



GOVERNMENT OF JAMMU AND KASHMIR,
SERVICES SELECTION BOARD,
Sehkari Bhawan Near Bahu Plaza Jammu.
(www.jkssb.nic.in)

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SYLLABUS FOR WRITTEN TEST

“STATISTICAL ASSISTANTS”

Marks :-150
Time :- 2.30 Hours

General Knowledge And Current Affairs

- Important dates in Indian History / Freedom struggle, different dates and events.
- First in world (Adventure, Sports, Discoveries).
- First in India (Adventure, Sports, Discoveries).
- Popular names of Personalities (Religion, Politics, Scientific discoveries, Geographical, Sports, History)
- The Newspaper world – (Current Dailies & Weeklies of India).
- Books & Authors – General
- Languages.
- Capitals & Currencies.
- United Nations Organisations – Veto Powers
No. of Countries as its Members.
Principal organs and their functions.
- SAARC, ASEAN.
- Everyday Science
- World famous Awards - (1. in Science)
(2. in Literature)
(3. in Sports)
- National Awards - (1. in Science)
(2. in Literature)
(3. in Sports)
- The world of Sports
- Climate & Crops in India.
- Democratic institutions
- Forms of Government
- Political & Physical divisions of world & India
- Important rivers & Lakes in India.
- Current Events of National and International Level.
- Role of Mathematics in Economics.

- Agriculture in economic development; Industrialization and economic development.
- Indian Foreign Trade
- New economic reforms and growth of foreign trade.
- Inflation – Concept and types; Causes and consequences

GENERAL KNOWLEDGE WITH SPECIAL REFERENCE TO J&K

- Abbreviations, Important dates, popular names of personalities and their achievements/Contribution (National and International).
- Constitution of J&K – Formation, Fundamental rights, Directive Principles.
- Weather, Climate, Crops, Means of Transport.
- Important power projects and their impact on State Economy.
- Rivers and Lakes.
- Important Tourist Destinations.
- History of J&K State.
- Historical places of the State and their importance.
- RTI Act.
- Indus Water Treaty and its impact on State economy.

Statistical Methods

- Classification and Tabulation of Data
- Measures of central Tendency and Dispersion their relative merits and demerits.
- Theory of Probability
- Elementary Knowledge of Theoretical Distributions (Binomial, Poisson and Normal).
- Correlation and regression- Concept and definition and simple applications.
- Theory of Attributes- Basic concepts and their applications,
- Co-efficient and Association and Coefficient of Contingency.
- Hypothesis Testing- Chi Square Test & T-Test.

Applied Statistics

- Sampling Techniques- Simple Radom Sampling with and without replacement,
- Stratified Sampling,
- Ratio and Regression estimates,
- Cluster Sampling and Systematic Sampling,
- Sampling and Non- Sampling errors
- Analysis of Time Series components,
- Measurement of Trend and Seasonal variation.
- Theory of Index Numbers: Tests of Index numbers- Wholesale and consumer price Index numbers.
- Interpolation and Extrapolation.
- Demography-Census, its features and functions.
- Methods of Census taking.
- Vital Statistics- Measures of fertility ,Crude fertility rates, specific fertility rates, gross and net reproduction rates., Measures of Mortality

General Economics

- Meaning, Scope and Methodology,
- Theory of consumers demand using indifference curve technique.

- Consumer Surplus-Basic concept & measurement.
- Theory of distribution:- Marginal productivity Theory, Ricardian Theory of Rent, Kenysian Theory of Interest.
- Pricing under various forms of Market.
- Theory of production:- Returns to Scale & Returns to Factor
- Factors of production& Production functions.
- Concept of Economic Growth and its measurement
- Characteristics and problems of developing economy- Demography and economic development.
- Rationale of Planning in Developing Countries.
- Poverty Concepts & Measurement.
- Unemployment- Concept & Measurement.
- Objectives & Strategies of Indian Planning.
- Problems of resource mobilization- Successes & Failures.
- Decentralization & Role of PRIs.
- Planning for Inclusive Growth & Development Schemes.
- Fiscal and Monetary Policy.
- Inflation & Deflation.
- Concepts of National Income.
- RBI and Developmental Banks.
- SEBI, Foreign Trade, Balance of Payments
- Deficit Financing.

Computer Applications

- Fundamentals of computer sciences,
- Hardware & Software, Concept of Open Source Technologies
- Input & Output Devices,
- Flow Charts and Algorithms
- Operating System:- MS Word, MS Excel, MS Access, MS Power-Pont ,PDF
- Internet &E-mail
- Concept of Computer Virus & latest Anti-Virus.
- Terms and Abbreviations used in IT

Principles of Business Management

- Nature Scope and Significance of Management and Administration. The modern concept of Management.
- The process of Management
- Process of Control: Production Planning & Control, Quality Control, Inventory Control, Budgetary Control and Cost Control. PERT, CPM and GNATT Charts.
- Personnel Management : Definition, meaning and Scope, Performance appraisal, Evaluation and Monitoring, Human Resource Planning.
- Marketing Management : Definition, Meaning and Scope, Marketing Environment in India, Consumer Behavior, Marketing Strategies, Challenges of Marketing In India, Social Responsibilities & Marketing Ethics.
- Financial Management : Definition, meaning and Scope, , Financial Statement Analysis:, Income & Expenditure Statement, Profit & Loss Account, Balance

Sheet, Ratio Analysis, Working Capital Analysis, Fund Flow Statement, Cash Flow Statement, Capital Budgeting/Financial Leverage, Price level Accounting, Cost of Capital & Capital Structure , Issue of Shares & Debentures, Dividend Policy, Bonus , Share Markets: Primary & Secondary, Inventory & Receivable Management, Budgeting & Budgetary Control, Standard costing & Cost Sheets, Marginal Costing and Break Even Analysis, Differential Cost Analysis.

- Income Tax : Calculation of Income Tax-Salary
- Public Finance: Nature Scope and Importance of Public Finance.
- Registration of Companies- Memorandum of Associations, Articles of Associations, Mergers, Acquisition, Diversification, Expansion.
- Zero Based Budgeting & Performance Budgeting.
- Indian Financial System.

Mathematics

- Set Theory - Basic Concepts & Applications.
- Matrices & Determinants, Simultaneous Linear Equations- Cramer's Rule.
- Analytical Geometry.
- Differentiation- Basic Concepts (Addition, Product & Chain rule)
- Optimization using Differential techniques.
- Integration-Reduction & Substitution Method.
- Linear Differential Equations.
- Differential Equations Existence theorem for the solution of $dy/dx = f(x,y)$.
- Interpolation, Extrapolation & Inverse interpolation.

Secretary,
J&K Services Selection Board,
Jammu.

“ JUNIOR STATISTICAL ASSISTANTS”

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- (III) Weather, Climate, Crops, Means of Transport.

- (IV) Important power projects and their impact on State Economy.
- (V) Rivers and Lakes.
- (VI) Important Tourist Destinations.
- (VII) History of J&K State.
- (VIII) Historical places of the State and their importance.
- (IX) RTI Act.
- (X) Indus Water Treaty and its impact on State economy.

Statistical Methods

- Primary and secondary data,
- Methods of collecting primary data and
- Preparation of questionnaires-
- Tabulation and compilation of data.
- *Measures of central Tendency.*
- Theory of probability
- Correlation and Regression- Concept and simple applications.
- Theory of Attributes- Basic concepts and their applications

Applied Statistics

- Sampling techniques- Simple Random Sampling (with and without replacement), Stratified Sampling.
- Sampling and non- Sampling errors
- Analysis of Time Series components
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- Demography-Census, its features and functions.
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General Economics

- Meaning, Scope and methodology,
- Theory of consumers demand using indifference curve technique.
- Demand Analysis.
- Factor Pricing:- Marginal Productivity Theory & Ricardian Theory of Rent
- Pricing under various forms of Market.
- Factors of production: factors of production & laws of Production.
- Concept of economic growth and its measurement
- Characteristics and problems of developing economy.
- Rationale of Planning in Developing Countries.
- Objectives & Strategies of Indian Planning.
- Five Year Plans
- Fiscal and Monetary Policy
- Inflation & Deflation
- Concepts of National Income

Knowledge of Computer Applications

- Fundamentals of computer sciences,
- Hardware & Software, Concept of Open Source Technologies
- Input & Output Devices,
- Flow Charts and Algorithms
- Operating System:- MS Word, MS Excel, MS Access, MS Power-Point ,PDF,
- Internet &E-mail
- Concept of Computer Virus & latest Anti-Virus.
- Terms and Abbreviations used in IT

Principles of Business Management

- Nature Scope and Significance of Management.
- The process of Management
- Process of Control: Production Planning & Control, Quality Control, Inventory Control, Budgetary Control and Cost Control. PERT, CPM and GNATT Charts.
- Personnel Management: Definition, meaning and Scope, Performance appraisal, Evaluation and Monitoring, Human Resource Planning.
- Marketing Management: Definition, Meaning and Scope, Marketing Environment in India, Consumer Behavior, Marketing Strategies, Challenges of Marketing In India, Social Responsibilities & Marketing Ethics.
- Financial Management: Definition, meaning and Scope, Financial Statement Analysis:, Income & Expenditure Statement, Profit & Loss Account, Balance Sheet, Ratio Analysis, Working Capital Analysis.
- Taxation- Meaning, Classification and Principles of taxation.
- Public Finance: Nature Scope and Importance of Public Finance.
- Registration of Companies- Memorandum of Associations, Articles of Associations, Mergers, Acquisition, Diversification, Expansion.
- Zero Based Budgeting & Performance Budgeting.
- Indian Financial System.

Mathematics

- Set Theory - Basic Concepts & Applications.
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- Analytical Geometry.
- Differentiation- Basic Concepts (Addition, Product & Chain rule)
- Integration- Reduction & Substitution Method.
- Differential Equations.
- Interpolation & Extrapolation.

Secretary,
J&K Services Selection Board,
Jammu.

"JR. ENGINEER (CIVIL)"

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

1. Surveying:

Importance of surveying, principles and classifications, measurements of distance and directions, chain surveying, compass surveying, leveling, tachometry, theodolite, traversing, contouring, plane table surveying, curves.

2. Mechanics and Structural analysis:

Introduction, Concept of rigid body scalar and vector quantities, Laws of forces, moment, friction, centre of gravity, simple machines, torsion, Properties of material, Bending moment and shear force in statically determinate beams. Simple stress and strain relationship. Stress and strain in two dimensions, principal stresses, stress transformation. Simple bending theory, flexural and shear stresses, unsymmetrical bending, shear centre. Thin walled pressure vessels, uniform torsion, buckling of column, combined and direct bending stresses. slope and deflection, Analysis of trusses

3. RCC Structures:

Concrete technology, Ingredients of concrete, water cement ratio, workability properties of concrete, admixtures, special concretes, Non destructive tests, basics of mix design. Concrete design-basic working stress and limit state design concepts, analysis of ultimate load capacity and design of members subjected to flexure, shear, compression and torsion by limit state methods. Basic elements of prestressed concrete, analysis of beam sections at transfer and service loads. One way slab, two way slab.

4. Soil Mechanics:

Origin of soils, properties, soil classification, three phase system, fundamental definitions, relationship and interrelationship, flow of water through soils,

permeability & seepage, effective stress principle, deformation of soils, consolidation, compaction, shear strength characteristics, plate load test, SPT, Density control, Measurement of field density by core cutter and sand replacement method, soil exploration, bearing capacity and its methods

5. Fluid Mechanics and Hydraulics:

Properties of fluids, hydrostatic pressure, measurement of pressure, flow measurements, flow through pipes, flow through open channels, hydraulic pumps, principle of conservation of mass, momentum, energy and corresponding equations, potential flow, applications of momentum and Bernoulli's equation, laminar and turbulent flow, flow in pipes, pipe networks. Concept of boundary layer and its growth. Uniform flow, critical flow and gradually varied flow in channels, specific energy concept, hydraulic jump. Forces on immersed bodies, flow measurements in channels, tanks and pipes. Dimensional analysis and hydraulic modeling. Kinematics of flow.

6. Irrigation Engineering:

Introduction, water requirement of crops, hydrological cycle, Dams, Canals, dams, canal head works and regulatory works, cross drainage works, hydraulic structures, river training works, water-logging, drainage, ground water recharge, well hydraulics.

7. Water supply and waste water Engineering:

Introduction, quantity of water, quality of water, water treatment, conveyance of water, laying out of pipes, Building water supply, water supply fixtures and installation ,plumbing, sewerage system, laying and construction of sewers, sewage characteristics, Methods of disposal, sewage treatment , building drainage, air and noise pollution

8. Highway Engineering:

History of development of highway and planning ,Definitions of various terms used in highway engineering., Methods of road construction, IRC classification, Highway surveys and plans Geometric design, Different types of road materials in use, Binders, Types of pavement, CBR method ,sub grade preparation, WBM, WMM, Bituminous Macadam, dense bituminous macadam, special problems in hill road.

9. Railway Engineering:

History of Indian railways, Gauges used, permanent way its components, Types of rails, creep, welding, Rail fixtures and fastenings, Signaling, Points and Crossings, Bridge terminology, classification, components, foundations.

10. Construction planning management:

Network diagrams, PERT-CPM, cost optimization contracts, tenders, depreciation, valuation, organization, measurement books, cash book, functions of management, construction planning, quality control, inventory control, Estimation and costing definitions, methods of estimation and type of estimates.

Secretary,
J&K Services Selection Board,
Jammu.

"JR. ENGINEER (MECHANICAL)"

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

1. Theory of Machines and Machine Design:

Four bar linkage and link motion, Flywheels and fluctuation of energy, Power transmission by belts-V-belts and Flat belts. Gears-Type of gears, gear profile and gear ratio calculation. Cams. Governors-Principles and classification. Design of keys, shafts, Riveted joint, couplings.

2. Engineering Mechanics and Strength of Materials:

Laws of forces, Equilibrium of Forces, Moment of Inertia, Laws of motion. Friction. Concept of simple machines, M A, V R, %age. Concepts of stress and strain, Elastic limit and elastic constants. Bending moments and shear force diagram. Stress in composite bars. Torsion in circular shafts. Columns: Euler's and Rankine's theories. Thin walled pressure vessels.

3. Thermal Engineering and Refrigeration & Air-conditioning:

Thermodynamics: Heat, work and temperature, First and second laws of thermodynamics. Carnot, Rankine, Otto and Diesel Cycles. P-v & P-T diagrams H₂O. Saturated, wet & superheated steam. Definition of dryness fraction of steam, degree of superheat of steam. Rankine cycle of steam: Simple Rankine cycle, plot on P-V, T-S, h-s planes, Rankine cycle efficiency with & without pump work.

Concept of COP, Carnot Cycle, Vapour compression cycle. Refrigerants. Psychometry, DBT, WBT, DPT.

4. Fluid Mechanics & Machinery:

Properties & Classification of Fluids, Newton's law of viscosity, Fluid Statics, Measurement of Fluid Pressure by Manometers, U-tube, Inclined tube. Fluid

Kinematics : Stream line, laminar & turbulent flow, external & internal flow, continuity equation. Dynamics of ideal fluids : Bernoulli's equation, Total head; Velocity head; Pressure head.

Measurement of Flow rate, Basic Principles & working of Venturimeter, Pitot tube, Orifice meter. Hydraulic Turbines & Centrifugal Pumps

5. Material Science & Production Engineering:

Structure of metals, Space lattice, Unit cell, BCC, FCC etc, Iron carbon diagram, Classification of Steels : mild steel & alloy steel. Heat treatment of steel.

Welding – Arc Welding, Gas Welding, Resistance Welding, Special Welding Techniques i.e. TIG, MIG. Brazing & Soldering, Welding Defects & Testing. Foundry & Casting methods, defects, different casting processes. Forging, Extrusion etc. Metal cutting principles, cutting tools. Basic Principles of machining with Lathe, Milling, Drilling, Shaping, Grinding. Machine tools & manufacturing processes.

6. Metrology and Automobile Engineering:

Tools used in Linear Measurements, Angular Measurement, Surface finish. Limits, fits & Tolerance, Error,

Classification of Automobiles. Transmission, Steering, Braking, Suspension system. IC Engine Performance, IC Engine Combustion process, Cooling and Lubrication system in I.C Engine

7. Industrial Management and CAD/CAM:

Planning, Organizing, Leading, Controlling. Inventory Control, Inspection & Quality Control.

Basic concepts of CAD/CAM. NC, DNC, CNC machines.

Secretary,
J&K Services Selection Board,
Jammu

"JR. ENGINEER (ELECTRICAL)"

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

1. Electric Circuits and Fields:

Basic concepts: Concepts of resistance, inductance, capacitance and various factors effecting them., Circuit laws: ohms law KCL, KVL, node and mesh analysis, resonance, ideal current and voltage sources, Source conversions Thevenin's, Norton's and Superposition and Maximum Power Transfer theorems, Simple Circuit solution using network theorems. Three phase circuits; Ampere's and Biot-Savart's laws; inductance; dielectrics; capacitance.

2. Control Systems:

Basic control system components; block diagrammatic description, reduction of block diagrams. Open loop and closed loop (feedback) systems and stability analysis of these systems.

3. Electrical and Electronic Measurements:

Bridges and potentiometers; PMMC, moving iron, dynamometer and induction type instruments; Extension of range, measurement of voltage, current, power, energy and power factor; instrument transformers; digital voltmeters and multimeters; phase, time and frequency measurement; Q-meters; oscilloscopes. Transducers: measurement of displacement, flow and temperature, Megger. Measurements of active and reactive power, Measurement of Energy.

4. Electronic Devices and Circuits:

Energy bands in silicon, intrinsic and extrinsic silicon. Carrier transport in silicon: diffusion current, drift current, mobility, and resistivity. p-n junction diode, Zener diode, tunnel diode, BJT, JFET, MOS capacitor, MOSFET, LED, avalanche photo diode .Small Signal Equivalent circuits of diodes, BJTs, MOSFETs. Simple diode circuits, clipping, clamping, rectifier. Biasing and bias stability of transistor and FET amplifiers. Single-and multi-stage, tuned voltage, operational, feedback, and power amplifiers. Frequency response of amplifiers. Simple op-amp circuits. Filters. Sinusoidal oscillators; criterion for

oscillation; single-transistor and op-amp configurations. Function generators and wave-shaping circuits, 555 Timers IC and its applications. Power supplies.

5. Digital Electronics and Microprocessor:

Number systems: Binary, decimal, octal, hexadecimal, BCD number systems and their conversions, Binary and hexadecimal addition, subtraction multiplication, 1's and 2's complement methods of addition/subtraction. Boolean algebra, minimization of Boolean functions; logic gates; digital IC families (DTL, TTL, ECL, MOS, CMOS). Combinatorial circuits: arithmetic circuits, code converters, multiplexers, decoders, PROMs. Sequential circuits: latches and flip-flops, counters and shift-registers. ADCs, DACs. Semiconductor memories. Microprocessor (8085): architecture, instruction set, programming, memory and I/O interfacing. Study of peripheral chips- 8251, 8155, 8257, 8259.

6. Power Electronics and Drives:

Semiconductor power diodes, transistors, thyristors, triacs and MOSFETs – static characteristics and principles of operation; triggering circuits; phase control rectifiers; bridge converters – fully controlled and half controlled; Choppers and Inverters; concepts of adjustable speed dc and ac drives.

7. Electrical Machines:

Single phase transformer – equivalent circuit, phasor diagram, tests, regulation and efficiency; three phase transformers – connections, parallel operation; auto-transformer, Energy conversion principles, Electro-mechanical energy conversion ; DC machines–types, windings, generator characteristics, armature reaction and commutation, starting and speed control of motors; three phase induction motors–principles, types, performance characteristics, starting and speed control; single phase induction motors; synchronous machines – performance, regulation and parallel operation of generators, motor starting, characteristics and applications; servo and stepper motors. Braking of DC and AC motors

8. Power Systems:

Basic power generation concepts; transmission line models and performance; cable performance, insulation; corona and radio interference; distribution systems; power factor correction; economic operation; symmetrical components; principles of over-current, differential and distance protection; Generator, feeder, transformer and bus-bar protection, Lightning protection; solid state relays and circuit breakers; Sub-Station Practices, Load frequency

control, Tariffs, Earthing. Utilisation of Electrical energy: Illumination, electrical heating and welding, electroplating.

Secretary,
J&K Services Selection Board,
Jammu.

“LAB. ASSISTANT, (HEALTH DEPARTMENT)”

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

ANTOMY THEORY

1. INTRODUCTION

- Different Parts of the human body, Common Anatomical Terms, Anatomical Positions and important planes.
- Animal Cell.
- Tissue of the body, classification and function.
- Primary tissues of the body.

2. SKELETAL SYSTEM

- Joints & Movements
- Muscle & Monce.

3. GASTRO-INTESTINAL SYSTEM

- Mouth and Pharynx.
- Salivary Glands and Tonsils.
- Oesophagus and Stomach.
- Location of different organs in the Abdomen in situ.
- Liver and Gall Bladder.
- Spleen and Pancreas.

4. GENITO-URINARY SYSTEM

- Kidney
- Ureters, Bladder and Urethra.
- Male Reproductive System.
- Female Reproductive System.

5. RESPIRATORY SYSTEM

- Thoracic Cavity, Pleura and Lungs.

6. CARDIO-VASCULAR SYSTE

- Heart and Pericardium.
- Arterial System.
- Venous and Lymphatic System.

7. NERVOUS SYSTEM

- Meanings and cerebrospinal fluid.
- Brain, Spinal Cord and the Nerves.

8. LOCO-MOTOR SYSTEM

- Parts of Upper Limb: - Bones Land marks and important vessels.

PHYSIOLOGY THEORY

1. BLOOD

- Composition and General function of Blood.
- Description of Blood Cells: - Normal Counts and function.
- Anti-conagulants.

2. CARDIO-VASCULAR SYSTEM

- Functions of hart and blood vessels.
- Circulation:- Systemic Circulation
Pulmonary Circulation.

3. RESPIRATORY SYSTEM

- Name of the Structure involved in respiration and their function
- External and Internal Respiration. How respiration and expiration are brought about.
- Transport of O₂ and CO₂ in the blood.
- Definition of Respiratory Rate, Tidal Volume, Vital Capacity, Cyanosis, Hypoxia.

4. EXCRETORY SYSTEM

- Functions of Kidney.
- Formation & Composition of Urine-normal and abnormal constituents.

5. SKIN

- Functions of Skin.

6. DIGESTIVE SYSTEM

- Composition and functions of Saliva. Mastication and deglutition.
- Functions of Stomach, Composition of Gastric Juice, Pancreatic Juice, Bile and Succus entericus.

7. ENDOCRINE GLANDS

- Definition, name and the hormones secreted by them.
- Major action of each hormone.

8. REPROUCTIVE SYSTEM

- Male Genital System.
- Female Genital System.
- Names of Primary and Accessory Sex organs in make and female, Secondary Sexual characters in make and female.
- Functions of Ovary, formation of Ova, actions of Ovarian Hormones.
- Functions of Testis – Spermatogenesis and actions of testosterone.

9. BLOOD GROUP, ABO and Rh, basis for classification, basis for determination, importance and Blood Groups.

10. CEREBROSPINAL FLUID, Formation, composition and functions.

BIO-CHEMISTRY THEORY

1. Elementary knowledge of Inorganic Chemistry – Atomic Weight, Molecular weight, Equivalent weight-Acids, basis and Salts-indicators-molar solutions, Buffer Solution, Titration (Acid Base) Definition of Solutions. Methods of expressing concentration: Dilution.
2. Elementary knowledge of Organic Chemistry-Organic Compounds. Aliphatic and Aromatic. Alcohols, Aldehydes, Ketones, Amines, Esters, Phenol, Acids Colloids etc.
3. Elementary of Analytical Chemistry-Instrumentation, Centrifuge Balances, Colorimeter, Spectrophotometer, Flamephotometer Fluorimeter etc.

CLINICAL BIOCHEMISTRY THEORY

1. Aims and Scope Biochemistry.
2. CARBOHYDRATES – Importance, Definition, Classification, some properties.
3. PROTEINS-Amino Acids, essential amino acids, peptides, denaturation of proteins, Physiologically important proteins, functions of plasma proteins.
4. LIPIDS-Definition, classification, steroids, examples.
5. NUCLEICACIDS-DNAAND RNA, their importance.
6. HAEMOGLOBIN.
7. ENZYMESAND CO-ENZYMES-Elementary.
8. GASTRIC JUICE collection, Acidities.
9. CARBOHYDRATE-METABOLISM- elementary aspects, definition of Glycolysis, Glycogenoysis Hormonal regulation of Blood Sugar, Diabetes-Mellitus-Ketosis, Gcosuria, Renal Glycosuria, Pentosuria.
10. METABOLISM OF LIPIDS – elementary aspects, Triglyeerides, Cholestrol. Plasman Lipoprotiens-Ketone bodies and Ketonuria.
11. PROTIEN METABOLISM – Formation of Urea. Creatinine Proteinuria. Edema, Transaminases.
12. WATER AND MINERAL METABOLISM – Dehydration, Calcium, Phosphorus, Sodium, Potassium, Chloride, Iron, Lodine, their physiological functions and disease state.
13. HARMONES – definition, functions of some important hormones.
14. Blood and cerebrospinal Fluid functions of Blood & CSF.
15. Urine Normal and abnormal tests.

MICROBIOLOGY AND PARASITOLOGY THEORY

1. Requirement and use of Common Laboratory Equipment
 - Incubator, Hot Air Oven. Autoclave. Water Bath. Anacrobic Jar. Vaccum Pump. Media Pouring Chamber, Refrigerator. Centrifuge.
2. Microscope
 - Principal, Operation, Care and use of Microscope.
3. Sterilization and Disinfection
 - Classification and general principles of Sterilization. Physical. Chemical and Mechanical Methods. Disposal of contaminated Media, Syringes, Glassware, Apparatus.

4. **Classification and Morphology of Bacteria**
 - **Brief Outline of :-**
 - Structure of Cell, Capsule, Flagella and Spores.
 - Growth of Bacteria
 - Nutrition of Bacteria.
5. **Staining of Bacteria**
 - Simple, Grams, Ziehl-Neelsen, Albert. Spore Stain.
 - Composition and preparation of staining reagents.
6. **Cultivation of Micro-Organisms-I (In detail)**
 - Classification of Media, Composition of Laboratory culture Media and Special Media.
7. **Cultivation of Micro-Organisms-II (In detail)**
8. **Identification of Bacteria:**
 - Cultural Characters, Bio-Chemical reactions and serotyping.
9. **Normal flora of micro-organisms in the human body.**
10. **Gram Positive and Gram Negative co---Staphylo----Penumococcus Neissriae (In brief).**
11. **Gram Negative Bacilli:**
 - Salmonella. Shigella. E. Coli. Klebsiella, Proteus. Pseudomonas Vibrio cholera Haemophilus. (In Brief)
12. **Gram Positive Bacilli:**
 - Aerobic
 - a) Corynebacterium diphtheria. (In Brief).
 - b) Mycobacterium tuberculosis and Mycobacterium leprae.
 - Anaerobic bacilli – Clostridia. (In Brief).
13. **Antibiotic Sensitivity test – Principles and methods of determination of sensitivity. Candida. Asperigillus. Dermatophytes. (In Brief).**
14. **HIV & AIDS:**
 - Brief Account
15. **Immunity, Antigens, Antibodies and antigen antibody reaction and their applications in diagnosis of diseases.**
16. **Principles, Procedures and Diagnostic significance of agglutination. Precipitation. Neutralisation and complement fixation reactions.**
17. **Collection and processing of Clinical materials like Sputum. Urine Swabs. Stool. Blood, CSF and Aspirates.**

CLINICAL PATHOLOGY AND HAEMATOLOGY

THEORY:

1. **Introduction of Haematology.**
2. **Collection of Blood**
3. **Anticoagulants.**

4. **Red Cell Count:**
 - Haemocytometer
 - Methods
 - Calculation.

5. **White Cell Count. (Total Leucocyte Count):**
 - Morphology of White Cells.
 - Normal Values.
 - Romanowsky Stains
 - Staining Procedures
 - Counting Methods.

6. **Absolute Eosinophil Count.**
7. **Erythrocyte Sedimentation Rate (ESR)**
 - Westergren's Method.
 - Wintrobe's Method.
 - Factors affecting ESR.
 - Importance and Limitations.
 - Normal Values.

8. **Packed Cell Volume.**
 - Macro and Micro Methods.
 - Normal Values.

9. **Haemoglobin Estimation and its clinical importance.**
10. **Red Cell Indices**
 - Calculations and Importance.

11. **Reticulocyte Count:**
 - Methods
 - Appearance
 - Normal Values.

12. **Sickle Cell Preparation.**
13. **Osmotic Fragility Test:**
 - Scoring Test.
 - Qualitative and Quantitative Test
 - Normal Values.
 - Factors affecting fragility.
 - Interpretation.

14. **Peripheral Blood Film**
15. **Preparation of Bone Marrow Smears**
16. **Coagulation Tests.**
 - Process of Coagulation.
 - Factors of Coagulation.
 - Tests of Coagulation.
 - a. Bleeding time.
 - b. Whole Blood Coagulation Time.
 - c. Clot Retraction Test.
 - d. Prothrombin Test.
 - e. Tourniquet test.
 - f. Platelet Count.

17. **Urinalysis.**
 - Normal Constituent.
 - Physical Examination.
 - Chemical Examination.
 - Microscopic Examination.
18. **CSF Examination.**
 - Normal and abnormal Cell Count.
19. **Semen Analysis.**
 - Physical Preterition.
 - Motility.
 - Morphology.
20. **Coomb's Test**

HISTOTECHNOLOGY THEORY

1. **Introduction.**
2. **Cell, Tissues and Their functions.**
3. **Examination Methods of Tissues and Cells.**
4. **Fixation of Tissue:**
 - Classification of fixatives:
 - a) Simple fixatives and their properties.
 - b) Micro anatomical fixatives.
 - c) Cytological fixatives.
5. **Tissue Processing:**
 - Collection of Specimen.
 - Labeling and Fixation.
 - Dehydration.
 - Cleaning
 - Impregnation.
6. **Section Cutting:**
 - Microtomes and their knives.
 - Techniques of Section Cutting.
 - Mounting of Sections.
 - Frozen Section.
7. **Staining.**
 - Dyes and their properties.
 - Theory of Staining.
 - Staining Techniques with haemotoxlin and cosin.
 - Mounting of Sections.
 - Common Special Stains.
8. **Decalification.**
 - Fixation.
 - Decalification
 - Detection of end point.
 - Neutralization and processing.

9. **Exfoliative Cytology:**
 - Types of Specimen and preservation.
 - Preparation and fixation of Smears.
 - Papanicolaou Staining Technique.
 - Sex Chromatin Staining.
10. **Museum Technique.**
 - Reception of Specimen.
 - Preparation of Fixation.
 - Restoration of Colour.
 - Preservation.
 - Presentation.
11. **Autopsy Technique:**
 - Assisting in Autopsy.
 - Preservation of Organs & Processing of Tissues.
12. **Waste disposal and safety in Laboratory.**

LABORATORY MANAGEMENT AND ETHICS

1. **Role of the Laboratory in the Health Care Delivery System:**
 - General
 - Human Health & Diseases.
 - a. Types of Diseases.
 - b. Process of Diagnosis
 - c. Laboratory at different levels.
 - d. Duties and responsibilities of Laboratory personnel.
2. **Laboratory Service in the Health Care Delivery System in India.**
 - Laboratory Service in India.
 - The Health Administration System in India.
 - a. At the National Level.
 - b. At the State Level.
 - c. At the District Level.
 - d. At the Village Level.
 - e. Voluntary health Organizations in India.
3. **Laboratory Planning:**
 - General Principals.
 - Laboratory Goals.
 - Operational Data.
 - a. Market Potential
 - b. Hospital/Laboratory relatives.
 - c. Competitions.
 - d. Laboratory Trends.
 - e. Planning at different levels.
 - f. Guiding Principles for planning Hospital laboratory Services:
 - Factors.
 - Guiding Principles for Planning.
 - Functional Criteria.
 - Operational demand.

- Sections of a Hospital Laboratory.
 - Common area.
 - Design aspect.
 - Space requirement.
- g. Planning for a basic health Laboratory.

4. Laboratory Organization (Laboratory Management Techniques):

- General Principles.
- Components and functions of a laboratory.
- Staffing the Laboratory.
- Job Descriptions.
- Job Specification
- Work schedule
- Personnel re-arrangement and work load assessment.

5. Care of Laboratory Glassware, Equipments and Instruments and Chemicals etc.

- General Principles.
- Care and cleaning of glassware.
- Making simple glass wares in Laboratory.
- Care of equipments, instruments and apparatus etc.
- Laboratory Chemicals, their proper use and care.
- Labelling.

6. Specimen Handling

- General Principles.
- Collection Techniques and containers for specimen.
- Types of Specimens.
- Specimens entry.
- Specimens transfer and distribution and re-assignment.
- Specimens disposal.
- Specimens Preservation.

7. Laboratory Safety.

- General Principles
- Laboratory Hazards.
- Safety Programmes.
- First-Aid

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“JR. PHYSIOTHERAPY”

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

1. A) Anatomy :

- I. Histology-cell tissue of the body, epithelium, connective tissue, cartilage, bone, blood, lymph, muscles, nervous system.
- II. Osteology- formation, classifications, functions, growth and repair of bones.
- III. Embryology- Ovum, Spermatozoa, Fertilization, organogenesis, Development of various systems.
- IV. Blood Vascular system –arteries, capillaries, veins, lymphatic system.
- V. Respiratory System –anatomy of larynx, trachea and bronchi, the pleura, the lungs.
- VI. Digestive system
- VII. Urogenital system
- VIII. Surface Anatomy.

B) Neuro- anatomy: Microscopic and gross study of :

- I. Peripheral Nerves
- II. Neuromuscular Junction
- III. Sensory Organs
- IV. Spine Cord- Segment & Areas
- V. Brainstem
- VI. Cerebellum
- VII. Inferior colliculi
- VIII. Superior Colliculi
- IX. Diencephalon
- X. The Hypothalamus
- XI. The Hypothalamus
- XII. The thalamus
- XIII. The Cerebral Hemispheres
- XIV. The Corpus striatum
- XV. The Rhinencephalon
- XVI. The Lateral Ventricles
- XVII. The Meninges
- XVIII. The Blood supply of the Brain

2. HUMAN PHYSIOLOGY

- I. Structure of Human Cell
- II. Elementary tissues of Body
- III. Blood , composition, function , Grouping Blood Disorders.
- IV. CVS(Cardio Vascular System) Structure of Heart, Cardiac cycle, Hypertension
Cardiac disorders reference to Physiology.

- V. Digestive System –Physiology anatomy, Process of digestion, organs of digestion and disorders.
- VI. Respiratory system –structural Physiology process of respiration
- VII. Excretory system; detailed structure of kidney , funtction, disorders,
- VIII. Elementary knowledge of structure and function of organ of taste, smell, eye and skin.
- IX. Endosionology ; All the endosine glands in detail
- X. Reproductive system; physiology /Anatomy
- XI. Introduction to pathology
- XII. Repair and inflammation
- XIII. Pathological terms
- XIV. Pathology of various organs
- XV. Role of pathology in physiotherapy
- XVI. Review of pathology changes of various organs and their treatment
- XVII. Drugs action on central nervous system. Anesthetics, alkaloids , narcotics, analgesics, antipyretics, sedatives, anticonvulsants,
- XVIII. Drugs action on cardiovascular System, neuromuscular system, respiratory system.
- XIX. Drugs acting with Peripheral Nervous system
- XX. Chemotherapy
- XXI. Hormones and drugs effecting Endocrine functions
- XXII. Vitamins
- XXIII. Metallic and other Inorganic compounds
- XXIV. Immunological agents
- XXV. Diagnostics.

3. EXERCISE THERAPY & MASSAGE

- I. Mechanical anatomy of motion and posture
- II. Exercise of the shoulder and hip and evaluation
- III. Exercise of the Foot and Hand evaluation
- IV. Exercise of the Knee and elbow and evaluation
- V. Vicarious motion
- VI. Joint motion assessment
- VII. Manual muscle examination
- VIII. The therapeutic gymnasium
- IX. Exercise based on Neuro Physiological Principles
- X. Crutch and cane exercises
- XI. Gait training
- XII. Principles of therapeutic exercise
- XIII. Postures
- XIV. Exercises for healthy persons
- XV. Activities of daily living
- XVI. Exercise of spine
- XVII. Massage
- XVIII. Suspension therapy
- XIX. Neuro muscular co-ordination
- XX. Starting postions
- XXI. Cryotherapy.

4. ELECTRO THERAPT & ACTINO THERAPY

A) Medical Electronics

- I. Electrical fundamentals
- II. Electron tubes
- III. Power supplies
- IV. Amplifiers
- V. Oscillators
- VI. Cathode ray tubes
- VII. Transistors
- VIII. Recorders
- IX. Transducers
- X. Radiation
- XI. Principles of designs and circuits of infrared and ultra violet generators, shortwave diathermy, microwaves, ultrasonics and electrical stimulators
- XII. Signal processes
- XIII. Display devices and indicators
- XIV. Magnetic tape recorders
- XV. Data transmission and processing

B)

- I. Physics of heat
- II. Thermometry
- III. Biophysics of diathermy
- IV. Physiology of heat and cold
- V. Thermal radiation, pain and injury
- VI. General principle of thermotherapy
- VII. Conducting heating
- VIII. Luminous and infra-red heating
- IX. High frequency instrumentation
- X. Short wave diathermy
- XI. Microwaves
- XII. Ultrasound therapy
- XIII. Instrumentation of electrotherapy
- XIV. Therapeutic electro stimulation
- XV. Iontophoresis
- XVI. Electrosleep Therapy and anaesthesia
- XVII. Instrumentation for ultraviolet therapy
- XVIII. Physiological affects of Ultraviolet radiation
- XIX. Low frequency currents
- XX. T.N.S.
- XXI. Interferential therapy
- XXII. Wax Therapy

C) ELECTRO –PHYSIOLOGY

- I. Bio-Electricity
- II. Electric potential generated by cell
- III. Electrogenic membrane response
- IV. Chemo responsive electrogenic system
- V. Propagation of nerve impulse
- VI. Neuromuscular Junction
- VII. Synapse
- VIII. Muscle Electronic

- IX. Electrophysiology of CNS
- X. Chronaxy
- XI. Strength duration curves
- XII. Electromyography
- XIII. Electrical duration curves
- XIV. Nerve conduction studies
- XV. Microneurography
- XVI. Reflex Physiology Monosynaptic and Polysynaptic reflexes
- XVII. Spinograms
- XVIII. Cerebral evoked potentials.

5. PSYCHOLOGY

- I. Definition and scope of psychology in relation to occupational therapy Physiotherapy.
- II. Methods of studies in Psychology.
- III. Psychological Development of human individual from conception to birth to old age.
- IV. Special needs, characteristics and problems of the various groups of Handicapped.
- V. Learning, factors affecting learning, disabilities techniques to deal with implications of various handicaps in the learning process. Principles of learning for various handicapped groups, Techniques of motivating the handicapped children.
- VI. Adjustment, criteria of mental health, adjustment problems faced by handicapped children, counseling and guidance with special reference to the physically and mentally handicapped.
- VII. Interaction with the family, community and peer groups Communication pattern, specific problems faced by handicapped, development of social skills and sensitivity training.
- VIII. Role of Psychologist in Rehabilitation of the handicapped.

6. MEDICINE

General Medicine including Respiratory Diseases

- I. Infection and antibacterial agents.
- II. Infections and Diseases
- III. Poisons and Venoms
- IV. Chemical and Physical agents carrying diseases
- V. Diseases of Metabolism.
- VI. Deficiency Diseases
- VII. Diseases of Endocrine Glands.
- VIII. Diseases of Digestive System.
- IX. Diseases of Lymphatic System
- X. Diseases of Blood
- XI. Diseases of Cardio-vascular system, Circulatory failure, Ischemic heart disease, Hypertension Pulmonary Heart Diseases, Congenital heart Disease, Peripheral vascular diseases, Embolism and Thrombosis, Collagen diseases.
- XII. Diseases of the Respiratory System-the trachea, the bronchi, the lungs, the diaphragm, the pleura.
- XIII. Diseases of the Kidney

- XIV. Diseases of the Skin sensory disorders, Pigmentary Anemielias, vasomotor, Disorders, Dermatitis, Coccal Infections, Fungus Infections, Cutaneous, Tuberculosis, Virus infection, Parastitic infections, Erythmatous conditions, Scleroderma of the Hand, Tropical skin diseases.
- XV. Psychiatry:
- Definition and introduction to Psychiatry in relation to OT & PT
 - Concept of normal and abnormal
 - Behavior disorders:- Causes & management
 - a) Psychonenrotic disorders
 - b) Psychotic disorders
 - c) Psychosomatic disorder
 - Techniques of Therapy
 - Psycho Therapy:
 - a) Group Therapy
 - b) Psychodrama
 - c) Behaviour modification

7. SURGERY

A) General surgery and cardio-vascular and thoracic surgery.

- I. Surgical wounds, haemorrhage, shock, water and Electrolyte Balances, Burns.
- II. Surgery of head and neck , alimentary systems and genitor-urinary system x
- III. Neuro Surgery
- IV. Cardio-Vascular and Tghoracic surgery
- V. Gynaecology and obstetrics: pelvic inflammatory conditions, complications during and following pregnancy prolapsed uterus.
- VI. ENT

B) ORTHOPAEDICS

- I. Postural defects anteroposterior and lateral curve of the spine, the feet genu valgum genu varum.
- II. Back pain
- III. The spine, the intervertebral disease, osteoporosis, Ankylosing spondylitis, spina bifida, toriticollis, tuberculosis of the spine and sacro- illac joints Osteomyehtis, Tumours.
- IV. The Hip congenial dislocation , coxa vara, tuberculos bursits
- V. The knee- injuries to medial ligament, lateral ligament, Semulunar cartilages, cruciate ligament, chronic strain , chondromalacia patella, locking rheumatoid Arthritis
- VI. The Foot and ankle painful feet, pesavus, halux, valus gout, painful heel, the ligaments of the ankle tuberculosis,
- VII. The foot and ankle painful feet, pesavcus hallux valgus Gout painful heel the ligaments of the ankle, Tuberculosis, stress fracture
- VIII. The shoulder grirdle pain the shoulder, cervical spondylosis, carpal Tunnel syndrome, cervico Brachial Junction Recurrent dislocation of the shoulder, Tuberculosis.
- IX. The elbow tennis elbow, myositis ossificans, ulnar palsy, tuperculosis.
- X. The wrist and hand tenosynovitis, tuberculosis ganglion, rupture of tendons contractures.
- XI. Pyogenic infection
- XII. Tuberculosis

- XIII. Chronic arthritis rheumatoid and osteoarthritis
- XIV. Diseases of nervous system, poliomyelitis, cerebral Palsy
- XV. Common fractures of spine and extremities.
 - Trauma Therapy
 - Play therapy
 - Drug Therapy
 - E.C. T.

The role of psychiatrist in dealing with the problems of mental health

- XVI. Paediatrics.
- XVII. Geriatrics
- XVIII. Nursing and Bandaging

C)

- I. Disorders of functions in the context of Pathophysiology & Anatomy
- II. The Cranial Nerves
- III. Infections of the Nervous System
- IV. Disorders of the Cerebral Circulation
- V. Demyelinating diseases of the nervous system
- VI. Extrapyramidal syndrome
- VII. Tumours and the nervous system
- VIII. Conventional and degenerative disorders
- IX. Disorders of the spinal Cord and Cauda Equina
- X. Toxic disorders
- XI. Metabolic disorders
- XII. Deficiency disorders
- XIII. Disorders of the peripheral nerves
- XIV. Disorders of the Muscles
- XV. Disorders of autonomic nervous system
- XVI. Psychological aspects of neurology.

8. PHYSICAL THERAPY IN MEDICAL CONDITIONS

A) PHYSICAL THERAPY IN NEUROLOGICAL CONDITIONS

- I. Examination of Neurological disorder and principles of treatment
- II. Hemiplegia, paraplegia, cerebral palsy, Tabes dorsalis, cerebellar ataxia, extrapyramidal lesions.
- III. Disseminated sclerosis, muscular atrophy, amyotrophic lateral sclerosis, progressive muscular atrophy, syringomyelia, subacute combined degeneration of cord
- IV. Peripheral Nerve lesions
- V. Neuritis and Neuralgia Brachial plexus and facial palsy
- VI. Infections-Poliomyelitis, Meningitis, Encephalitis, Polyneuritis
- VII. Myopathies
- VIII. Paediatrics and Geriatrics

B)

- I. Pathological conditions:
 - i. Review of pathological changes and principles of the treatment by physiotherapy of: Inflammation, acute, chronic and suppurative.
 - ii. Oedema Traumatic, Obstructive, Paralytic, Oedema due to poor muscle tone and laxity of the fascia.

- II. Arthritis and Allied conditions:
 - i. Osteo arthritis generalized , degenerative and traumatic, spondylosis and disorders
 - ii. Rheumatoid arthritis, stills disease, infective arthritis
 - iii. Spondylitis, Ankylosing spondylitis
 - iv. Non articular Rheumatism Fibrositism, Myalgia, Bursits, Periathritis etc
- III. Diseases of the Respiratory System:
 - i. Mechanism of Respiration
 - ii. Examination of chest of patient and principles of physiotherapy treatment.
 - iii. Bronchitis, Asthama, Lung Abscess, Bronchiectasis, Emphsema
 - iv. Pleurisy and Empyemam, Pneumonia
 - v. Bacterial Disease-Tuberculosis
 - vi. Tumors
- IV. Common conditions of Skin:
Ane, Psoriasis, alopecia, Leucodema, Leprosy etc.
- V. Common Cardiac Discords:
Thrombosis, Embolism, Burger's disease, Arterisclerosis, Thrombophlebitis, Phlebitis, Gangrene, Congestive Cardiac failure, Hypertension, Rheumatic fever etc.
- VI. Deficiency Diseases:
Rickets, Osteomalacia etc.

9. Physical Therapy in Surgical Conditions

A)

- I. Orthopaedic and fractures
 - i. Fractures and dislocations
 - ii. Types of displacement
 - iii. Classification
 - iv. Immediate , late signs and symptoms
 - v. Changes at fracture site and its surrounding tissues
 - vi. Reasons for union, non-union , delayed union
 - vii. Healing of fractures and factors influencing it
 - viii. Common fractures of upper and lower extremity and their complications
 - ix. Methods of reduction and fixation
 - x. Corrective surgery
 - xi. Arthroplasty, Arthodesis, Osteotomy, Tendon, Transplant, Soft Tissue release, Grafting.
 - xii. Phsiotherapy treatment as applicable to above conditions.
- II. INJURIES
 - i. Soft tissue injuries: synovitis, Capsulitis Volkmann's ischemic contracture etc
 - ii. Crush injuries
 - iii. Repair of injured tendon and nerves
 - iv. Injuries of semilunar cartilage and cruiate ligaments knee: Physicala Therapy treatment as applicable to above conditions.
- III. Deformities:
 - i. Congenital, torticollis, Cartilage and cruiate ligaments knee: Physicala Therapy Treatment as applicable to above conditions
 - ii. Acquired: Scoliosis, Kyphosis, Lordosis, coxa vara, Genu Valgum, Genu varum and pervurvatum, Planus and other common deformities.
 - iii. Other miscellaneous Orthopaedic conditions commonly treated by Physiotherapy.
 - iv. Physical therapy treatment related to above conditions.

- IV. Amputations:
 - i. Traumatic, elective, common sites of amputation in Upper & Lower extremities
Advantages and disadvantages physical Therapy treatment as applicable to care of prosthetic training with emphasis on Lower extremity.

B)

- I. Complications common to all operations: pre and post operative physiotherapy.
- II. Wounds, local infections, ulcers Surgical porcedures related to peripheral vascular disease.
- III. Burns –Degree, Grafting of skin.
- IV. General abdominal surgery and obstertrics and Gyneaecology.
 - a) Thoracis Surgery
 - i. Thoracis incisions pre and post operative treatment and later rehabiltitation of the patent.
 - ii. Lobectomy, pneumonectomy, Thoracotomy, Thoracoplasty
 - iii. Operations on Chest Walls
 - iv. Common complications with emphasis to altectasis Peneumothorax, bronchopulmonary fistula, pre and post operative physiotherapy related to Cardio thoracic surgery
 - v. Operations on Precardium and Heart, Chronic Constructive pericarditis, valvular in competence and Stasis, mitral, valvotomy, tetrology of Fallot.
 - b) Ear, Nose and thorat conditions:
 - c) Neuro surgery otitis simusites vaso motor, Rhimorrhoea, tonsillitis physiotherapy it above conditions.
 - i. Cranial Surgery:
 - ii. Head Injury, intra cranial abscess, Intracranial Tumours.
 - iii. Surgery of spinal Cord and Couda Equina, spina Bifida and its complications, infections of the spine , Epidural Abscess, Tuberculosis, pre and post operative physiotherapy laminctomy, treatment related to above conditions.
 - iv. Surgery of peripgheral Nerves , peripheral nerve injuries , pre and post operative physictherpy treatment related to above conditions.
 - d) Pre and Post Operative Physiotherapy, related to Plastic Surgery:
 - i. Tendon transplantation in Leprosy, Polio etc. Pre and Post operative Physic therapy treatment related to above conditions.

10. Bio-Mechanics and Kinesiology

- I. General Principles
- II. Force, axis, planes, center of gravity levers
- III. Classification of force systems
- IV. The linear force system resultant force equilibrium
- V. Parallel forces in one plane
- VI. Concurrent and genral force system
- VII. Friction
- VIII. The fundamental principles of motion
- IX. Locomotion.

11. Disability prevention and Prehabilitation

- I. Introduction
- II. Definition concerned in the phase of disability process
- III. Definitions concerned with cause of impairment, factional limitation and disability

- IV. Rehabilitation and disability prevention
- V. Present rehabilitations services
- VI. Reservation & Legislation for rehabilitation services for the disabled
- VII. Community and Rehabilitation
- VIII. Basic principles of Administration, Budget, Approach Personnel and Space etc.
- IX. Contribution of Social worker towards rehabilitation
- X. Vocational evaluation and goals for disabled.
- XI. Rural rehabilitation in-corporated with PHC's
- XII. Principles of Orthotics & Prosthetics:
 - Lower Extremity orthotics/Upper extremity; orthosis
 - Spinal Orthotics
 - Upper extremity prosthetics
 - Lower Ectrermy Prosthetics
- XIII. Principle of Communiation: Impariment
 - Speech Production
 - Communication disorders secondary to Brain damage
 - Aphasia and its treatment
 - Dysarthria and its treatment
 - Non- aphasic language disorders
- XIV. Code and Conduct
- XV. Ethics and Management:
 - a) Principles in Management of Social Problems:
 - Social needs of the patient
 - Rehabilitation centre Environment
 - The Social worker as a Member of the Rehabilitation Team
 - Community Resources
 - b) Principles in Management of Vocational Problems:
 - Vocational Evaluation
 - Vocational goals for the disabled
- XVI. Mental Subnormality:
 - Identification and assessment of the mentally subnormal
 - Classification of the Mentally subnormal
 - Common characteristics of different categories of the mentally subnormal
 - Training of the mentally subnormal
- XVII. Definition Scope and importance of A. D. L.
- XVIII. Goals of Self Help Devices
- XIX. Teaching A. D. L. in the following areas:-
 - Wheel Chair Activities
 - Bed Activities
 - Self Care Activites
 - Toilet, Eating Dressing, Miscellaneous Hand Activities.
- XX. Principles of design materials used
- XXI. A. D.L Form
- XXII. A. D. L. Room
- XXIII. Relationship of ADL to occupational Therapy and Physiotherapy
- XXIV. National Health Programmes
- XXV. Bio-Medical Waste.

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SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

ANATOMY PHYSIOLOGY

- Cell, various parts and its function.
- Skeletal System – Bones
Axial Skelton
Appendicular Skelton structure and function.
- Muscular System- Types Structure and Function.
- Digestive System- Structure, Function of Organs, Process of digestion.
- Respiratory System. Structure, Function of organs, Physiology of Respiration
- Exerelory System - Structure, Function of Urinary System Structure and Function of Skin.
- Cardio Vascular System- Heart Blood Vessels/ Position, Structure, and Function
Blood Circulation - Blood Pressure, Pulse Systemic and Pulamanary
Lumphalic System - Lhmph Glands Function.
- Blood Composition - Function Clottong Type
Nervious System - Structure and Function of :-
a) **Central Nervious System.**
b) **Autonomic Nervious System.**
- Endoerine System - Structure, Function of Pituitary Glands.
- Sense Organs - Ear, Eye, Nose, Structure and Function.
- Female Reproductive System- Structure, Functions, Accessory Organs, Menstrual Cycle, Menopause and process of Reproduction
- Male Reproductive System- Structure and Functions.

MICROBIOLOGY

- Bacteriology, Microbiology usefulness in Nursing.
 - **Common disease caused by different types of organisons.**
 - **Sources ofinction, made of exit and transmission of disease,**
 - **Immunity and Immunization schedule.**
 - **Disinfection**
 - **Sterilization.**
 - **Asepsis.**

PSYCHOLOGY

- **Definition of Psychology scope and its importance for Nurses.**
- **Behaviour-Nature of behavior classification, dynamics types behavior.**
- **Motivation.**
- **Function, Emotions.**
- **Habits-Meaning, Principals inhabit formation.**
- **Frastraction and conflicts**
- **Learning laws, types, factors of learning.**
- **Intelligence.**

- Personality, meaning, types, development, characteristics.
- Mental health characteristics, national mental health program.

SOCIOLOGY

- Society - Def, meaning Gp, Types, structures, Rural and Urban society, Family, types, basic needs of family.

NURSING ARTS NUTRITION

- Fundamentals of Nursing
 - Nurses qualities, def, nursing principals, scope of Nursing.
 - *History of Nursing.*
 - *Role and responsibility of a Nurse.*
 - *Components of Basis Nursing.*
 - *Health Agencies.*
 - Admission and discharge of patient.
 - Signs and symptoms of approaching death.
 - Nurses role in maintaining good personal hygiene.
 - Bed making, various types of beds, k nuses procedure for bed making.
 - *Vitals -Temperature, pulse, respiration, B.P (ded, type) equipments procedure*
 - *Mouth care - purposes, equipment, procedure complication sol used,*
 - *Bed sore - Def signs and symptoms, causes pressure points prevention,*
 - *Back care. Def. purposes, equipment, procedure.*
 - *Bed bath. Def. types purpose, equipment, procedure different patients uses for different procedure.*
 - *Rlyes tube feeding - Indication equipments procedure suction,*
 - *Stomach wash or gastric lavage Def. indication procedure purpose, equipments.*
 - *Catherization - Indication purpose, procedure articles, types of catheter,*
 - *Enema-Def types, indication, procedure, equipments,*
 - *Flatus tube - Def. purpose, procedure, equipments,*
 - *Gaginal douche - Def. purposes, Sol, used, procedure equipments. Local hot application - Def purpose, types, equipments procedure precautions,*
 - *Local cold application - Def. purposes types equipment procedure.*
 - *Inhalations - Def. types purpose equipment precautions procedure post of care for surgery.*
 - *Care of patient fever (Unconscious patient) Dyspnoea.*
 - *Barrier Nursing - Isolation, technique, Control of infection diseases, immunization.*
 - *First Aid of Burns, Accident, Haemorrhage, Fractions.*
 - Various Bandages.
 - *Blood Transfusions - Grouping Crossmating*
 - *RH factor, Precautions - Blood Transmission.*
 - Recording and Reporting
 - Collection of Specimen.
 - Drugs route of Administration of drugs.

NUTRITION

- **Constituents of food and its function**
 - *Proteins, EHO, fats, minerals, vitamins, water then sources, function daily requirement, deficiencies.*
 - *Applied nutrition programmes.*
 - *Community nutrition programmes.*
 - *Diet - types of diet, balanced diet.*
 - *Diet for different diseases.*
 - *Planning and preparation of menu.*
 - *Factors effecting coming.*
 - *Presentation of mal nutrition.*
 - *Health problems in India (Nutritional problems)*
 - *Communicable disease prob.*
 - *Population Prob.*
 - *Environmental suction Prob.*
 - *Medical care Prob.*

- **Community Health Nursing:**
 - *Definition and concept of health and elements.*
 - *Principles Primary Health care.*
 - *Qualities and functions of a Community Health Nurse.*
 - *National Health Problems and Programmes.*

- **Hygiene-Personal and Environmental-Safe Water, Sanitation.**
 - *Building of good health, habits, Immunization.*
 - *Physical health including menstrual hygiene.*
 - *Mental health.*

- **First Aid in Emergency.**
 - *Importance of First Aid and its rules:*
 - *First Aid Emergency. Fire, Burns, Fractures, Accidents, Poisoning, Bullet injuries, Drawing, Hemorrhages, Dog Bites.*
 - *Bandaging and splinting.*

Medical Surgical Nursing

- **Disorders of Respiratory system:-**
 - **Definitions, causes, types, factors, indications, investigations, treatment, NSG, Management, Prevention, Health Education, Complications of:-**
 - *Asthma/Bronchial.*
 - *Pneumonia.*
 - *Lung Abscess.*
 - *Plausy.*
 - *Emphysema.*
 - *Pulmonary Tuberculosis.*
 - *Lobectomy.*
 - *Pneumonectomy.*
 - *Diet Therapy*
 - *Drug Therapy.*

- **Cardio Vascular System:**
 - *Cardiac Arrhythmias.*
 - *Pericarditis.*
 - *Myocarditis.*
 - *Congestive Heart Failure.*
 - *Myocardial infection.*
 - *Fallots of Tetralogy.*
 - *Hypertension.*
 - *Angina Pectoris.*

- **Mitral Stenosis.**
 - **Anaemia.**
 - **Lenkaemia.**
 - **Haemophilia.**
- **Gastro Intestinal System:**
- **Gastritis.**
 - **Peptic Uleer.**
 - **Appendicitis.**
 - **Ca Stomach**
 - **Colostomy, Intestinal Obstruction**
 - **Haemorrhoids.**
 - **Gastrectomy.**
 - **Gastrastomy.**
 - **Hernia.**
 - **Leprotomy.**
- **Disease of Liver, Spleen, Gall Bladder, Pancreas:**
- **Hepatitis.**
 - **Cirrhosis of Liver.**
 - **Caliver, Pancreas.**
 - **Pancreatitis.**
 - **Tumours.**
 - **Cholieystities/Cholieysteetomy.**
 - **Spleeneetomy.**
- **Genito - Urinary System and Male Reproductive System:**
- **Nephritis.**
 - **Ureamia.**
 - **Dialysis.**
 - **Prostate/Prostectomy.**
 - **Nephrectomy.**
 - **Hydrocoel.**
- **Nervious System-Spinal Card, Nervious:**
- **Epilepsy.**
 - **Meningitis.**
 - **Parkinsonisom.**
 - **Encephalitis.**
 - **Head Injury.**
 - **Cerebro - Vascular Accident.**
 - **Paraplegia.**
 - **Haemoplegia.**
 - **Quardriplegia.**
 - **Sciatica.**
- **Endocrine System, Metabolic Disorder:**
- **Hypothyrodism.**
 - **Hyperthyrobism.**
 - **Thyrodictomy.**
 - **Diabtes Mellitus.**
 - **Gouts.**
 - **Obesity.**
- **Skin:**
- **Burn including radition burns.**
 - **Allergy.**
 - **Infections EC Zema.**

- Operation and Theatre:
 - Care of unconscious patients/coma.
 - Pre and post operative care > adult, infant.
 - Intensive Care Nursing.
 - Commo.....
- Common Investigation and Advanced Nursing Procedures:
 - USG, OGC, CT, Lithotripsy, LP, MRI, Radiotherapy, Chemotherapy, Catheterization, Bone Marrow, Paracentesis, Thoracocentesis, LFT, Endoscopy, Sigmoidoscopy, Bronchoscopy, Intercostal Drainage, H2O Drainage, Review of Vitals.
- Communicable Diseases:
 - Measles, Chickenpox, Smallpox, Mumps, Poliomyelitis, Diphtheria, Whooping Cough, Tetanus, Leprosy, Typhoid, Dysentery, Cholera, Plague, Malaria, Dengue, Fever, AIDS, Pulse Polio, National Health Programme/ Problems.

ORTHOPAEDIC

- Disorders and Diseases of Bone and Joints.
(*Def. causes, types, preparation, investigations, indications, management*).
 - Arthritis.
 - Osteomyelitis.
 - Rheumatoid Arthritis.
 - Fractures, Dislocations, Sprains.
 - Amputation.
 - Traction.
 - Casts.
- Special senses (Eye, ENT, Ear)
 - Conjunctivitis.
 - Dacryocystitis.
 - Glaucoma.
 - Trachoma.
 - Myopia.
 - Hypermetropia.
 - Cataract.
 - Corneal Ulcer.
 - Otitis Media.
 - Mastoiditis.
 - Cleft Lip.
 - Cleft Palate.
 - DNS. S
 - Sinusitis.
 - Adenoids.
 - Laryngitis.
 - *Tonsillitis/Tonsillectomy.*
 - *Pharyngitis.*
 - *Tracheostomy.*
 - *Epistaxis.*
 - Psychiatric Nursing
 - *Depression.*
 - *Hallucination.*
 - *Delusion.*
 - *Schizophrenia.*
 - *Psychosis.*
 - *Nervosis.*
 - *Hysteria.*

- **Epilopsy.**
 - **ECT.**
 - **Drugs used in Psychiatric diseases.**
- **Paediatric Nursing:**
- **Growth and development from Birth to adolescence. Factors responsible for growth and development. Assessment of growth and development.**
 - **Immunity/ Immunization schedule.**
 - **Disorders of infections - Vomitting, Dirrhaea, Convulsions, Distensions.**
 - **Recognition, causes, prevention and management of congenital anomalies.**
 - **Breast feedin:**
 - **Importance and principals.**
 - **Preparation of mother.**
 - **Difficulties in breast feeding.**
 - **Factors inhibiting/ promotion lactation.**
 - **Introduction of sosids.**
 - **Artificial feeding:**
 - **Maintenance of bottle hygiene.**
 - **Feeding techniques.**
- **Disease of Childrens:**
- **Def. causes s/s investigations, factors indications; prevention, management complications of :-**
- **Gastro - entoritis.**
 - **Oeasophogal Atresia.**
 - **Mega Colon.**
 - **Imperferated Anus.**
 - **Jaundice.**
 - **Phototherapy.**
- **Benito - Urinary System:**
- **Hypospodiasis.**
 - **Undesecondel Tests.**
- **Cardio Vascular System:**
- **Patient Duetus Arteriosus.**
 - **Atrial Septal Defect.**
 - **Ventricular spetal Defect.**
 - **Fallots Telrology.**
 - **Rheumatic Fever.**
- **Nervous System:**
- **Cerebral Pulsy.**
 - **Mental Retardation.**
 - **Meningocele.**
 - **Mangolism.**
 - **Hydrocephalus.**
- **Eye, Ear:**
- **Squint.**
 - **Deafness.**
- **Components of nutrition and Disorders:**
- **Marasmas.**
 - **Kwashiorkar.**
 - **Vitamin Dificencies.**
 - **Nutritional Programme.**

- **Community Health Nursing:**
 - **Primary Health Centre.**
 - **Set Up.**
 - **Function.**
 - **Services.**
 - **Sub Centre.**
 - **Health services Organisation at different levels:**
 - **National.**
 - **State.**
 - **Local.**
- **Special community Health Services and Nurses Role:**
 - **Industrial Nursing.**
 - **Tuberculosis Nursing.**
 - **Geriatric Nursing.**
 - **Leprosy Nursing.**
 - **Oncology Nursing.**
- **Function of District Public Health Nurse:**
 - **Health Assessment.**
 - **Antenatal/Care.**
 - **Postnatal/Care.**
 - **Brest Palpation.**
 - **Introduction of RCH.**
- **Human Sexuality:**
 - **Puberty in male and female.**
 - **Importance of sex education and sex hygiene.**
 - **Different methods of family planning.**
 - **Planning, Organising Family Planning Programmes in our area.**
- **Sex Life:**
 - **Sterilization.**
- **Female Reproductive System and Breast:**
 - **Cysts, Tumours and Fibroid of Ut. Hystrectomy.**
 - **Abortions, MTP.**
 - **Venereal Disease.**
 - **Abnormalities of Menstruation.**
 - **Breast Cancer/ Mastectomy**

Midwifery

- **Introduction of Histiral Review.**
 - **Morbidity and Mortality Rates their Significance.**
- **Review of reproductive System and embiyology.**
 - **The female pelvis and generative organs,**
 - **Menstrual Cycle.**
 - **Maturation, fertilization and implantation of Ovum,**
 - **Formation of foetal membrances and placenta,**
 - **Foetal bones, skull sutures and fontanel,**
 - **Foetal development of foetal circulation,**
 - **Measurement.**
- **Normal Pregnancy:**
 - **Physiological changes due to pregnancy,**
 - **Sings and symptoms diagnosis of pregnancy.**
 - **Pre - Natal Care.**
 - Objectives.
 - History raking.
 - Calculation of expected date of delivery.
 - Rotec examination.

- *care and advice regarding diet in pregnancy and ante excise.*
- *Minor disorders or pregnancy and alleviation of discomfort.*
- Diseases Associated with pregnancy:
 - *Cardio Vascular.*
 - *Urinary.*
 - *Respiratory.*
 - *Metabolic.*
 - *Nutritional deficiencies.*
- Normal Delivery (Preparation):
 - *Requirements for mother and Baby.*
 - *Preparation of patient and Delivery Room - hospital and Home.*
 - *Psychological preparation of mother and Family.*
- Normal Labour:
 - *Onset of Labour,*
 - *Physiological changes,*
 - *Mechanisms,*
 - *Stages of Labour,*
 - *Technique of vaginal examination.*
 - *Management of labour and Nursing Care of mother in labour.*
- Puerperium:
 - *Physiology,*
 - *Management of puerperium.*
 - *Postnatal examination and care,*
 - *Care of episiotomy.*
 - *Establishment of breast feeding,*
 - *Postnatal exercises,*
 - *Minor ailments and management,*
 - *Family welfare.*
- Care of New Born:
 - *Establishment of respiration,*
 - *Care of card eyes and skin,*
 - *Examination of the new born,*
 - *Examination of defeats,*
 - *Care of premature,*
 - *Minor ailments.*
- Abnormal Midwifery:
 - *Pregnancy its complications Medical and gynaecological.*
 - *Contracted pelvis*
Ante Partum.
 - *Harmon ages* ➤
Post Partum.
 - *Abortions.*
 - *Ectopic gestation.*
 - *Hydrated form Mole.*
 - *Toxaemia of pregnancy.*
 - *Polyhydromnias.*

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J&K Services Selection Board,
Jammu.

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

Science –I

- Anatomy and Physiology
- Microbiology
- Psychology
- Sociology
- Hygiene
- Nutrition.

Fundamentals of Nursing-I

- Section “A” introduction to Nursing and Nursing procedures.
- Section “B” Nursing techniques
- Section “C” First aid and emergency nursing.

Fundamentals of Nursing-II

- Section A introduction to Child Health.
- Section B introduction to Maternal Health.
- Section C introduction to Family Health and Community Health.

Community Health Nursing-I

- Section A Domiciliary Midwifery.
- Section B Midwifery and Hepernitoy Nursing.
- Section C Family planning and family welfare.

Community Health Nursing-II

- Section A Nutrition Education.
- Section B Health Education.
- Section C Communication skills and Audio-visual aids.

Community Health Nursing-III

- Section A Basic Medicine and Pharmacology.
- Section B Health Problems and Plans.
- Section C Communicable Diseases.
- Section D Mental Diseases.

ANATOMY

- i) Introduction.
- ii) Skeletal system over view of skeletal system, Bones, bone development and the repair, axial skeleton, appendicular Skeleton, surface anatomy and landmarks.

- iii) Structure and function of joints, types of joints, muscular system introduction over views of skeletal muscles chief muscles and group of muscles.
- iv) Heart, Structure.
- v) Respiratory system structure
- vi) Human Reproductive System structure and Embryology (Prenatal).

PHYSIOLOGY

- i) Introduction.
- ii) Organization of living things.
- iii) Cells, tissues, organs, cavities and body system.
- iv) Typical cell structure, properties of cell, living processes, tissues, types, structure and functions, the skin.
- v) Muscular system-Structure.
- vi) Muscle contraction and properties of muscle.
- vii) Nervous System –division of the nervous system, brain and its functions, cranial nerves, spinal nerves.
- viii) Special senses structure function and location of organs of special senses, eye structure and function of visual apparatus, ear structure and function of auditory apparatus.
- ix) Maintaining the metabolism of the body circulatory system-blood composition, blood cells and plasma, hemoglobin, blood coagulation bleeding time, blood grouping and cross- matching physiological structure of heart and function, heart sounds and heart rates, circulation – systematic and pulmonary, blood vessels, pulse, venous and capillary system.
- x) Digestive system the alimentary tract oral cavity stomach, small and large intestines peristalsis digestion salivary glands. Liver pancreas and gallbladder enzymes absorption and assimilation of food.
- xi) **EXCRETORY** system –Excretory organs location, structure and function. The urinary tract, urine formation composition of urine, micturition. Water and salt balance.
- xii) Endocrine system-overview of the endocrine system, endocrine glands location, structure and function body temperature regulation.
- xiii) Human Reproduction
Embryology, parental Development, maturation of reproduction Organs.

The male reproductive tract external, organs. The Female reproductive tract external organs, menstrual cycle, hormones and reproduction.

Principles of organizing care according to head of the patient. (Seriously ill, Chronically ill)

Moderately ill, terminally.

Principles of organizing care according at patient group.

Maintenance of supplies, equipments and other facilities.

Records and Reports.

Health records, family care records, medical records, use of diaries by health workers understanding the system of reporting and recording referral system.

Maintaining a Healthy environment cleanliness of unit and sick room cleanliness of furniture, floors, space and surfaces doors and windows disposal of waste, garbage.

NURSING PROCEDURES AND TECHNIQUES

- i) Meeting hygienic and comfort needs care of skin , care of hair, care of hands, care of eyes, nutrition mouth care elimination, exercise , body.
- ii) Maternal health factors.
Socio-economic factors affecting maternal health.
Section C- Introduction to family health and Community health.
 - a) Family health care.
The family as integral unit of the health services,
 - Prevention and control of communicable diseases.
 - Home visiting and domiciliary health.
 - b) Introduction to Community health.
 - c) Environmental Health and Sanitation.
 - d) School health Services.

COMMUNITY HEALTH NURSING - (I)

Domiciliary Midwifery

- i) Contacting antenatal mothers.
- ii) Conducting a delivery in the home.
- iii) Post –Natal care.
Records to be maintained.

Midwifery and maternity nursing

- i) The reproductive system
- ii) Growth and development of foetus
- iii) Pregnancy
- iv) Labour
- v) Normal puerperium
- vi) Complication of pregnancy
- vii) Complication of labour.
- viii) Obstetric operations.
- ix) Drugs used in obstetrics

Family planning and welfare.

- i) Introduction.
- ii) National family welfare programme.
- iii) Organizing family welfare work.
- iv) Family planning methods.

COMMUNITY HEALTH NURSING

Nutrition Education:

- i) Introduction to nutrition education.
- ii) Nutrition education for material and cold health.
- iii) Nutrition education (method and media)

Health Education:

- i) Introduction
- ii) The Teaching (Learning Proceed)
- iii) Approaches used in health education.

- iv) Planning health education activities.
- v) Community resources for health education.

Communication Skills & Audio –Visual AIDS :

- i) Introduction to communication.
- ii) Communication skill for health work.
- iii) Introduction to Audio-visual aids.
- iv) Selection and utilization of audio-visual aids selecting suitable aids for health work.
- v) Preparation of audio- visual aids for health work basic skill/competencies.

Health Problems and Plans :

- i) Health problems.
- ii) Organization and structure of health services and related welfare services.
- iii) Health planning and programme.

Communicable Diseases:

- i) Introduction to communicable diseases.
- ii) Immunity and immunization.
- iii) Care and treatment of patients with infection.
- iv) Specific Communicable diseases and infections, symptoms, prevention and control and care in specific communicable diseases and infections.
Malaria, filarial, dengue, typhoid, cholera infections hepatitis, other gastrage intestinal infections-acute waste enteritis, dysenteries small-pox, chicken pox mumps, measles, diphtheria. Trachoma, conjunctivitis, worm infestations hookworm round worm. Threadworm, amoebiasis, rabies, tuberculosis, pertussis.

Mental diseases:

- i) Introduction
- ii) Resources and facilities for prevention and early detection of mental illness, use of family health care services.
- iii) Maternal and child health services.
 - School health services.
 - Primary health centre facilities.
 - Community, health worker as a resource.
- iv) Prevention of mental illness.
- v) Early detection of mental disorders.
- vi) Mental diseases.

COMMUNITY HEALTH NURSING I (II)

Environmental sanitation:

- i) Basic sanitation needs all village level towns and semi- Urban areas.
- ii) Disinfection and disinfectants, sterilization, antiseptics, disinfectants odorant, detergent, sterilization.
- iii) Environmental sanitation aspects of communicable diseases communicable diseases control.
- iv) Venereal diseases.

Microbiology:

- i) Introduction

- Classification of micro-organisms, characteristic, of bacteria, viruses, conditions affecting and growth of bacteria, parasites, fungi yeasts and mold.
- ii) Universal presence of Micro-organisms useful bacteria and micro-organism in the environment. Micro-organism in the human body normal flora, Micro-organism in water food and mild.
 - iii) Sources and mode of infection.
Sources of infection, mode of transmission infectin-factors which favour and hinder infection immunity, vicunas.
 - iv) Pathogenic Micro-organism.
Transmitted from, respiratory tract. Alimentary tract, food, food poisoning blood-borne pathogenic organism.
 - v) Collection of specimens for bacteriological examination.

Sociology:

- i) Introduction.
Group-primary and secondary, in group and out groups, structure, activities of groups organization of groups Urban and rural administrative pattern pattern panchyats and corporations, crowd public and audience.
- ii) Social process.
- iii) Social controls.
- iv) Social stratification.
- v) Marriage and family.
- vi) Community rural and urban community.

Psychology:

- i) Factors influencing human behavior.
- ii) Life stages and behavioral patterns.
- iii) Emotions and behavior.
- iv) Defence mechanism and behavior.
- v) Social behavior and interpersonal relations.
- vi) Learning, motivation and change in behavior.

Hygiene:

- i) Introduction to hygiene and healthful living, consents of health and disease. Factors influencing health and healthful living. Health habits and practice. Scientific principles related to maintenance of normal circulation, respiration, digestion sensory functions, normal skeletal alignment joint function and motor function.
- ii) Physical health:- Skin care, cleanliness clothing care of the hair, prevention of pediculosis. Dental care and oral hygiene, care of hands, hygiene of elimination and menstrual hygiene, mental hygiene.
- iii) Mental hygiene and health in childhood ensuring mentally healthy growth in later childhood, need for friendship, games and plays, affection and recognition. Mental hygiene, approach to some problems speed problems, reading difficulties, learning problems, day dreaming.
- iv) Mental hygiene and health in adolescence. Preparation of girls for menstruation, sex-education.
- v) Mental hygiene and health in adulthood. Ensuring mental health in adulthood satisfaction on the job, marriage, marital life, parental responsibilities.
- vi) Mental hygiene and health in old age ensuring health in old age and need for preparation for retirement.
- vii) Physical health, feature, exercise, rest relazation and sleep care of the fact, foot wear, care of eyes, ear more and throat food values.

- viii) Periodic Health Examination.
Health records, detection and correction of defects. Prevention and early treatments of common ailments, common cold, indigestion constipation, headache.
- ix) Health in home.
 - Disposal of refuse, waste.
 - Latrines and sanitation, ventilation.
 - Safety in the home.
 - Sanitation in animal sheds.
- x) Mental hygiene and health.
In adults, in-infancy and early childhood. Like, feeding weaning, thumbsucking, toilet-training, need for security, affection, love, adventure.

Nutrition:

- i) Introduction to the study of nutrition, definition, relation of nutrition of health classification and functions of food-body building, energy yielding and protective foods
Nutrients- Carbohydrates, protein, fats, Eatmine.
Mineral- functions, sources and daily requirements of each caloric requirements, water and cellulose.
- ii) Nutritive value of foodstuffs

Cereals	Fruits	Fats and oils
Pluses	Milk and Milk products	Sugars condiments
Vegetables	Egg, meat and Fish	Spices and beverages
- iii) The balance diet.
Definition, factors to be considered in planning meals, improvement of diars, selection of foods, cultural factors improving maternal nutrition and child nutrition. Modified diets- liquid bland, soft, full.
- iv) Preparation and preservation of foods general.
General principles of cooking.
Methods of cooking.
Effects of cooking on nutrients and common foodstuffs, preservations of food– house-hold methods.
Food hygiene simple household measures.
- v) Malnutrition.
 - Malnutrition and ;under nutrition.
 - Deficiency diseases in the country.
 - Cultural factors in nutrition, food fats, food habits, food adulteration practice injurious to health.
 - Nutrition education-principles of imparting nutrition knowledge.

Secretary,
J&K Services Selection Board,
Jammu.

"PHARMACIST / MEDICAL ASSISTANT"

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

Introduction and history of the Red Cross.

- Outline of the First-Aid
- Structure and functions of the body
- Dressing and Bandages (use of Triangular Bandages and Cotton Roller Bandage, Rubber Bandage and Different types of Dressing).
- Cardio-pulmonary resuscitation.
- Wounds.
- Haemorrhage
- Shock
- Electric Shock
- Different methods of artificial respiration.
- Asphyxia.
- Fractures and Dislocation.
- Unconsciousness and Fainting
- Epilepsy and Hysteria.
- Poisons including food poisoning.
- Common Conditions:
 - Foreign body in ear, eye and nose
 - Cramps
 - Frost-Bite
 - Bites and Stings etc.
 - Epistaxis
 - Snake Bite
 - Dog Bite
- Transport of injured persons
- Use of common medicines

STERILIZATION AND DISINFECTION

Physical, Chemical and Mechanical Methods etc. Disposal of contaminated Media, sterilization of syringes, glass wares, apparatus etc.

SURGICAL INSTRUMENTS, THEIR NAMES & USES, PREPARATION OF PATIENT FOR OPERATION, PRE & POST OPERATIVE PATIENT CARE

SURGICAL INSTRUMENTS (Their Names & Uses) (Their Preparation & Uses)

SURGICAL INSTRUMENTS:

- Instruments for general surgery
- Operation of the face and neck
- Operations of the Nose, Throat and Ear
- Ophthalmic Surgery
- Operations on the Chest
- Operations on the Genito-Urinary Tract
- Gynecological and Obstetric Operations
- Orthopaedic Operations
- Neuro-Surgical Operations
- Operations on the Vascular System
- Trauma Surgery

PREPARATION OF INSTRUMENTS TRAY:

- Major procedures tray
- Basic/Minor procedures tray
- Limited procedures tray
- Thyroid tray
- Long instruments tray
- Biliary Tract Procedures tray
- Choledochoscopy tray
- Basic rigid Sigmoidoscopy tray
- Gastrointestinal procedures tray
- Rectal procedures tray

GYNECOLOGIC AND OBSTETRIC TRAYS:

- Dilatation of the Cervix and Curettage of the Uterus (D&C) tray.
- Cervical Cone tray
- Laparoscopy tray
- Abdominal Hystrectomy tray
- Caesarian section tray
- Vaginal Hysterectomy tray

GENITOURINARY TRAYS:

- Vasectomy tray
- Open Prostatectomy tray
- Kidney tray

THORACIC TRAYS

- Mediastinoscopy tray
- Thoractomy tray
- Pcemaker tray

CARDIOVASCULAR TRAYS:

- Vascular procedures tray
- Vascular Shunt tray
- Cardiac Procedures tray

ORTHOPAEDIC TRAYS:

- Basic Orthopaedic procedures tray
- Minor Orthopaedic procedures tray
- Hip replacement tray
- Knee or Ankle Anthroscopy tray

NEUROLOGIC PROCEDURES TRAY

- Craniotomy tray
- Laminectomy tray

OTORHINOLARNGOLOGIC (ENT TRAYS):

- Basic Ear procedures tray
- Nasal Procedures tray
- Myringotomy tray
- Tonsillectomy and Adenoidectomy tray
- Tracheostomy tray
- Antral Puncture tray

OPHTHALMIC TRAYS:

- Basic Eye procedures tray
- Eyelid and Conjunctival procedures tray
- Basic Eye Muscle procedures tray
- Dacryocystrohinostomy tray
- Corneal Procedures tray
- Cataract Extraction and Lens procedures tray

- Glaucoma procedure tray
- Basic Eye procedures Microscope tray
- Retinal procedures tray

PEDIATRIC TRAYS:

- Pediatric major procedures trays
- Pediatric minor procedures trays
- Pediatric Gastrointestinal procedures trays

PREPARATION OF PATIENT FOR OPERATION, PRE & POST OPERATIVE PATIENT CARE

PRE-OPERATIVE CONSIDERATIONS:

- Psychological support of the surgical patient.

PROTECTION OF THE PATIENT IN SURGERY:

- Admission Procedure
- Transfer Procedure Position
- Environmental Controls
- Electro Surgery
- Operative Records
- Counting Procedure
- Sterilization
- Emergencies and Disasters

SAFETY FOR MEDICAL ASSISTANT, PHARMACIST IN A OPERATION THEATRE:

- In service education
- Body Mechanic
- Fatigue factors
- Radiation Safety
- Infection control
- Chemical hazards.

Secretary,
J&K Services Selection Board,
Jammu.

"DRAFTSMAN (CIVIL)"

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

INTRODUCTION-

- Drawing is a language of technicians. Drawing office organization. Drawing instruments, equipments materials their use, care & maintenance, safety precautions. Introduction to BIS code of practice and Architectural drawings.
- Importance of lettering, printing of letters and figures sizes, proportion etc. as per BIS code.
- Forms and proportions for single stroke lettering, Lettering stencils.
- Geometrical drawing. Definitions, construction of plain geometrical figures. Orthographic projection, dihedral angles and recommended methods of projection according to B.I.S codes.
- Principles, representation and construction of different types of scales, graphic scales, recommended scales for drawing with reference to BIS codes.
- Dimensioning technique, order of finishing, technical, Sketching, technique of sketching model drawing, orthographic sketching etc.
- Conventional signs and symbols as per B.I. S. Bricks characteristics of good bricks, hollow bricks and manufacture of bricks.
- Tiles, terracotta, stone ware and earthen ware, sand types, characteristics, cement, lime.

INTRODUCTION-

- Sequence of construction of a building. Names of different parts of building. Bricks masonary- principles of construction of bonds. Tools and equipment used. Scaffolding.
- Stone masonry, terms used, principles of construction, classification, composite masonry and strength of walls. Timber: Structure- Indian timber uses.
- **Foundation:** Purpose, causes of failure of foundation, bearing capacity of soils, dead and live loads, examination of ground. Types of foundation. Drawing of footing foundation, setting out of building on ground excavation, shorting & simple machine foundations.

- Dampness in building and damp proof course. Method of prevention of dampness in building. Mortar-types, proportion & mixing. Plastering & pointing. White washing & distemping.
- Types of ground floor and methods of constructing granolithic, mosaic, brick tiles etc. floors.
- **Arches**-technical terms forms –brick and stone centering lintel. Market forms and sizes.
- Carpentry joints-terms, Classification of joints.
- **Door**- parts of door, location, sizes, and types.
- Windows and ventilators including steel window and ventilators fixtures and fastenings used in doors. Window and ventilators.
- **Roof**-Pitched roof types, roof covering, component parts of roof. Theory of trussing king and queen post trusses.
- Classification and construction of upper floors including waterproofing, general Principles of construction of masonry & R. C.C
- **Stairs**: Terms, forms, materials planning and designing of Stairs. Details of construction.
- Residential building. Principles of planning. Orientation-local building by law as including BIS code, type of residential building rooms, services, utilities which constitute as dwelling house. Estimating.
- Method and find out quantities for a single storied residential building.
- Perspective view types. Method of construction, technique of colouring and shading.
- Inking & tracing, operating of Leroy set & care of its accessories. Method of preparing Blue prints or Ammonia Prints, Folding of prints.
- Safety precaution & elementary first aid, forge and fuel. Lighting fire Common had tools-their description and use. Description of plumbing operations.
- Safety precautions & elementary first aid- carpenter's hand tools, their names, description and use. Common joints. Use of nails, screws hinges, dowels etc. preparation of glue & putty, Grinding & sharpening of tools. Their care & maintenance. Use of different types of joints. Properties and uses of different timbers used in construction work.
- Safety precautions and elementary first aid. Artificial respiration and treatment of electrical Shock. Elementary electricity. General idea of supply system. Wireman's tool kits. Wiring materials. Electric fittings. System of wiring . wiring installation for domestic lighting.

Safety precautions:-

- Tools their description , uses and their care.
- Details of different bonding wall and section according to BIS
- **Introduction:-** Chain surveying principles, Instruments employed, use, care & maintenance. Field problems. Field book plotting. Introduction to plane table survey, Instruments employed, use, care & maintenance. Prismatic compass. Planimeter and pentagraph.
- Instruments and accessories- their uses and description level book. Differential leveling. Application of chain and leveling to building construction. Plotting, preparation of contour computing earth work by spot level and contours. Setting out work.
- **Road:-** Introduction to roads, general principles of alignment . classification and construction of different types of roads.
- Indian railways-their gauges, construction of permanent ways . Different ail sections. Use of stone balst in railways track. Use and types of slippers , types of signals, fixtures & fastening in Railway Tracks including base plates and fishplates.
- **Bridges:-** Introduction to bridges , component parts of a bridge. Classification of culverts (I.R.C.)
- Bridges– types, location of bridge. Tunnels rules used for the sizes of different members.

Introduction of Water Resources Engineering.

- Definition of terms used in irrigation.
- Hydrology like duty delta, intensity of irrigation, Hydrograpg, peak flow, runs off, catchments area CCA, corps like, Rabi, Kharif etc.
- Storage/ diversion head works definitions:
- Types of Dam –Masonry, concrete & composite Dams
- Gravity Dam, Arch and Buttress Dams, Earth and Rock fill dams.
 - a. **Reservoir-** types of Reservoirs viz. single purpose and multi-purpose, area/ capacity curves of Reservoir.
 - b. **Canals-** Canals, classification of canals and distribution system, canal structures viz. Head Regulators, Cross Regulators, Canal outlet, Escape etc, Drawing of canal alignment including longitudinal and cross sections of canals with the given data. Type of cross drainage Works viz. Aqueducts. Super passage, level crossing, Irrigation , culvert- Inlets and Outlets, General Description , Element of water power development and various civil engineering structure of Hydro Electric Schemes, i. e., fore bay. Penstock, Turbines, Power House etc.
- Introduction–terms used in public health engineering system of sanitation-house plumbing, sanitary fitting etc. Types of supply system and purification of water.

- Introduction to RCC uses, materials proportions and form work, including bending of bars and construction reference to BIS code Reinforced brickwork. Materials used for RCC, construction selection of materials coarse aggregate, fine aggregate cement – water, reinforcement, characteristics. Method of Mixing concrete- hand and machine, slump test.
- Forms of rivets , proportions. Types of riveted joints.
- Design of Riveted connection, failure of riveted joints.

Building Estimating.

- Types of estimate, standard method of taking out quantity, labour & material detailed & abstract estimate. Analysis of rates for simple items of work. Schedule of rates, specifications.
- Residential building, Planning of building, local by –laws including BIS code Types of residential building rooms , service utilities which constitute a dwelling house. Building by –laws of State urban Development authorities , Improvement trust etc.
 - What is a Computer-
General terms used in computer
 - Elementary DOS commands.
 - Window command and their uses
 - Auto CAD commands and use of different Icons of Auto CAD
 - Knowledge about different co ordinate systems
 - Knowledge about 3d Drafting
 - Knowledge about Architectural Desk top and creating modeling.

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"DRAFTSMAN (MECHANICAL)"

SYLLABUS FOR WRITTEN TEST

Marks :-150

Time :- 2.30 Hours

- Importance of safety and general precautions observed in the Instt. and in the section. Importance of trade in the development of Industrial Economy of the Country. Related Instruction. Recreational, medical facilities & other extra curricular activities of the Instt. (All necessary guidance to be provided to the new working of Industrial Training Institute system including stores procedures etc.
- Nomenclature. Description and use of drawing instruments & various equipment in drawing office. Their care and maintenance, lay out of a drawing sheet.
- Type of lettering proportion and spacing of letter and words.
- Terms & definitions-polygons and circles. Lines and their meaning, section lines of different materials, conventional signs, symbols & abbreviations, hatching, & shading, Norms of dimensioning different types of drawing sheets.
- Definition of ellipse, parabola, hyperbola, different methods of their construction, Definition and method of drawing involutes cycloid curves, helix and spiral.
- Planes and their normal, projections, projection and orthographic projection, first angle and Third angle projection.
- Concept about Horizontal & Vertical Plane.
- Principle of orthographic Projection, projection of solids like prism, cones, pyramids and frustums in various position.
- Solution of problems to find out the true shape of surfaces when solids are cut by different cutting planes.
- Construction of different types of scales, their appropriate uses, principle of R.F. diagonal & vernier.
- Importance of free hand sketching, machine drawing. Material and equipment required in Sketching.
- Importance of sectional views. Types of Sectional views & their uses. Parts not shown in Section.

- Definition of Intersection & interpenetration curves. Common methods to find out the curve of interpenetration.
- Solution o problems on interpenetration of prism, cones, and pyramids with their axes intersecting at an angle. Intersection of cylinder.
- Theory of projection as specified in SP - 46-1938.
- Definition of development, its need in industry and different method of developing the surface.
- Principle of Isometric projection, Difference between isometric drawing and isometric projection. Isometric Scale, Dimensions an isometric drawing.
- Different methods of drawing Isometric views.
- Principle and types of oblique projection. Advantage of oblique projection over isomertic projection.
- Types of perspective projection fundamental concept & definition, location of station point.
- Terminology- feature, functional feature, functional dimension, datum dimension, principle.
- Units of dimensioning, system of dimensioning, method of dimensioning and common features limit, fit, tolerance. Tolerances dimensioning, geometrical tolerance. Indication of symbols for machining and surface finishes on drg. (Grades and micron values).
- Screw thread, terms and nomenclature, type of screw thread, proportion and their uses, Thread conventions.
- Types of bolts and nuts their proportions, uses, different types of locking devices.
- Different types of machine screws cap screws and their specifications. Different types of foundation bolts.
- Purpose, terms different types keys(Heavy duty and light duty) and proportions use of cotters, pins and circlips.
- Types of fastening materials, types of rivets, their proportion & uses. Types of riveted joints, terms & proportions or riveted joints. Conventional representation.
- Causes of failure of riveted joints, efficiency of riveted joints.
- Description of welded joints and their representation (Actual and symbolic) Indication of welding symbols on drawings as per BIS.

- Description and use of drafting machine. Different sizes of drawing sheets as per BIS
- Safety precaution descriptions uses and care o hand tools including contraction rule. Brief description of production of cast iron, wrought iron steel and alloy steel.
- Safety precautions, Hand tools used for moulding. The description, use and care of hand tools. Description of different types of moulding. Description of different types of core, sand, and dressing material, Description of cupola.
- Description of measuring tools and hand tools used in forge work. Description and use of the mechanical hammer. Colour coding of different metals and identification.
- Description and application of simple measuring tools, description of parts of lathe & its accessories.
- Method of using precision measuring instrument such as inside & outside micrometers, depth gauges, vernier, calipers dial indicator, slip gauges, sine bars, universal bevel protractor etc.
- Brief description of milling, shaping, slotting and planning machines, quick return mechanism of these machines.
- Name and brief description of common equipment necessary for sheet metal work. Different type and uses of joints employed in sheet metal work.
- AC & DC Motors, Generators of common types and their uses. Names and brie description of common equipment necessary for sheet metal work.
- Type of Ferro-printing papers. Specification of Sensitized. Ammonia papas-Expiry-precautions in Ammonia Printing.
- Introduction to computer-DoS, windows and to AUTO CAD. related theory.
- Procedure of inking a drawing conventional colours used for different metals as per ISI material an equipment for colouring procedure.
- Procedure of tracing on tracing cloth and specification of tracing cloth.
- Types of assembly drawing. Different types of detailed drawings and preparation of bill of materials.
- Use of bearing, types of bearing and materials used.

- Difference between frictional and antifriction bearing. Advantages of antifriction bearing over frictional bearing. Materials and proportion of parts for drawing purposes.
- Heat treatment of steel.
- Shadelines & their use on machine drawings. Conventional method for drawings shade lines, surface shading by means of lines.
- Piping materials and specifications of WI & Steel pipes, pipe threads pipe fittings, specifications of fittings.
- Different types of pipe joints.
- Use of gears in transmission of power. Different types of gears. Cast gears and machined gears. Use of odontograph for drawing profile of gears etc.
- Brief description of Petrol, Diesel and Gas engines.
- Brief description, working principle and function of hydraulic jack, press accumulator, ram etc.
- Different locating methods clamping devices.
- Lay out of machine foundations. Brief treatment of the principal involved and the precautions to be observed, Lay out of machine foundation.
- Related theories of press tool with tolerance.
- Working of Blow off cock and simple carburetor.
- Numbering of drawings and standard parts > Familiarization with BIS.698
- Production of interchangeable parts, fits limits, tolerance & familiarisation with IS -919 & IS 2709 . Different methods of showing machine surfaces on drawings.
- Familiarisation with-
- (Drg Board), IS-1360, IS-13609T-Sqr), IS-696(code of Engg. Drg).

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PHYSICAL EDUCATION TEACHER (PET)”

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

Foundation of Physical Education:

- Introduction, Definition, Aim and Objectives of Physical Education.
- Role of Physical Education in General Education.
- Modern trends in Physical Education.
- Personal qualities and professional qualifications of Physical Educator.
- Character development through Physical Education.
- Development of leadership qualities through Physical Education.
- Sports in Educational Institutions.

Psychological and Sociological Aspects of Physical Education

- Growth and Development.
- Effect of Heredity and Environment on Growth and Development.
- Individual and sex difference, Structural and functional difference
- Concept of Learning, theories and laws of learning.
- Personality
- Socialization Process through Physical Education & Sports.
- Sports as cultural Heritage of mankind, Customs & traditions

Anatomy and Physiology:

- Major muscles their origin, insertion and actions.
- Skeletal muscles structure and function
- Joints and their classification.
- Structure of the heart, systematic, pulmonary and portal circulation.
- Respiratory system.
- Digestive system
- Endocrine and Nervous System

Health Education:

- Concept & Objectives of health Education and factors affecting it.
- Personal and School hygiene.
- School health programs.
- Nutrition and Balance diet
- Common communicable diseases its prevention and treatment.
- Drug abuse-alcohol, smoking and Doaping.
- Pollution

Tournaments and Teaching Aids:

- Tournaments- meaning and its types.
- Organization of physical education and sports competition at different Levels.
- Fixture for various tournaments,
- Different methods of teaching.
- Steps of effective teaching.
- Types of class formation in teaching and learning process.
- Teaching aids (audio visual Aids)

Recreation & Yoga

- Principles and types of modern recreation.
- Theories of recreation. Recreation during ancient and modern India.
- Recreation Programs for different age groups People.
- Difference between work, leisure and play.
- Camping, organization of Camp, its types, layout and activities.
- Preparation and Nature of Mobile Camp
- Meaning, objective of yoga its Origin. Types of yoga, Advantages of Asanas, Precautions and effect of Asanas.

Officiating and Coaching:

- Concepts of officiating and Coaching
- Modern Trends in Coaching
- Layout of standard track.
- Dimension and marking for track and field events i.e. running, jumping and throwing.
- Rules and their interpretation of track and field events.
- Rules and regulations of different games (football, volley ball, hockey, basket ball, cricket, kho -kho, kabaddi and badminton
- Sports personalities, sports awards and sports terminologies.

Historical Perspective:

- Physical education in India.
- Physical education in Greece.
- Physical education in USA, and Denmark.
- Physical education in Rome and USSR
- Post independence development of physical education in India.
- Contribution of Different Leaders towards Physical Education:
Per Henrik Ling. Johan Bernarhd Basedow, H.C. Buck, G.D. Sondhi, Guts Muth, Pandit Jawahar Lal Nehru.
- International Movements in Sports (Olympics, Asian & Common Wealth Games

Sports Management

- Meaning and Definition of Sports Management. Definition of Organization and Administration.
- Basic principles and theories of Sports Management.
- Concept of Organisation and Administration, its importance and Guiding principles of Organization.
- Schemes of Physical Education and sports in School, Districts, Colleges and Universities level.
- Supervision in Managements: Methods of Supervision, techniques and Principles of Supervision.
- Teaching methods, types importance and factors effecting lesson Planning Teaching Method Lesson plan.
- Time-Table Management: Principles and factors influencing the time table lesson Plan: Types and values of lesson plan.

Sports Management

- Concept of Sports training, its Characteristics and Principles
- Training Methods (circuit, fartlek, continuous, interval, weight and Plyometrics)
- Development of Different motor abilities (speed, strength, flexibility, Endurance and coordinative abilities)
- Short term and long term Training plan.
- Talent identification
- Principle of exercise, normal load, and over load.
- Principle of use, disuse and over use

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"ASSISTANT PHYSICAL TRAINING INSTRUCTOR (APTI)"

SYLLABUS FOR WRITTEN TEST

**Marks :-150
Time :- 2.30 Hours**

Foundation of Physical Education:

- Concept of Physical Education.
- Aims and objectives of Physical Education. Scope of Physical Education in modern Era.
- Explain Cognitive domain, psychomotor domain, Affective domain.
- Relationship between Physical Education and General Education.
- Nature, meaning and scope of Philosophy in Physical Education.
- Major components of Philosophy.
- Philosophies of Physical Education (Idealism, Naturalism, Pragmatism, Realism & Existentialism).

Historical Perspective:

- Physical education in Ancient and Modern India
- Physical Education in Greece, USA, Germany, British and Rome.
- Ancient and Modern Olympic Games
- Asian and Common Wealth Games.
- South Asian Federation (S.A.F) Games
- National sports awards (Arjuna award, Dronacharya award, Rajiv Ghandi khel Ratna Award, Maulana Abul Kalam Azad (MAKA) Trophy.
- Famous sports Personalities in India.

Officiating and Coaching:

- Concept of Officiating and Coaching
- Moderns Trends in Coaching
- Duties of Officials
- Layout of standard track.
- Dimension and marking for track and field events.
- Rules and their interpretation of track and field events.
- Rules and regulations of different games (Football, Volley Ball, Hockey, Basket Ball, Cricket, Kho Kho, Kabaddi and Badminton.

Psychological Foundations:

- Sports Psychology and factors effecting sports performance.

- Elements of learning, individual differences in learning, Learning Curve
- Theories of learning, Nature of motor skill learning.
- Transfer of training.
- Personality, Dimensions of personality.
- Growth and Development at different stages.
- Heredity and Environment.

Sociological Foundation:

- Socialization bases of Physical Education,
- Sports as cultural Heritage of Man Kind
- Cooperation and competition, social recognition.
- Social Institutions, Social Development.
- Group Dynamics, Leadership and its importance.
- Media in Sports, Politics in Sports
- National / International integration through Sports

Kinesiology:

- Historical Development of kinesiology, its need and scope in Physical Education & Sports.
- Axes and planes of movements, line of pull.
- Structure, Classification of the muscles and Joints.
- Origin Insertion and action of major muscles.
- Meaning of Biomechanics, role of biomechanics in Physical Education.
- Motion, types of motion, Newton's laws of motion.
- Equilibrium, Stability and its principles. Lever and its types. Spin, Projectile and Impulse,

Training Methods:

- Characteristics and principle of sports training
- Different methods of sports training.(Interval training, Weight Training Circuit training, Fartlek training and Plyometric Training).
- Development of Different Motor Abilities.
- Vital capacity, Second wind, Fatigue, Oxygen debt.
- Effect of training on muscular system, Respiratory system and Circulatory System.
- Technical and tactical preparation of Sports
- Warm-up, its types and values.

Management:

- Introduction, Meaning and Definition of management.
- Management techniques and financial management.
- Meaning of Organization and Administration.
- Organization of Physical Education and sports at different levels.
- Supervision and Evaluation in physical education and sports.
- Concept of teaching and Learning and Methods of Teaching.

- Lesson plan, Importance and need of lesson plan.

Planning:

- Meaning, Importance and Principles of Planning.
- Short term & Long Term Planning.
- Intra-mural and Extra mural tournaments.
- Talent Identification & Classification of students
- Sports meet and Sports day.
- Education technology and Teaching aids.
- Criteria for the selection of Players.

First aid:

- Concept, Meaning of first aid and its types.
- Principles of First Aid.
- Sports injuries, types of injuries, causes of injuries and their Treatment in various cases (Sprain, Strain, Dislocation, Fracture, Burns, abrasions, & Cuts).
- Definition and concept of Rehabilitation.
- Goals and principles of Rehabilitation.
- Massage Manipulation & therapeutic Exercises.
- Doping in Sports.

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“HORTICULTURE TECHNICIAN-IV”

SYLLABUS FOR WRITTEN TEST

Marks :-150
Time :- 2.30 Hours

Soil-General Concept and importance, soil texture (Soil Particles):

- Types of Soil- Sandy, Clayey and loam soils and their general properties i.e. water retention, aeration, nutrient status, Soils groups of Kashmir like lower salt, karewa and High salt altitude soils.
- Soils organic matter- meaning, sources and importance.
- Soil reaction- meaning, acidic and alkaline soils concepts, their effect on plant growth and management.
- Plant Nutrients- names of essential macro and micro nutrients, important functions of N,P and K, their deficiency symptoms in plants.
- Manures- definition, different, types and importance (FYM, compost, Green Manure).
- Fertilizers- Definition, names of common NPK fertilizers, their nutrient percentage, recommended NPK doses for paddy, maize sarson, Wheat, Apple and Cherry trees grown in Kashmir, their mode and methods of application.
- Soil Testing- and its importance.
- Soil erosion- causes, types of erosion, soil conservation a methods with reference to J&K State.
- Introductory Botany.
- Plant parts, root, leaf, stem, flower and their functions
- Modified plant parts with functions,
- Photosynthesis and Importance.
- Seed Structure, Importance, Conditions necessary for germination, Minimum Standards for seed certification, Breeder foundation and certified seed.
- Self and cross- Pollination.
- Elementary studies of following plant families of economic importance.
 - Graminac (Paddy and Maize)
 - Rosaceae (Apple)
 - Solanaceae (Tomato)
 - Cucurbitaceae (Bottle gourd)
 - Leguminaceae (Pea)

Plant protection fundamentals:

- Definition of disease and their causes
- Symptomology (leaf spot, wilt, blight, mildew, scab etc.)
- Different management Methods
- Fungicides: Definitions, types, formulations, names of common fungicides used in Kashmir; care in handling.

- Plant protection equipment, spraying and dusting machines, their working, calibration and maintenance,
- Definition of insect pest, general morphology of insect
- Different insect pest viz, borera, bug, geseed, their
- Economic threshold values
- Insecticides, definition, types. Formulation, names of common insecticides used in Kashmir, cadre in handling.
- Insect pest management methods.
- Extension Education
 - Agri. Extension Education Definition and Importance.
 - Principles, Objectives.
 - Qualities and role of Extension Worker
 - Extension teaching Methods; Classification, approaches i.e., individuals, Group, Mass, discussions, pamphlets, bulletins, charts, diagrams, exhibitions, campaigns, Kissan mela.
 - Brief description of IRDP, SFDA, IAQP, NAEP, KVK with social reference to J&K STATE
 - Farm Planning
 - Village Panchayat and its functions
 - Collections of socio- Economic data; kind of schedules

Nursery Management and propagation

- Location, Soil, fencing, nearness to water source, layout of seed bed, nursery bed, stool bed, stratification.
- Building nursery store and workshop, Store and workshop, tools and implements.
- Maintenance of nursery.
- Selection of mother plan for bud weed, root stock.
- Budding, grafting, layering
- Fruit production
- Selection of Orchard site.
- Layout of Orchard.
- Orchard floor Management
- Planting, Training, Pruning.
- Cultural Practices including irrigation.
- Cultivation of apple, Pear, Cherry, Plum, Grapes, Almond, Walnut, Strawberry Under following hadings (under Kashmir conditions);
- Soil, Commercial varieties, Spacing, fertilizers, irrigation, harvesting, yiel.

Orchard Diseases

- Major diseases, Symptoms, damaging stage and contral measures of;
- Apple and pear viz; Scab, Leaf Spot, Meldew Canker. Viz; Stone fruits (Peach, Plum, Apricot, Cherry, Almond) Oviz; Glight and leaf Spots.
- Walnut viz; Mistletoe etc
- Grapes viz; Anthrocnose, Mildews.
- Plants protection –(B)
- Major Insect Pets, damaging stage, Symptoms and contral Measures eith respect to following fruit plants (under Jammu and Kashmir Conditions);

- Apple and Pear viz; Sanjose Scale, Borer, Leaf Minor, Aphis, mites, caterpillars.
- Stone fruits (Peach, Plum, Cherry, Almond, Walnuts) viz; Leaf curling aphid, Chaffer beetle etc.
- Pomegranate viz; Anar butter fly.

Physiology (Introductory)

- Introduction to the subject of postharvest technology; nature and extent of postharvest loss in fruits; Factors responsible for post harvest loss. Factors affecting rate of respiration and transpiration; ripening of fruits, Quality attributes of fruits.

Fruit Handling and Storage

- Harvesting techniques of fruits, criteria for harvest maturity of fruits, principle and techniques of pre-cooling, advantages of scientific grading; grade standards for apple, advantages of fruit packing; use of various packing materials; principles of refrigerated and controlled atmosphere storage of fruits, transportation of fruits and its problems; Marketing channels of apples.

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