Scheme for P.S.T. for recruitment to the post of Assistant Professor in 5(five) different disciplines for General Degree Colleges in the W.B.E.S under the Higher Education Science & Technology and Biotechnology Deptt.,Govt. of W.B.

1. Type of Test: MCQ Type in OMR sheet with four different series, viz. A, B, C & D.
2. Full Marks : 100
3. No. of questions: 100 multiple choice questions carrying 1 mark each. There shall be negative marking for each wrong answer as per norms @ ⅓ mark for each wrong answer.
4. Duration of Test: 1 hour 30 minutes.

Syllabus for PST for recruitment to the post of Assistant Professor in Sanskrit for general degree colleges in WBES under the Department of Higher Education, Science and Technology & Biotechnology, Govt of West Bengal. Advt No 19[1(XXI)] /2017

Full Marks : 100 **Time : 1 hour 30 minutes**

SYLLABUS

Questions will be set in Sanskrit language

1. **Sanskrit Texts (general acquaintance only)** **(20 marks)**
   A) Sammanasyasuktam(Rgveda 10/191)
   B) Taittiriya Upanisad(Siksavalli 1/ 11-12)
   C) Abhijñanasakuntalam
   D) Kumarasambhavam(Canto I)
   E) Varsavarnanam(Kiskindhyakandam)
   F) Srimadbhagavadgita (11th Adhyaya)
   G) Dasakumaracaritam(Rajavahanacaritam)

2. **Alamkara and Chanda** **(20 marks)**

   A) Sahityadarpanam (10th Chapter)
   Upto Vibhavana and Visesokti
   B) Chanda (Samavrtta only) naming the metre

3. **History of Sanskrit Literature**

   (10 marks)

   A) Vedic Literature – Samhita, Brahmana, Aranyaka, Upanisad, Vedanga

   (20 marks)

   B) Classical Literature- Ramayana, Mahabharata, Asvaghosa, Bhasa, Kalidasa Bharavi, Bhatti, Kumaradasa, Magha, SriHarsa, Sudraka, Visakhadatta, Bhattanarayana, Bhavabhuti, Harsa, Dandi, Bana, Fables (Pancatantra, Hitopadesa), Historical Kavya, Lyrical Kavya

4. **Elementary Sanskrit Grammar** **(20 marks)**
   Sandhi, Karaka, Samasa, Krt Prayaya, Taddhita Pratyaya, Atmanepada-Parasmaipada Vidhana

5. **Comprehension (of 250 to 300 words)** **(10 marks)**

Candidates will be given a passage of 250 to 300 words. They should read it carefully and answer the questions. The answer may be contained in the passage or may be inferred from the reading of the passage.)

Syllabus for PST for recruitment to the post of Assistant Professor in Computer Science for general degree colleges in WBES under the Department of Higher Education, Science and Technology & Biotechnology, Govt of West Bengal. Advt No 19[1(VI)] /2017

Full Marks : 100 **Time : 1 hour 30 minutes**

Digital System Design
Circuit Theorty & Basic Electronics

Digital System Design :

Boolean algebra: Fundamentals of Boolean algebra, Switches and inverters, Functionally Complete Gates (AND, OR , NOT) NAND, NOR, switching function and Boolean function. De Morgan's Theorem. Application of Boolean algebra: Minterm, Truth Table and minimization of switching function up to four variables. Algebraic & K-map method of Logic circuit Synthesis: two level and multi level, 2 variables Boolean functions, 3 variables Boolean function

Combinational Circuits: Standard Gate assemblers, IC chips packaging nomenclature, Comparators, Decoders, Demultiplexers, Data selectors/multiplexer, Encoder, Seven segment display unit. Multiplexed display, Keyboard encoder.

Sequential Circuits: Flip-Flop (1 bit) SR, JK, D, T, Shift Register, Counter.
Finite State Model-State diagram, Synchronous and Asynchronous system (illustrative counter design), Single and two phase clocks. Successive approximation, Basic ladder circuits, D/A and A/D converter, Counter Ramp, ROM & PLA (basic idea).

Logic Circuit design using TTL, MOS and CMOS circuits, Relative comparison.
Integrated Circuits: SSI, MSI, LSI, VLSI classification.

Circuit Theory & Basic Electronics:

Passive circuit: parameters, equilibrium, conditions, Kirchoff's law; representation by differential equations; solutions; impedance and reactance.
LCR Circuits: frequency domain analysis, resonance and phases.. Vector representation, resonance, and circuit diagrams. Network equations, signal flow graphs.
Theorems: superposition, reciprocity, Thevnin, Norton, maximum power transfer. Solutions using Laplace transformations: transient and steady state response. Transfer functions: poles and zeros.
Elementary physics of semiconductors: P-N junction diodes; Zener diodes; BJT; FET; MOSFET. Equivalent circuit for diodes, transistors, FETs. Operational amplifier (op amp).

Contd...P/2

Computer Organization

Instruction: Operation Code and Operand. Zero, One, Two and Three address instruction. Instruction types. Addressing modes. Stack organization.
Memory: Types of Memory. Memory Hierarchy: CPU Register. Cache Memory, Primary Memory, Secondary Memory. Virtual Memory (Introduction only). Memory organization – Linear two-dimensional Von Neumann vs Harvard Architecture, Different storage technology.
I/O system organization and interfacing. Bus: SCSI, PCI, USB (Introduction and comparative study); Tri state Devices, Bus Arbitration.
Fixed and Floating Point Arithmetic: Addition, Subtraction, Multiplication & Division.
ALU – Combinational ALU, Two's Complement Addition, Subtraction unit
Control Unit: Control Structure and Behavior, Hardwired Control and Micro programmed Control: Basic Concept, Parallelism in Microinstruction
I/O: Polling, Interrupts, DMA, I/O Bus and Protocol.

Data Structures

Definition: Concepts of data types. Elementary structures, Data types and their interpretation.
Complexity: Advantages and Disadvantages. Big 0 Notation, Big-omega and Big-theta notations, Growth of Functions:
Arrays: Types, Memory representation. Address translation. Functions of single and multi dimensional arrays with examples.
Linked Structures: Single and doubly linked list (non-circular and circular). List manipulation with pointers: Insertion and deletion of elements.
Stacks and Queues: Definition. Representation. Uses and Applications, Infix notation to postfix notation; conversion and evaluation. Application of queues.
Recursion: Divide and Conquer, Elimination of Recursion, When not to use recursion?
Binary trees: Definition, Quantitative properties, Internal and external. Properties, minimum and maximum path length of a binary tree. No of nodes, height.
Searching: linear and binary serarch, Performance and complexity.
Hashing: Concepts, Advantages and disadvantages. Different types of hash functions, Collision and Collission Resolution Techniques – Open addressing with probing, Linear Chaining, Coalesced, Application.
Sorting: Terminology, Performance Evaluation, Different Sorting Techniques (Bubble, Insertion, Selection, Quick sort, Merge sort. Heap, Partition Exchange, Radix with iterative and recursive description).

Contd...P/3

Operating System

What is OS? Multiprogramming OS (Concurrent Processing System), Concepts of process & Threads, Concept of Interrupts, System Calls, OS – an interrupt driven system. Files, Shell, Structures of OS: Monolithic, Layered, Virtual, Client Server and distributed Model. ***Concepts of Synchronization:*** Semaphores, Critical Regions, Inter Process Communication Mechanism. ***Processor Management:*** Scheduling, Round-robin, Priority Queue. I/O management: ***Memory Management:*** Multiprogramming, swapping, Paging, Virtual memory, Page Replacement techniques. Concepts of ***File Systems:*** Files, Directories, File Servers, Dead Lock: Definition, Avoidance, prevention, Detection and Recovery.

Data Communication & Computer Network

Data Communications; Transmission media; Network: Protocol and standards; Analog & Digital Signals, Periodic & Non-Periodic Signals, Time and Frequency Domain; Multiplexing: FDM, TDM and Application, Encoding D/A and A/D Encoding; Concepts of Centralized and Distributed Computing; Advantages of Networking; Layered architecture: OSI Architecture, Basic Features, LAN, MAN and WAN; simple PC Based Network: Example, block diagram. Mode of operation and characteristic features. IP addressing, Flow Control: Stop-and-wait, Sliding Window, and ARQ.

Theory of DBMS

Basic concept. File Management systems. Advantages of DBMS, Physical, Conceptual and External Models, ER Diagram, Data Models: Relational, Hierarchical, Network; file Organisation: Sequential, Indexed Sequential, Random, Inverted; Query Languages, Relational Algebra & Calculus, Functuional Dependencies, Normal forms: INF, 2NF, 3NF and BCNF; Structured Query Languages, Steps of query Processing. Concurrent Processing. Elementary Concepts of Security, Integrity.

Object-Oriented Programming Concepts

Concepts: Difference with procedure oriented programming. Data Abstraction and Information Hiding: Objects, Classes & Methods, Encapsulation, Inheritance, Polymorphism. Input-Output, Function and Operator overloading. Constructors and Destructors, Copy Constructors and Assignment Operator, Overloading, Single and Multiple Inheritance, Polymorphism and Virtual Functions, Namespace, Exception Handling, Templates.

Contd...P/4

Microprocessor

Evolution of Microprocessor: Architecture of 8.bit and 16 – bit microprocessor, Machine language instructions (8 bit). Addressing Modes, Instruction formats, Instruction sets, Instruction cycle, Clock cycles, Timing diagrams. Interrupts, Bus and Interfacing concepts : Memory interfacing, I/O Interfacing and Ports. Storage Device Interfacing, Programming a Microprocessor, Interrupt Handling, Methods of Interrupts Priority and Management Case Studies: 8085 and 8086 microprocessor, 32 bit processor.

Compiler

Basic concepts of compilers and interpreters. Different phases of compilation.
Lexical analyzer concept; Design using FSM.
Parser: Top down and Bottom up; Recursive descent; LL (1); LR (1); LALR (1); Comparison, Symbol tables: organization and management techniques. Runtime storage management – static allocation; dynamic allocation, activation records; heap allocation, recursive procedures
Semantic Analysis – attributed translation: procedure calls. Syntax directed translation and intermediate codes.
Code Optimization: Basic blocks, loop optimization, flow graph. Machine dependent optimization, code generation. Error handling – detection, reporting, recovery and repair.
Compiler Writing Tools; LEX; YACC.

Web technologies & Multimedia

Web pages – types and issues, Comparison of different technologies (eg. Microsoft, Sun-Micro systems, etc). WWW- basic concepts, web-client & web-server, application server, http protocol (frame format), universal resource locator (URL), HTML-different tags, sections, images & pictures, listings, tables, frames and forms.

Basic concepts of Multimedia, Different forms of multimedia – text, audio, image & video. Sound-types, computer representation of sound & sampling. Examples of audio tools (Sound forge, etc.). Animations – Tweening, Morphing in multimedia with examples.

C- Programming

C- language

Contd...P/5

Numerical Methods

1. Errors and Approximation.
2. Bisection method, Newton-Raphson method.
3. Gauss Elimination, Matrix inversion by Gauss-Jordan elimination, Gauss- Saidel Iterative method
4. Newton's interpolation, Lagrange's interpolation.
5. Curve fitting by least-min square.
6. Trapezoidal rule, simpson's 1/3 – rule.
7. Euler's and Modified Euler's measure.
8. Faster order Runge-Kutta method for solving differential equations.

Syllabus for PST for recruitment to the post of Assistant Professor in Economics for general degree colleges in WBES under the Department of Higher Education, Science and Technology & Biotechnology, Govt of West Bengal. Advt No 19[1(VII)] /2017

Full Marks : 100 **Time : 1 hour 30 minutes**

G R O U P - A

MICROECONOMIC THEORY

Theory of Consumer Behaviour (Indiffernce Curve Analysis only) :
Demand Function and Concepts of Elasticity of Demand - classification of Goods into Normal, Inferior and Giffen Good.

Theory of Production and Cost

Market Organisation : Perfect competition and Monopoly.

MACROECONOMICS

National Income Accounting; Classical Model of Income Determination; Say's Law; Simple Keynesian Model of Income Determination; IS-LM Model; Complete Keynesian Model; Comparison between Classical and Keynesian Models, Inflation – Demand Pull & Cost Push – Phillips Curve.

PUBLIC FINANCE

Analysis of Public goods; Externalities and the Role of the Government; Principles of Tax Equity; Tax Efficiency (Analysis of Excess Burden); Analysis of Tax Incidence; Burden of Public Debt.

THEORY OF INTERNATIONAL TRADE

Theory of Comparative Advantage (Heckseher-Ohlin Theory, Ricardian Theory); Gains from Trade; Factor Reversal and Factor Prices : The Leontieff Paradox; Effects of Tariff and Quota - Optimum tariff, Stolper-Samuelson Theorem; Balance of Trade & Balance of Payments - Effects of Devaluation (Elasticity Approach & Absorption Approach).

GROWTH AND DEVELOPMENT ECONOMICS

Distinction between Economic Growth and Economic Development; Lewis Model of Economic Development with Unlimited Supplies of Labour; Harris - todaro Migration Model, choice of Techniques; Investment Criteria; Rostow's Stages of Economic Growth; Dual Gap Analysis; Fiscal Policy and Economic Development; Balanced Versus Unbalanced Growth;

Critical Minimum Effort and Big Push Theories.

G R O U P - B

(INDIAN ECONOMY)

PRE-INDEPENDENCE PERIOD

Dadabhai NaOROJI AND THE Drain Theory; Managing Agency System; History of Indian Industries (Cotton, Jute and Iron & Steel); History of Indian Railways.

POST-INDEPENDENCE PERIOD

Five Year Plans; Indian Agriculture : Land Reforms - Farm Size - Productivity - Green Revolution; Indian Industry : Industrial Policy Resolutions; Changes in the Development Strategy in the early 1990s - Comparison between Nehru-Mahalanobis Strategy and Structural Adjustment Programme.

Syllabus for PST for recruitment to the post of Assistant Professor in Food & Nutrition for general degree colleges in WBES under the Department of Higher Education, Science and Technology & Biotechnology, Govt of West Bengal. Advt No 19[1(X)] /2017

Full Marks : 100 **Time : 1 hour 30 minutes**

MODULE I : BASIC NUTRITION marks : 20

1. Nutritional Requirement & formulation of RDA – Reference Man & Reference Woman. Adult consumption Unit.
2. Energy in Human Nutrition – Idea of Energy & its unit, Energy Balance – Assessment of Energy Requirements- Determination of Energy in Food – B.M.R. & its regulation SDA.
3. Macro nutrients- definitions, classifications, sources deficiencies, functions, Daily Requirements.
4. Carbohydrates – Effects of too high –too low carbohydrates on health – Glycemic Index.
5. Proteins - Effects of too high – too low proteins on health – Assessment of protein qualities (BV, PER, NPU) – Factors affecting protein bio- availability including anti-nutritional factors.
6. Lipids – Classification of fatty acids – nutritional significance of PUFA, MUFA, SFA, W-3 fatty acids.
7. Vitamins & Minerals – Biochemical & Physiological roles- Sources – daily requirements, deficiencies – effects of excess intake.
8. Fibre – Classification – sources – composition – nutritional significance.
9. Water – Factions – daily requirements, water balance.
10. Antioxidants.
11. Probiotics & Prebiotics.
12. Food toxicants – natural & artificial – effects on human body.

MODULE – II : Therapeutic Nutrition & Dietetics marks : 20

1. Etiology, Pathology, metabolic changes, clinical manifestations, complications, dietary modification & management of following disorders. :
   a) Disorder of upper gastrointestinal tract, small intestinal tract & large intestinal tract.
   b) Renal disorder.
   c) Dyslipidaemia / coronary heart disease.
   d) Obesity
   e) Underweight

f) Nutritional anaemia
g) Liver & gallbladder disorders
h) Diabetes mellitus
i) Gout
j) Inborn errors of metabolism
k) Acidosis & alkalosis
l) Thalassemia

2. Surgical conditions & Burns – types, dietary managements & other managements.

MODULE – III : Physiology marks : 20

1. Cardiovascular system – structure & function of heart, heart rate – cardiac cycle – cardiac output – blood pressure – its regulation – circulation of blood.
2. Gastrointestinal system – structure & function of various organs of G.I. tract – digestion & absorption of food – the role of enzymes & hormones on digestion & absorption.
3. Excretory system – structure & function of kidney, bladder, formation of urine, role of kidney in homeostasis – structure & function of skin – regulation of temperature of the body.
4. Reproductive system – role of hormones in reproduction – physiology of pregnancy, parturition, lactation & menopause.
5. Endocrine system – structure & functions of different endocrine glands – symptoms of deficiency & excess secretion of different endocrine glands.

MODULE – IV : Nutritional Biochemitry marks : 20

1. Inter relationship between Biochemistry and other biological sciences including Nutritional Science.
2. Biomolecules: Fundamental concepts of Carbohydrate, Protein, Fatty acids, Nucleic acids, Phospholipids, Cholesterol and other steroids.
3. Detailed idea about Enzymes, Coenzymes, Cofactors, Isozymes, specificity of enzymes, enzyme kinetics, factors effecting enzyme activity and enzyme inhibition.
4. Metabolism: Definition (a) Glucose metabolism and its regulation.
   (b) Glycogen metabolism and its regulation.
   (c) Role of glucose & glycogen metabolism in regulation of Normal Blood glucose level.

5. Biological Oxidation and Energy production in the Eukaryotic cell.
6. Lipid metabolism: (a) Fatty acid synthesis (de novo) and chain elongation (Saturated & Unsaturated).
   (b) Biosynthesis of eicosanoids, cholesterol and their Pathophysiological importance.

7. Vitamins: Definition & structures of water soluble vitamins and their role as protective types of food.
8. (a) Nucleic acid, Nucleotide & Nucleoside, Doublehelical structure of DNA, different types of RNA.
   (b) Genetic code and different types of mutation.
   (c) Steps in Protein biosynthesis.
9. Molecular aspects of transport: Active and Passive transport systems with examples and mechanism of operation.
10. Proteins: (a) Classification of aminoacids and common methods of aminoacid breakdown.
    (b) Urea formation & clinical significance.
    (c) Uric acid biosynthesis and its clinical significance.

MODULE – V : Food Microbiology marks : 20

1. General idea about growth of microorganism in our daily diet – in general.
2. Theoretical basis of Microscopy: Compound, light, phase – contrast, fluorescent electron microscopy.
3. Microorganisms important in food:
   (a) Yeast – brief idea
   (b) Fungus – brief idea
   (c) Bacteria – Detailed structures of bacterial cell and Eukaryotic animal cell. Bacterial cell wall composition in detail in both gram positive and gram negative bacteria.
4. Cultivation of microorganisms: Culture media used, Nutritional requirements ar factors affecting growth of microorganisms. Different phases of growth curve of bacteria.
5. Isolation & identification of microorganisms by different methods: Stains and Staining methods.
6. Control of growth of microbes by different physical methods as well as by chemical agents.

7. Food spoilage: Spoilage of cereals, vegetables, fruits and flesh foods and its prevention.
8. Microbiology of Water: Determination of quality of water with the help of concerned tests.
9. Microbiology of Milk: Definition & criteria of milk (on the basis of microbiology). Microflora present in milk kept at different temperatures, curdling of milk, Pasteurization of milk and milk borne diseases.
10. Food poisoning: Food borne infection like Cholera, Typhoid, Dysentry, Salmonellosis and Staphylococci infection.
11. Food safety & Food security.

Syllabus for PST for recruitment to the post of Assistant Professor in Education for general degree colleges in WBES under the Department of Higher Education, Science and Technology & Biotechnology, Govt of West Bengal. Advt No 19[1(VIII)] /2017

Full Marks : 100 **Time : 1 hour 30 minutes**

Module-I : **PHILOSOPHICAL FOUNDATION OF EDUCATION AND CONTRIBUTION OF GREAT EDUCATORS**

1. Relationships between education and philosophy,
2. Child centric and Life centric education,
3. Functions and scope of education-individual and social perspective. Education for Human Resource development.
4. Education as propagation of values,
5. Schools of philosophy and their influence on education: Idealism, Naturalism, Pragmatism and Existentialism.
6. Schools of Indian Philosophy
   Basic features and Influence on Education –
   a) Vedic schools (Sankhya, Yoga, Nyaya)
   b) Non-Vedic schools (Charvak, Buddhist, Jain and Islamic tradition)
7. Contribution of great Educators :
   a) Rousseau
   b) Froebel
   c) Montessori
   d) Bertard Russell
   e) Dewey
   f) Rabindranath Tagore
   g) Vivekananda
   h) Aurobinda

Module-II : **PSYCHOLOGICAL FOUNDATION OF EDUCATION**

1. Introduction to Psychology, relation between education and Psychology. Different perspectives of psychology (Biological, Cognitive, Developmental, Associationist – A brief overview).
2. Personality development, Trait approach, Psychoanalytical theory of Personality, Erikson's stages of Psycho-social development.
3. Stages and types of Development and their Educational significance :
   a) Physical and motor development, Factors affecting Physical and motor development.
   b) Cognitive development, brief outline of Piaget's theory of Cognitive development.
   c) Language development.
   d) Emotional development and Emotional Quotient.
   e) Moral development, Theories of Piaget and Kohlberg.
4. Neural basis of cognition: Neuron – structure and electrical potentials, synoptic transmission, structure and functions of human brain, Neuro – endocrinal system.
5. Perception: Factors influencing perception, role in cognition.
6. Attention: Selective and divided attention. Role of attention in the cognitive process. Factors of attention.
7. Memory: acquisition, storage and retrieval of information, sensory memory, short term and long term memory, forgetting.
8. Motivation: types and factors.
9. learning: Laws of learning, classical and operant conditioning, insight learning, concept learning, Bandura's social learning theory.
   Transfer of learning: Concept and application.
10. Intelligence: Theories of intelligence – Spearman, Thurston, Guilford and Gardener, Measurement of Intelligence.

Contd P/2

Module-III : **DEVELOPMENT OF EDUCATION IN INDIA**

1. Synoptic study of Brahmanic, Buddhist and Islamic Education in Ancient and Medieval India with respect to
   a) Aims and Objectives
   b) Subject of study
   c) Methods of teaching including teacher – pupil relationship
   d) Evaluation
   e) Centre of Learning
   f) Education of woman

2. Brief outline of events relating education from 1757 to 1947
   a) Missionaries activities (Srirampur Trio)
   b) Charter Act of 1813
   c) Bengal Renaissance – Contribution of Rammohan Ray H.L.V. Derozio and Vidyasagar
   d) Adams Report
   e) Anglicist – Orientalist controversy – Macaulay's Minute & Bentinck's resolution
   f) Wood dispatch (Recommendations only)

3. Brief outline of –
   a) Hunter Commission 1882-83 (Primary and Secondary Education)
   b) Curzon Policy (Quantitative development of Primary education
   c) National Education Movement (cause and effect)
   d) Calcutta University Commission (1917-1919)
   e) Basic Education (concept & development)
   f) Sargent Plan

4. Constitutional provision for Education in India

5. Brief outline of the recommendations made by different Education Commission :
   a) University Education Commission (1948-49)
      (Aims of Higher Education & Rural University)
   b) Secondary Education Commission (1952-53)
      (Aims, Structure & Curriculum of Secondary Education)
   c) Indian Education Commission (1964-66)

6. National Policy on Education (1986)

7. Current issues in education :
   a) Equalization of Education Opportunities
   b) Programmes on Universal Elementary Education (~~DPEP & SSA~~ SSA)
   c) Non-formal education and alternative schooling, Education of women
   d) Education for children with special needs

Module-IV : **SOCIOLOGICAL FOUNDATION OF EDUCATION**

1. Sociological Foundation of Education-Sociology of education, Nature, Scope, Method of Study.

2. Society and Education –
   a) Society : Its origin and factors and their influences on education (population, location, religion, class, culture, technology, economy).
   b) Impact of different political systems on education (capitalism and socialism).

3. Social groups and education –
   a) Social groups (primary, secondary and tertiary)
   b) Socialization : the role of the family and school

4. Education and culture

Contd. … P/3.

5. Social change and Education –
   a) Social change : Its definition and role of education.
   b) Social change in India (Sankritization, Westernization, Modernization and Globalization).

6. Education and Social Communications –
   Informal agencies of Social Communication.

7. Education and Contemporary Social Issues :
   a) Unemployment
   b) Poverty
   c) National Disintegration
   d) Population explosion .

Module-V : **EDUCATIONAL ORGANIZATION AND MANAGEMENT**

1. Principles of Educational organization : Concept of School organization it's principle.

2. Aspects of School Organization –
   a) School Plant, Building, Equipment, Sanitation, Play ground, Workshop, Library, Computer Room.
   b) Midday meal, School medical service, co-curricular activities.
   c) Inclusive education.

3. Educational Management and Administration –
   Primary, Secondary and Higher Education :
   Board of Secondary Education, Council of H.S. Education, Council of Higher Education.

4. Concept of educational management –
   Meaning, nature, need and scope, Role of Educational manager.

5. Types of Educational Management –
   Autocratic, Democratic, Lassie – Fair supervision.

6. Educational Planning –
   Meaning, need and significance of educational planning.
   Types and strategies of educational planning. Steps in Educational planning
   Institutional Planning.

7. Leadership – Meaning, nature and styles .

Module-VI : **GUIDANCE & COUNSELING**

1. Psychology of adjustment :
   Concept of adjustment – adjustment and adaptability, homeostasis, defence mechanisms: Criteria of good adjustment.

2. Malajustment – meaning of maladjustment – Conflict and frustration,
   Manifestation of maladjustment in Childhood and adolescence – a synoptic view of problem behaviours.

3. General causes of maladjustment – Biological and Environmental – role of parent and educational institution in promoting mental health.

4. Stress, stressors – personal and environmental stress, coping strategies and therapies – behaviours, cognitive and humanistic therapies.

5. Concept of guidance – meaning and nature of guidance – different forms of Guidance (group and individuals) Types of Guidance (educational, vocational).

6. Counseling – meaning – types and techniques – directive, non directive, eclectic – individual and group counseling.

Contd. … P/4.

7. Identification and guidance for special learners – gifted, slow learners, learner with learning disabilities, MR/mentally challenged.

8. ~~Organizing guiding services of different levels of education.~~ Multi-axial classification of mental disorders — DSM IV Axis I & II category. ++

Module-VII : **EVALUATION IN EDUCATION**

1. Educational Measurement and Evaluation – Concept, Scope and Needs.

2. Tools and Techniques of Evaluation –
   a) Test : Types, use of Norm – Referenced test and Criterion – Referenced test, essay type and objective type tests.
   b) Observation – Concept and Use
   c) Inquiry – concept and use
   d) Cumulative Record Card – concept and Use

3. Scales of Measurement – Nominal, Ordinal, Interval, Ratio.

4. Criteria of Standardized test
   a) Validity
   b) Reliability
   c) Objectivity
   d) Usability
   e) Norms

5. Construction of a Standardized Test

6. Statistics – Use in Education

7. Organization and Graphical Representation of data – Pie Chart, Bar diagram, Histogram, Frequency polygon, Ogive.

8. Measures of Central tendency – Mean, Median, Mode – Calculation and application

9. Measures of Variability – Range, Quartile Deviation, Standard Deviation – Calculation and application

10. Percentile and percentile rank – Calculation and application, including graphical Representation

11. Characteristics of Normal curve

12. Skewness and Kurtosis – Concept

13. Concept of Z – Score – Calculation and use

14. Linear Correlation – Concept and Use – Co-efficient of Linear Correlation : Product – moment method and Rank difference Method – calculation

Module – VIII : **EDUCATIONAL TECHNOLOGY**

1. Concepts need and scope of educational technology.

2. Systems approach to education : Definition of systems, need for systems approach, classification of systems & components of a System.

3. Computer and its role in education.

4. Use of media in education : Audio (Radio & Tape), Visual (Projector), Audio-visual (T.V. & C.C.T.V.).

5. Models of teaching : Nature, Concepts and different families of Teaching Models, Advantages of the use of Models of Teaching.

Contd. … P/5.

6. Communication and educational technology : Components of communication process, Role of communication in effective teaching-learning process, Factors affecting classroom communication.

7. Instrunctional techniques : Mass instructional techniques (basic concepts only), Personalized techniques – Programmed learning, Mastery Learning, Microteaching.

8. Distance education : Concepts, types and usefulness – Application of technology in Distance education.

Module – IX : **CURRICULUM STUDIES**

1. Concept of curriculum : Explicit Curriculum, Hidden Curriculum, Nature of Curriculum.
   Bases of Curriculum : Philosophical Sociological & Psychological.

2. Principles of Curriculum Construction.

3. Objectives of curriculum : Need to form objectives of curriculum.
   Sources of objectives of the curriculum : Society, Discipline, Needs of students.

4. Curriculum development – Contest based, process based, Product based and Systems based.

5. Determinants of content selection : Culture based, Knowledge based, Need based.

6. Curriculum evaluation : Meaning and Utility, Sources and means of curriculum evaluation. Formative and Summative evaluation.

Module - X : **COMPARATIVE EDUCATION**

Any one country from UK, USA, China.

1. Concept, meaning, scope of Comparative Education.

2. Various issues of the Indian educational system with special reference to school Education in comparison among India and SAARC countries on –
   a) Structure of education
   b) Administration
   c) Curriculum
   d) Examination
   e) Teacher education
   f) Education for all
   g) Distance education and open learning

3. Comparison between India and any one of the following countries, UK, USA and China in regard to Universalization of Elementary Education.

- . -