulary, grammar, sentence structure, synonyms, antonyms and its correct usage, etc. his/her writing ability would be tested.

E. Subject Knowledge (80 Marks):

- On and Off Premise Laundry, advantages and disadvantages
- Flow process chart in laundry
- Stages in the laundry process
- Laundry equipment
- Location, layout and planning of laundry
- Stain removal: agents and method
- Alternative laundry procedures
- Disinfection
- Blood and Human Secretion related infection

SYLLABUS FOR THE POST OF LOWER DIVISION CLERK

PART-I

A. General Intelligence and Reasoning (25 Marks):

It would include questions of both verbal and non-verbal type. The test will include questions on Semantic Analogy, Symbolic operations, Symbolic/Number Analogy, Trends, Figural Analogy, Space Orientation, Semantic Classification, Venn Diagrams, Symbolic/Number Classification, Drawing inferences, Figural Classification, Punched hole/pattern-folding & unfolding, Semantic Series, Figural Pattern-folding and completion, Number Series, Embedded figures, Figural Series, Critical Thinking, Problem Solving, Emotional Intelligence, Word Building, Social Intelligence, Coding and de-coding, Other sub-topics, if any Numerical operations.

B. General Awareness (25 Marks):

Questions are designed to test the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially 10 pertaining to History, Culture, Geography, Economic Scene, General policy and scientific research.

C. Quantitative Aptitude (25 Marks):

Number Systems: Computation of Whole Number, Decimal & Fractions, Relationship between numbers.

Fundamental arithmetical operations: Percentages, Ratio and Proportion, Square roots, Averages, Interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time and work.

Algebra: Basic algebraic identities of School Algebra and Elementary surds (simple problems) and Graphs of Linear Equations.

Geometry: Familiarity with elementary geometric figures and facts: 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.

Mensuration: 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.

Trigonometry: Trigonometry, Trigonometric ratios, Complementary angles, Height and distances (simple problems only) Standard Identities like $\sin^2\theta + \cos^2\theta = 1$ etc.

Statistical Charts: Use of Tables and Graphs: Histogram, Frequency polygon, Bar- diagram, Pie-chart.

D. English Language (25 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage

PART-II

Skill Test:

The Skill Test will be of qualifying nature. Candidates will have to qualify the test for English or Hindi at the prescribed speed on Computer as per the advertisement.

SYLLABUS FOR THE POST OF MEDICAL RECORD TECHNICIANS

PART-I

A. General Intelligence and Reasoning (5 Marks):

It would include questions of both verbal and non-verbal type. The test will include questions on Semantic Analogy, Symbolic operations, Symbolic/Number Analogy, Trends, Figural Analogy, Space Orientation, Semantic Classification, Venn Diagrams, Symbolic/Number Classification, Drawing inferences, Figural Classification, Punched hole/pattern-folding & unfolding, Semantic Series, Figural Pattern-folding and completion, Number Series, Embedded figures, Figural Series, Critical Thinking, Problem Solving, Emotional Intelligence, Word Building, Social Intelligence, Coding and de-coding, Other sub-topics, if any Numerical operations.

B. General Awareness (5 Marks):

Questions are designed to test the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially 10 pertaining to History, Culture, Geography, Economic Scene, General policy and scientific research.

C. Quantitative Aptitude (5 Marks):

Number Systems: Computation of Whole Number, Decimal & Fractions, Relationship between numbers

Fundamental arithmetical operations: Percentages, Ratio and Proportion, Square roots, Averages, Interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time and work.

Algebra: Basic algebraic identities of School Algebra and Elementary surds (simple problems) and Graphs of Linear Equations.

Geometry: Familiarity with elementary geometric figures and facts: 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.

Mensuration: 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.

Trigonometry: Trigonometry, Trigonometric ratios, Complementary angles, Height and distances (simple problems only) Standard Identities like $\sin^2\theta + \cos^2\theta = 1$ etc.

Statistical Charts: Use of Tables and Graphs: Histogram, Frequency polygon, Bar- diagram, Pie-chart

D. English Language (5 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homononyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

E. Basic concepts of Management & Computers (5 Marks):

Principles of Management, Organisation behaviour, MS Office, MS Windows, Fundamentals of Computers, Internet etc.

F. Subject Knowledge (75 Marks):

- Hospital and Patient-care Appraisal
Objectives of Hospital, Parameters of Good Medical Care/Patterns of Patient Care, Functions of Hospital.
- Role of a Hospital in Health is- Delivery Systems (HCDS)
- Classification of Hospitals
- Hospitals Organization and its analysis
Chart of Organization, Board and Committees, Duties and responsibilities thereof.
- Departmental Administration
Delegation, Decentralization
- Patient Care Appraisal (PCA)
History of Medical Audit, Tools and Techniques, Various Phases of Medical Audit.

- **Departments and Service Units**

Clinical Departments, Diagnostic and therapeutic Services (including Clinical Laboratories, Radiology, Physical Medicine and Rehabilitation and Pharmacy Services), Nursing Department, Dietary Department, Outpatient Department, Accident and Emergency Services Department, Medical Social Service Department (viii) General and Medical Stores, Blood Bank, Medical Library Services, Service units in a Hospital Laundry, Housekeeping, CSSD, Miscellaneous Services : Engineering, Mortuary and Transport Services.

- **Basic Anatomy**

Definition of Anatomy & Physiology, Types of Anatomy (including systemic), Definition of topographic term/term used to describe the body, Descriptions of various regions of the body.

- **Basic Physiology**

Introductory Lectures or specialization of tissues, Homeostasis and its importance in mammals, Blood and lymphatic system Cardiovascular system, Excretory system, Skin and temperature regulation, Respiratory System, Digestive system and metabolism Endocrinology, Reproductive System, Digestive System and Metabolism Endocrinology, Reproductive System, Nervous System, Special Senses, Muscles.

- **Basic Pathology and Microbiology**

Definitions and Classification of diseases: Inflammatory diseases- viral and fungal, inflammatory diseases- Parasitic, Degenerative diseases, Fatty degeneration, Amyloid etc.

Tumors- Definition, etiology& classification, Disturbances in blood flow, Pigment disorders, Hereditary diseases, C.V.S. Blood vessels, V.S. Heart, Respiratory System, G.I. tract, Liver Lymphatic System, Genitourinary System, Skeletal System, Blood, Central Nervous System, Endocrine System.

- **Clinical Pathology:** Normal Composition of blood, disease of RBCs, WBCs, Platelets, Coagulation factors and disorders, Blood groups and cross matching, Blood transfusion, Urine Composition: variation in common disease, CSF and body fluids, Gastris and Duodenal contents, Fases, Parasites, Introduction and historical background, Classification special, Characteristics of organisms bacteria's, Asepis, Disinfection Antiseptics, Allergy study of pathogenic organisms, Non-pathology organisms, Virus and fungus, Parasitic diseases- their stance in India with lab Diagnosis.

- **Medical Terminology:**

- Objective
- Basic
- Elements of Medical Terms:
Roots, Prefixes, Suffixes, Colours, Numerals, Symbols, Abbreviation

Terms pertaining to Body as a whole.

Terms relate to Investigations, and operation, treatment of conditions, disorders-

Skin and Breast (integumentary system), Musculoskeletal, Neurological and Psychiatric, Cardio-vascular, Blood and blood forming organs, Respiratory, Digestive, Uro-genital, Gynecological, Maternal, Antenatal and Neonatal conditions, Endocrine and Metabolic, Sense organs of: Vision, Hearing.

Systemic: Infectious diseases, Immunological diseases, Diseases of the Connective Tissues, Diseases of the Connective Tissues.

Geriatrics and Psycho geriatrics.

Supplementary terms: Selected terms relating-

Oncology, Anesthesiology, Physical Medicine and Rehabilitation, Nuclear Medicine, Plastic Surgery of Bums and Maxillofacial, Radio-diagnosis, Radiotherapy.

- **Biostatistics:**
 - Introduction to Statistics
 - Methods of collection of data
 - Measures of central tendency (simple average, G.M., H.M., Mode and Median)
 - Measures of dispersion (Standard deviation, Range, variance, average deviation)
 - Sampling; Definition, Methods of sampling (random systematic, stratified, cluster)
 - Correlation and regression: Significance, linear correlation, correlation coefficient, linear regression.
 - Time series analysis- concept and its utility, component of time series.
 - Test of significance.
 - Graphical presentation of data.
 - Probability- concept and definition.
 - Uses of statistics.
 - Sources of hospital statistics (In- Patient census, Out — Patient Deptt, and Special Clinics).
 - Definitions (live, birth, foetal death, immaturity, cause of death, underlying cause of death inpatient bed etc)
 - Analysis of hospital services and discharges.
 - Indices (Bed occupancy, average length of stay, bed turn — over internal, death rate birth rate etc.)
 - Vital statistics.
 - Uses and Limitations of hospital data.
 - Method of compilation of various Health Returns/Statistical Returns

- **Healthcare Organization:**

Introduction to Principles of Management and Administration

Scope and importance of management, Principles of Management, Functions of a Manager (POSDCORB-E). Management Techniques, Material Management, Personal Administration Financial Administration.

Public Health Structure in India:

With relation to public Health & medical Care, Constitutional lists, various five years plans and priorities.

Role of Voluntary Health Organization

Basic facts of Health in India.

Current Objectives and strategies:

Population Dynamics, Community Health Worker schemes.

National Health Programmes of Medicine and Homeopathy.

Other programmes of relevance to Health Sector:

Family Welfare, Medical Termination of Pregnancy, National Population Policy, Maternity and Child Health

- **Medical Record Science**

Introduction to Medical Record Science, Development, Analysis and Uses of Medical Record. Development Medical Record Forms, basic and special.

- **Order of Arrangements:**

Ward, Medical Record Department, Source Oriented Medical Record, Problem oriented Medical Record, Integrated Medical Record.

- **Analysis of Medical Record:**

Quantitative, Qualitative.

Uses of Medical Records:

As a personal document, As impersonal document.

Values of the Medical Record

- **International classification of Diseases**
Classification of diseases as per I.C.D

PART-II

Skill Test:

The Skill Test will be of qualifying nature. Candidates will have to qualify the test for English or Hindi at the prescribed speed on Computer as per the advertisement.

SYLLABUS FOR THE POST OF STENOGRAPHER

PART-I

A. General Intelligence & Reasoning (10 Marks):

It would include questions of both verbal and non-verbal type. The test will include questions on analogies, similarities and differences, space visualization, problem solving, analysis, judgement, decision making, visual memory, discriminating observation, relationship concepts, arithmetical reasoning, verbal and figure classification, arithmetical number series, non-verbal series etc. The test will also include questions designed to test the candidate's abilities to deal with abstract ideas and symbols and their relationship, arithmetical computation and other analytical functions.

B. General Awareness (10 Marks):

Questions will be designed to test the ability of 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 observation and experience in their scientific aspects as may be expected of an educated person. The test will also include questions relating to India and its Neighbouring countries especially pertaining to Sports, History, Culture, Geography, Economic scene, General Polity including Indian Constitution, and Scientific Research etc. These questions will be such that they do not require a special study of any discipline.

C. English Language (80 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

PART-II

Skill Test in Stenography:

The Skill Test will be of qualifying nature. The candidates will have to appear for the stenography test. The candidates will be given one dictation for 10 minutes in English/Hindi at the speed of 80 w.p.m. for the post of Stenographer.

SYLLABUS FOR THE POST OF UPPER DIVISION CLERK

PART-I

A. General Intelligence and Reasoning (25 Marks):

It would include questions of both verbal and non-verbal type. The test will include questions on Semantic Analogy, Symbolic operations, Symbolic/Number Analogy, Trends, Figural Analogy, Space Orientation, Semantic Classification, Venn Diagrams, Symbolic/Number Classification, Drawing inferences, Figural Classification, Punched hole/pattern-folding & unfolding, Semantic Series, Figural Pattern-folding and completion, Number Series, Embedded figures, Figural Series, Critical Thinking, Problem Solving, Emotional Intelligence, Word Building, Social Intelligence, Coding and de-coding, Other sub-topics, if any Numerical operations.

B. General Awareness (25 Marks):

Questions are designed to test the candidate's general awareness of the environment around him and its application to society. Questions are also designed to test knowledge of current events and of such matters of everyday observation and experience in their scientific aspect as may be expected of an educated person. The test will also include questions relating to India and its neighbouring countries especially 10 pertaining to History, Culture, Geography, Economic Scene, General policy and scientific research.

C. Quantitative Aptitude (25 Marks):

Number Systems: Computation of Whole Number, Decimal & Fractions, Relationship between numbers

Fundamental arithmetical operations: Percentages, Ratio and Proportion, Square roots, Averages, Interest (Simple and Compound), Profit and Loss, Discount, Partnership Business, Mixture and Allegation, Time and distance, Time and work.

Algebra: Basic algebraic identities of School Algebra and Elementary surds (simple problems) and Graphs of Linear Equations.

Geometry: Familiarity with elementary geometric figures and facts: 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.

Mensuration: 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.

Trigonometry: Trigonometry, Trigonometric ratios, Complementary angles, Height and distances (simple problems only) Standard Identities like $\sin^2\theta + \cos^2\theta = 1$ etc.

Statistical Charts: Use of Tables and Graphs: Histogram, Frequency polygon, Bar- diagram, Pie-chart.

D. English Language (25 Marks):

Spot the Error, Fill in the Blanks, Synonyms/Homonyms, Antonyms, Spellings/ Detecting Misspelt words, Idioms & 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, Cloze Passage, Comprehension Passage.

PART-II

Skill Test:

The Skill Test will be of qualifying nature. Candidates will have to qualify the test for English or Hindi at the prescribed speed on Computer as per the advertisement.

Note: - *It may be noted that apart from the topics given above, questions from other topics related to the job and prescribed for the educational qualification of the post may appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.*