

ગુજરાત શૈક્ષણિક સંશોધન અને તાલીમ પરિષદ, ગાંધીનગર

“વિદ્યાભવન” સેક્ટર -૧૨ ગાંધીનગર

‘સંશોધન અને તાલીમ સહાયક’ પરીક્ષા માટેનો અભ્યાસક્રમ

1. શિક્ષણ વિભાગ દ્વારા બહાર પાડવામાં આવેલ ઠરાવનાં સંદર્ભે ‘સંશોધન અને તાલીમ સહાયક’ની પરીક્ષા બે તબક્કામાં લેવામાં આવશે. જેમાં, પ્રથમ તબક્કો – પ્રાથમિક કસોટી (200 ગુણ) તેમજ દ્વિતીય તબક્કો – મુખ્ય કસોટી (200 ગુણ)નો રહેશે.
2. પ્રથમ તબક્કો (પ્રાથમિક કસોટી – બહુવિકલ્પ પ્રશ્નો) માટે...
 - a. પ્રથમ તબક્કામાં બે ભાગમાં પરીક્ષા લેવામાં આવશે, જેમાં બહુવિકલ્પ ધરાવતા હેતુલક્ષી પ્રશ્નો (MCQ) પૂછવામાં આવશે.
 - b. ભાગ – 1 અને ભાગ – 2 માટેનો અભ્યાસક્રમ નીચે મુજબ રહેશે:
 - c. ભાગ – 1 (100 ગુણ) માટે એનેક્સર-A માં દર્શાવવામાં આવેલ શિક્ષણક્ષેત્ર વિષય મુદ્દાઓનો સમાવેશ કરવામાં આવશે. જેમ કે,
 - i. શૈક્ષણિક ફિલસુફી, શૈક્ષણિક મનોવિજ્ઞાન, શૈક્ષણિક સંશોધન, વર્ગ વ્યવહાર, મૂલ્યાંકન, સમાવેશી શિક્ષણ, શૈક્ષણિક તકનિકી, શિક્ષણ પ્રશિક્ષણ, કલાશિક્ષણ, શારીરિક શિક્ષણ અને સ્વાસ્થ્ય, શિક્ષણના નૂતન પ્રવાહો વગેરે જેવા વિષયાંગનો સમાવેશ કરવામાં આવેલ છે.
 - ii. ઉપરોક્ત વિષયો નક્કી કરવા માટે ગુજરાત સ્ટેટ એલિજબીલિટી ટેસ્ટના પ્રવર્તમાન અભ્યાસક્રમનો આધાર લેવામાં આવેલ છે.
 - iii. આ ઉપરાંત, ભાષા સાહિત્ય અને વ્યાકરણ, તાર્કિક અભિવ્યક્તિ અને ગાણિતિક અભિયોગ્યતા જેવા વિષય પણ ઉમેરવામાં આવેલ છે.
 - iv. આ માટેનું માળખું નીચે મુજબ રહેશે.

ક્રમ	વિષય	ગુણભાર
1	સામાન્ય જ્ઞાન	5
2	ભાષા સાહિત્ય અને વ્યાકરણ	10
3	તાર્કિક અભિવ્યક્તિ અને ગાણિતિક અભિયોગ્યતા	5
4	શૈક્ષણિક ફિલસુફી	10
5	શૈક્ષણિક મનોવિજ્ઞાન	10
6	શૈક્ષણિક સંશોધન	10
7	વર્ગવ્યવહાર અને મૂલ્યાંકન	10
8	શૈક્ષણિક તકનિકી	10

9	શિક્ષણ પ્રશિક્ષણ	10
10	કલા અને શારીરિક શિક્ષણ	10
11	શિક્ષણના નૂ તન પ્રવાહી	10

d. ભાગ - 2 (100 ગુણ) માટે એનેક્ષર - B માં દર્શાવવામાં આવેલ વૈકલ્પિક વિષયો પૈકી પ્રત્યેક વિષયનો અભ્યાસક્રમ જે તે વિષયની પદ્ધતિ માટે બી.એડ.ના કોર્સ સમકક્ષનો અભ્યાસક્રમ રહેશે.

❖ નોંધ :- પ્રાથમિક કસોટી OMR (બહુવિકલ્પ) તેમજ દ્વિતીય કસોટી (વર્ણનાત્મક) ના ભાગ- 2 માટે એનેક્ષર - B માં દર્શાવવામાં આવેલ કોઈ એક વિષય પદ્ધતિ પસંદ કરવાની રહેશે. (ઉમેદવારના બી.એડ.ની પ્રથમ શિક્ષણ પદ્ધતિ હોય તે જ વિષય પદ્ધતિ પસંદ કરવાની રહેશે.)

- ભાગ - 2 માં પ્રત્યેક વિષય માટે પ્રશ્નપત્ર તૈયાર કરવાનું રહેશે.
- ભાગ - 2 ના પ્રશ્નપત્રમાં 70 ગુણના પ્રશ્નો જે તે વિષયના ગુજરાતમાં અમલીકૃત ધોરણ 1 થી 12ના પ્રવર્તમાન અભ્યાસક્રમમાં સમાવિષ્ટ વિષયવસ્તુ સંદર્ભે રહેશે.
- જ્યારે 30 ગુણના પ્રશ્નો જે તે વિષયના અધ્યાપનશાસ્ત્રને સંદર્ભે રહેશે.

3. દ્વિતીય તબક્કો (મુખ્ય કસોટી તબક્કો) (મુખ્ય કસોટી - વર્ણનાત્મક પ્રશ્નો) માટે ...

- દ્વિતીય તબક્કામાં બે ભાગમાં પરીક્ષા લેવામાં આવશે, જેમાં વર્ણનાત્મક કે નિબંધલક્ષી પ્રશ્નો (Descriptive) પૂછવામાં આવશે.
- ભાગ - 1 અને ભાગ - 2 માટેનો અભ્યાસક્રમ નીચે મુજબ રહેશે:
 - ભાગ - 1 (100 ગુણ) માટે એનેક્ષર-A માં દર્શાવવામાં આવેલ શિક્ષણક્ષેત્ર વિષય મુદ્દાઓનો સમાવેશ કરવામાં આવશે. જે તે વિષય માટે ગુજરાત સ્ટેટ એલિજબીલિટી ટેસ્ટના પ્રવર્તમાન અભ્યાસક્રમનો આધાર લેવામાં આવવો જોઈએ.
- ભાગ - 2 (100 ગુણ) માટે એનેક્ષર - B માં દર્શાવવામાં આવેલ વૈકલ્પિક વિષયો પૈકી પ્રત્યેક વિષયનો અભ્યાસક્રમ જે તે વિષયની પદ્ધતિ માટે બી.એડ.ના કોર્સ સમકક્ષ અભ્યાસક્રમ રહેશે.

- ભાગ - 2 માં પ્રત્યેક વિષય માટે પ્રશ્નપત્ર તૈયાર કરવામાં આવશે.
- ભાગ - 2 ના પ્રશ્નપત્રમાં 70 ગુણના પ્રશ્નો જે તે વિષયના ગુજરાતમાં અમલીકૃત ધોરણ 1 થી 12ના પ્રવર્તમાન અભ્યાસક્રમમાં સમાવિષ્ટ વિષયવસ્તુ સંદર્ભે રહેશે.
- જ્યારે 30 ગુણના પ્રશ્નો જે તે વિષયના અધ્યાપનશાસ્ત્રને સંદર્ભે રહેશે.
- આ માટેનું માળખું નીચે મુજબ છે.

ક્રમ	પ્રશ્ન સ્વરૂપ	પ્રતિ પ્રશ્ન ગુણ ભાર	કુલ ગુણ
1	મુદ્દાસર જવાબ આપો (150 થી 200 શબ્દોમાં) A. વિષયવસ્તુના ત્રણ માંથી બે B. વિષય પદ્ધતિના ત્રણ માંથી બે	5	20
2	માગ્યા પ્રમાણે જવાબ આપો (100 થી 150 શબ્દોમાં) A. વિષયવસ્તુના ચાર માંથી ત્રણ B. વિષય પદ્ધતિના ચાર માંથી ત્રણ	4	24
3	માગ્યા પ્રમાણે જવાબ આપો (70 થી 100 શબ્દોમાં) - સાત માંથી કોઈ પણ પાંચ	3	15
4	એક કે બે વાક્યમાં જવાબ આપો - દસ પ્રશ્નો ફરજિયાત	2	20
5	હેતુલક્ષી પ્રશ્નો (ખાલી જગ્યા પુરો / જોડકા જોડો / સાચ-ખોટાં / વગેરે - એકવીસ (21) પ્રશ્નો ફરજિયાત	1	21

4. બંને તબક્કાના ભાગ - 2 માટે ઉમેદવારે તેના બી.એડ. અભ્યાસક્રમમાં લીધેલ મુખ્ય વિષય પદ્ધતિ મુજબ વૈકલ્પિક વિષય પસંદ કરવાનો રહે.
5. પ્રાથમિક તબક્કો (પ્રાથમિક કસોટી - બહુવિકલ્પક પ્રશ્નો) તેમજ મુખ્ય કસોટી (મુખ્ય કસોટી - વર્ણનાત્મક પ્રશ્નો) માટે બી.એડ. તેમજ એમ.એડ. કોર્સના અભ્યાસક્રમનાં પુસ્તકોનો સંદર્ભ તરીકે ઉપયોગ કરવામાં આવશે. આ માટે, Annexure - A તેમજ Annexure - Bમાં મુદ્દાઓ દર્શાવવામાં આવેલ છે.
6. Fine Art માટે અરજી કરનાર વ્યક્તિ માટે Annexure - B ના મુદ્દા - 12 FINE ARTS માં આપેલ વિગત અભ્યાસક્રમ તરીકે રહેશે.
7. Physical Education માટે માટે અરજી કરનાર વ્યક્તિ માટે Annexure - B ના મુદ્દા - 13 PHYSICAL EDUCATION માં આપેલ વિગત અભ્યાસક્રમ તરીકે રહેશે.

ANNEXURE A

સંશોધન અને તાલીમ સહાયક પરીક્ષા - 2024

પ્રાથમિક કસોટી તેમજ મુખ્ય કસોટીના ભાગ-1 માટેનો અભ્યાસક્રમ

1. ભાષા સાહિત્ય અને વ્યાકરણ -
 - a. ગુજરાતી ભાષા સાહિત્ય,
 - b. ગુજરાતી ભાષાનું વ્યાવહારિક વ્યાકરણ (ધોરણ 1 થી 12)
2. **General Knowledge – (સામાન્ય જ્ઞાન)**
 - a. General Current affairs, Indian Constitution – Preamble, Constitutional Values, Rights and Duties of Indian Citizens, Fundamental Rights, Duties of Indian Citizens,
 - b. Politics & Administration (State), Science & Technology, Sports & Games, Great Personalities (Nation), Music & Arts
3. **Logical Reasoning & Mathematical Aptitude (તાર્કિક અભિયોગ્યતા અને ગાણિતિક અભિવ્યક્તિ)**
 - a. Syllabus of Mathematics from Class 1 to 10.
4. **Educational Philosophy (શૈક્ષણિક ફિલસૂફી) –**
 - a. Understanding Concept, Nature & Importance of Education, Aims of Education (Social, Individual, Specific), Forms of education (formal, informal, Non Formal, distance, Continuous), Indian Philosopher and Thinkers, Western Philosopher and Thinkers, Nature and Types of Values,
 - b. Philosophy and Education - Educational Philosophy: Philosophy as Theory and Education as Practice, Aims of Educational Philosophy, Curriculum and Philosophy, Methods of Teaching and Philosophy, Value Education and Philosophy, Basic understanding of metaphysics, epistemology and Axiology including educational implications.
 - c. Contribution of Indian Schools of philosophy and Western schools of thoughts (Idealism, Realism, Naturalism, Pragmatism, Marxism, Existentialism)
 - d. Indian Philosophy and Education - Vedic Philosophy: Historical Development of Philosophical Thoughts, Concept of Philosophy, Maya, Ignorance, Karma, Knowledge, etc. in Upanishads. Concept of Atman, Brahman, Yoga System of Patanjali, Sankhya System, Philosophy in Bhagavad Gita with Reference to Theory of Action & Concept of Bhakti Yoga, Jainism, Buddhism, Philosophy of Charvak- Materialistic Concerns,
 - e. Western philosophy and Educational Thoughts of Indian Thinkers - Naturalism, Idealism, Pragmatism & Realism and their Implications to Education, Gandhiji, Vivekananda, Rabindranath Tagore, Aurobindo and J. Krishnamurthy, Savitri Bai Phule, Contemporary Thoughts and Education - Existentialism, Humanism, Analytic Philosophy and its Significance in Education, Fundamentalism, Conscientization (Paulo Freire)
 - f. Characteristics of Indian Society - In terms of social diversity; The role of the teacher in the context of social diversity; Social Change - Meaning, Concept, Role of Teacher, Influencing Factors; School Management: Concept and Form; Rules regarding recruitment of School Principal and Teacher (Primary, Secondary, Higher Secondary)

5. Educational Psychology (शैक्षणिक मनोविज्ञान) –

- a. Child Psychology and Process of Child Development - Child Psychology: Concept, Nature, Scope; Growth and Development: Concept, Principles of Development, Factors influencing Growth and development, Child development, Physical development, Mental Development, Social development, Emotional Development, Language Development.
- b. Theories of Learning (Discovery Learning, Experiential Learning, Information Processing Theory, Constructivist Approach of Learning, Humanist perspective of learning), (Piaget, Erikson, Kohlberg, etc.), Exceptional Children
- c. Growth and Development: Concept and principles, Cognitive Processes and stages of Cognitive Development, Personality: Definitions and theories (Freud, Carl Rogers, Gordon Allport, Max Wertheimer, Kurt Koffka), Mental health and Mental hygiene
- d. Principles and Theories of learning: Behavioristic, Cognitive and Social theories of learning, Factors affecting social learning, social competence, Concept of social cognition, understanding social relationship and socialization goals
- e. Guidance and Counselling: Nature, Principles and Need, Types of guidance (educational, vocational, personal, health and social & Directive, Non-directive and Eclectic), Approaches to counselling – Cognitive-Behavioral (Albert Ellis – REBT) & Humanistic, Person- centred Counselling (Carl Rogers) - Theories of Counselling (Behavioristic, Rational, Emotive and Reality)
- f. Personality Theory and Adjustment: Personality traits and Theories, Personality factors, Education Implication, Characteristics of Well-adjusted person, Area of Aspects of adjustments. Mal-adjustment – Concept, Attention: Meaning, Nature, Type and Factors affecting attention, Mental Hygiene and mental Health – Meaning, Aims, Characteristics and Purposes of Mental hygiene.
- g. Intelligences: Concept, Theory - Two Factor, Group, Guilford's and factors affecting Intelligences, Multiple Intelligences: - Eight Intelligences, - Intelligences and Learning styles, Classroom Application, Model of Teaching - Meaning, Characteristics, Importance, Different Type of Model

6. Educational Research (शैक्षणिक संशोधन) –

- a. Research Methodology
 - i. Meaning and Scope of Educational Research, Meaning and steps of Scientific Method, Characteristics of Scientific Method (Replicability, Precision, Falsifiability and Parsimony), Types of Scientific Method (Exploratory, Explanatory and Descriptive), Aims of research as a scientific activity: Problem-solving, Theory Building and Prediction, Types of research (Fundamental, Applied and Action), Approaches to educational research (Quantitative and Qualitative), Designs in educational research (Descriptive, Experimental and Historical)
 - ii. Variables: Meaning of Concepts, Constructs and Variables, Types of Variables (Independent, Dependent, Extraneous, Intervening and Moderator), Hypotheses (Concept, Sources, Types), Formulating Hypothesis, Characteristics of a good hypothesis, Steps of Writing a Research Proposal, Concept of Universe and Sample, Characteristics of a good Sample, Techniques of Sampling (Probability and Non-probability Sampling), Tools of Research - Validity, Reliability and Standardization of a Tool, Types of Tools (Rating scale, Attitude scale, Questionnaire, Aptitude test and Achievement Test, Inventory), Techniques of Research (Observation, Interview and Projective Techniques)
- b. Research Statistics

- i. Types of Measurement Scale (Nominal, Ordinal, Interval and Ratio), Quantitative Data Analysis - Descriptive data analysis (Measures of central tendency, variability, fiduciary limits and graphical presentation of data), Testing of Hypothesis (Type I and Type II Errors), Levels of Significance, Power of a statistical test and effect size, Parametric Techniques, Non- Parametric Techniques, Conditions to be satisfied for using parametric techniques, Inferential data analysis, Use and Interpretation of statistical techniques: Correlation, t-test, z-test, ANOVA, chi-square (Equal Probability and Normal Probability Hypothesis). Qualitative Data Analysis - Data Reduction and Classification, Analytical Induction and Constant Comparison, Concept of Triangulation
- ii. Qualitative Research Designs: Grounded Theory Designs (Types, characteristics, designs, Steps in conducting a GT research, Strengths and Weakness of GT) - Narrative Research Designs (Meaning and key Characteristics, Steps in conducting NR design), Case Study (Meaning, Characteristics, Components of a CS design, Types of CS design, Steps of conducting a CS research, Strengths and weaknesses), Ethnography (Meaning, Characteristics, Underlying assumptions, Steps of conducting ethnographic research, Writing ethnographic account, Strengths and weaknesses), Mixed Method Designs: Characteristics, Types of MM designs (Triangulation, explanatory and exploratory designs), Steps in conducting a MM designs, Strengths and weakness of MM research.

7. Classroom Transaction and Evaluation (વર્ગ વ્યવહાર અને મૂલ્યાંકન)

- a. Classroom transaction -
 - i. Pedagogy, Pedagogical Analysis - Concept and Stages, Critical Pedagogy- Meaning, Need and its implications in Education,
 - ii. Concept of Classroom - Meaning and concepts of classroom, Characteristics of Classroom, Multicultural classrooms, Components of classroom - Teachers (Role of Teacher as transmitter of knowledge, initiator and leader), Pupils- learning needs, Concept of Classroom Management - Meaning and concept of classroom management, Objectives & Principles of classroom management, Indiscipline in classroom - Concept, Types, Reasons, Techniques of classroom management: Verbal and Non-verbal, Contemporary classroom issues: bullying, interpersonal attraction, social media, corporal punishment
- b. Evaluation –
 - i. Educational Evaluation - meaning, steps, characteristics, uses; Educational Objectives, Learning outcomes- measurable and non-measurable, Major techniques of evaluation, Report card, Assessment for learning - Meaning and type of assessment- Formative and summative evaluation; Importance of assessment for learning, Self-assessment and peer assessment, Constructing portfolios, Rubric based assessment, Feedback in assessment – importance of feedback in learning, types of feedback
 - ii. Tools and Characteristics of Instruments of Evaluation - Essential characteristics of instruments of evaluation- validity, reliability, objectivity and usability, Tools of Evaluation -Paper pencil tests, Oral tests, and Performance tests, Achievement tests- standardized and teacher made tests, Diagnostic tests, Intelligence tests and aptitude tests, Rating scale, Check list, Anecdotal records, Socio-metric technique, Norm reference & criterion reference tests

- iii. Teacher Made Achievement Tests - Essay and Objective type tests, Improving essay type questions, Different types of objective tests, their characteristics, advantages and disadvantages. Preparation of blue print, Characteristics of a good test.
- iv. Taxonomies of Educational Objective - Classification of Objective of Cognitive Domain (Meaning, Specific objectives and expected behavioral changes), Classification of objective of Affective Domain (Meaning specific objectives and expected behavioral changes), Classification of objectives of Psychomotor Domain (Meaning specific objectives and expected behavioral changes).
- v. Evaluating Results - Marks and marking system, need problems, Marking: Traditional V/S Grading, Grading: Concept and process of grading, Semester, Continuous internal assessment, Blue Print for construction of question papers– Concept & usage, Question bank: Meaning importance, Steps for construction, Formative and Summative Evaluation, Progress report: Nature and use, Use of Computers in Evaluation

8. ICT in Education –

- a. Concept of Educational Technology (ET): (Information Technology, Communication Technology & Information and Communication Technology (ICT) and Instructional Technology, Applications of Educational Technology in formal, non-formal (Open and Distance Learning), informal and inclusive education systems.
- b. Systems Approach to Instructional Design, Models of Development of Instructional Design (ADDIE, ASSURE), Gagne’s Nine Events of Instruction and Five E’s of Constructivism
- c. Application of Computers in Education: CAI, CAL, CBT, CML, Concept, Process of preparing ODLM, Concept of e learning, Approaches to e-learning (Offline, Online, Synchronous, Asynchronous, Blended learning, mobile learning)
- d. Emerging Trends in e learning: Social learning (concept , use of web 2.0 tools for learning, social networking sites, blogs, chats, video conferencing, discussion forum), Open Education Resources (Creative Common, Massive Open Online Courses; Concept and application), E Inclusion - Concept of E Inclusion, Application of Assistive technology in E learning , Quality of E Learning – Measuring quality of system: Information, System, Service, User Satisfaction and Net Benefits (D&M IS Success Model, 2003), Ethical Issues for E Learner and E Teacher - Teaching, Learning and Research
- e. Use of ICT in Evaluation, Administration and Research: E portfolios, ICT for Research - Online Repositories and Online Libraries, Online and Offline assessment tools (Online survey tools or test generators) – Concept and Development.

9. Teacher Education –

- a. Meaning, Nature and Scope of Teacher Education; Types of Teacher Education Programs, The Structure of Teacher Education Curriculum and its Vision in Curriculum Documents of NCERT and NCTE at Elementary, Secondary and Higher Secondary Levels, Organization of Components of Pre-service Teacher Education Transactional Approaches (for foundation courses) Expository, Collaborative and Experiential learning
- b. Understanding Knowledge base of Teacher Education, Meaning of Reflective Teaching and Strategies for Promoting Reflective Teaching, Models of Teacher Education.
- c. Concept, Need, Purpose and Scope of In-service Teacher Education, Organization and Modes of In-service Teacher Education, Agencies and Institutions of In-service Teacher Education at District, State and National Levels (SSA, RMSA, SCERT, NCERT, NCTE and

UGC), Preliminary Consideration in Planning in-service teacher education programme (Purpose, Duration, Resources and Budget)

- d. Concept of Profession and Professionalism, teaching as a Profession, Professional Ethics of Teachers, Personal and Contextual factors affecting Teacher Development, ICT Integration, Quality Enhancement for Professionalization of Teacher Education, Innovation in Teacher Education

10. Art Education and Physical Education –

- a. Drama and its Fundamentals - Drama as a tool of learning. Different Forms of Drama. Use of Drama for Educational and social change (Street play, Dramatization of a lesson). Use of Drama Techniques in the Classroom: voice and speech, mime and movements, improvisation, skills of observation, imitation and presentation
- b. Music (Singing and Vadan) - Sur, Taal and Laya (Sargam); Vocal - Folk songs, Poems, Prayers; Singing, Composition of Songs, Poems, Prayers, Integration of Gayan and Vadan in Educational practices.
- c. The Art of Dance - Various Dance Forms - Bharat Natyam, Kathakali, Odissi, Manipuri; Folk dance: Garba, Bhavai, Bhangada, Bihu and various other dances. Integration of Dance in educational practices. (Action songs, Nritya Natika)
- d. Drawing and Painting - Colours, Strokes and Sketching- understanding of various means and perspectives; Different forms of painting- Worli art, Madhubani art, Glass painting, Fabric painting and various forms of painting; Use of Drawing and Painting in Education - Chart making, Poster making, match-stick drawing and other forms.
- e. Creative Art - Creative writing -Story writing, Poetry writing, Model making - Clay modeling, Origami, Puppet making; Decorative Art - Rangoli, Ikebana, wall painting (Mural); Designing - Computer graphics, CD Cover, Book cover, Collage work; The use of different art forms in Education
- f. Modern Trends in Physical Education and Sports - Planning and recreation in Physical Education, Administration and organisation in Physical Education, Education and Sports Psychology, Physiology, Anatomy and Effect of Exercise, Kinesiology and Sports Medicine, Principles of Coaching & Officiating
- g. Health - Meaning of health, definition, Types of Health: Physical, Mental and Social, Importance of health promotion through exercise, First aid - Meaning and importance of first aid, Physical Injuries Occurring During Sports and Their Treatment; Mental stress relief through sports: openness, sportsmanship, team spirit, fearlessness.
- h. Concept of Yoga - Meaning and Concept of Yoga, Guidelines for Yoga, Astang Yoga, Meditation- meaning, definition and its types, Mudras, Yoga and Health, Yoga Education, History and Development of Yoga Education, Yoga Education in Schools, Yoga Education in Teacher Education, Yoga Education (Formal / Non Formal / Informal).

11. New Trends in Education (शिक्षणान्तर्गत नूतन प्रवृत्तियाँ) –

- a. Indian Education System, Rights to Education – 2009, Structure of education system (National, State)
- b. National Education Policies (1968, 1986, 1992, 2020), National Curriculum Frameworks (NCF 2005, NCF-FS, NCF-SE),
- c. Social Diversity in India & Education, Concerns & Issues in Indian Schooling

-X-X-X-

ANNEXURE B

સંશોધન અને તાલીમ સહાયક પરીક્ષા - 2024

પ્રાથમિક કસોટી તેમજ મુખ્ય કસોટીના ભાગ-2 માટેનો અભ્યાસક્રમ

1) TEACHING OF GUJARATI

a) વિષયવસ્તુ

i) ગુજરાતી ભાષા તથા વ્યાકરણ (ધોરણ 1 થી 12)

b) શિક્ષણશાસ્ત્ર

- i) ગુજરાતી ભાષા વિકાસ, ધ્વનિઓ, ઉચ્ચારતંત્ર, ગુજરાતી ભાષાની વિકાસરેખા, ગુજરાતી ભાષાના ધ્વનિઓનું વર્ગીકરણ (સ્વર વ્યંજન, અર્ધસ્વર) અને ઉચ્ચારતંત્ર, મધ્યકાલીન સર્જકોનું સાહિત્યક્ષેત્રે પ્રદાન
- ii) ગુજરાતી શિક્ષણની પ્રયુક્તિઓ - કથન, પ્રશ્નોત્તરી, આદર્શવાચન, વાર્તાકથન, ગાન / પઠન, શબ્દરમત, ગુજરાતી શિક્ષણમાં ઉપયોગી સહઅભ્યાસક પ્રવૃત્તિઓ
- iii) સહઅભ્યાસક પ્રવૃત્તિની સંકલ્પના, કવિસભા, નાટ્યીકરણ, અંકપ્રકાશન, વાર્તાલાપ, ભાષામંડળ,
- iv) ગુજરાતી શિક્ષણમાં ICT, માતૃભાષા સંબંધિત સંસ્થાઓ અને પ્રસાર માધ્યમો,
- v) ગુજરાતી શિક્ષણનું મૂલ્યાંકન- મૂલ્યાંકનની સંકલ્પના, મૂલ્યાંકનના પ્રકાર અને તે માટેના સાધનો, પ્રશ્નના પ્રકાર અને તેના લાભાલાભ, ત્રિપરિમાણ દર્શક સારણીની રચના
- vi) ગુજરાતી શિક્ષણ અને શિક્ષક - વર્તમાન સમયમાં ગુજરાતી શિક્ષણમાં જોવા મળતી ખામીઓ, ગુજરાતી શિક્ષણને અસરકારક બનાવવાના ઉપાયો, શિક્ષકની સજ્જતા, ગુજરાતી શિક્ષણના શૈક્ષણિક હેતુઓ શૈક્ષણિક હેતુઓની સંકલ્પના મહત્ત્વ, ક્ષેત્રો અને પ્રકાર, શૈક્ષણિક હેતુઓ રચતી વખતે ધ્યાનમાં રાખવાની બાબતો
- vii) ગુજરાતીના મૂળભૂત કૌશલ્યો- શ્રવણ, કથન, વાંચન અને લેખન (સંકલ્પના, મહત્ત્વ, નિદાન ઉપચાર, વિકાસ કરવાની પ્રવૃત્તિઓ)

2) TEACHING OF HINDI

a) વિષયવસ્તુ

i) હિન્દી વિષયવસ્તુ - ભાષા - વ્યાકરણ (કક્ષા 12 તક)

b) શિક્ષણશાસ્ત્ર

- i) અભ્યાસક્રમ, પાઠ્યક્રમ, પાઠ્યપુસ્તક - અભ્યાસક્રમ: અર્થ અને પરિભાષા વ મહત્ત્વ, પાઠ્યક્રમ અને અભ્યાસક્રમ મેં અંતર, અભ્યાસક્રમ મૂલ્યાંકન અર્થ અને મૂલ્યાંકન, આદર્શ પાઠ્યપુસ્તક કા અર્થ અને પાઠ્યપુસ્તક મૂલ્યાંકન
- ii) ઉદ્દેશ્ય, સિદ્ધાંત સૂત્ર અને કૌશલ્ય - ગદ્ય-પદ્ય વ્યાકરણ ઓર રચના શિક્ષા કે ઉદ્દેશ્ય, મહત્ત્વ, પદ્ધતિ ઓર ઉસકા પાઠ આયોજન, ભાષા શિક્ષા કે સિદ્ધાંત સૂત્ર, ભાષા કૌશલ્ય: શ્રવણ, કથન,

- वाचन, लेखन, संकल्पना, महत्त्व और उसके विकास की प्रयुक्तियाँ, हिन्दी भाषा की प्रवर्तमान स्थिति एवं सुधारकीय उपाय
- iii) भाषा शिक्षा की विधियाँ - प्रत्यक्ष विधि संकल्पना महत्त्व और मर्यादा, परोक्ष विधि संकल्पना महत्त्व और मर्यादा, डॉक्टरवेस्ट विधि (नवीन विधि) संकल्पना महत्त्व और मर्यादा, व्याख्यान विधि संकल्पना महत्त्व और मर्यादा
 - iv) भाषा शिक्षक, भाषा प्रयोगशाला भाषा-करत रश्य श्रव्य साधन सहायक सामग्री, हिन्दी भाषा का अन्य विषयों से सह-सम्बन्ध, हिन्दी भाषा शिक्षक के गुण एवं विशेषताएँ, भाषा शिक्षक की व्यावसायिक एवं नैतिक जिम्मेदारियों, भाषा प्रयोगशाला एवं भाषा कक्ष का महत्त्व एवं उपयोग, हिन्दी भाषा शिक्षण में दृश्य श्रव्य साधनों का महत्त्व एवं उपयोग
 - v) साहित्यिक बधाएँ एवं लेखन, उपन्यास कहानी नाटक एकांकी रेखा चित्र, खंडकाव्य और महाकाव्य, निबंध लेखन अर्थ विस्तार, पत्रलेखन
 - vi) मूल्यांकन का अर्थ, महत्त्व एवं विशेषताएँ, निदानात्मक परीक्षण एवं उपचारात्मक शिक्षण, ब्लूप्रिंट का अर्थ, महत्त्व, त्रिपरिमाण दर्शक कोष्टक, प्रश्नसंरचना, आदर्श प्रश्नपत्र के लक्षण, इन्टर्नशीप, अर्थ, आवश्यकता, महत्त्व एवं आयोजन ।

3) TEACHING OF English

a) Content

- i) Textual Lessons and Poems, grammar of English from Standard IV to X.

b) Methodology

- i) Evaluation of English Textbook and Grammar, Criteria of textbook evaluation, Textbook as a resource: Evaluation of English textbook. Planning: Meaning and Importance of planning, Content analysis and Task analysis, Degree of Comparison (positive, comparative, superlative), Active and Passive voice, Articles, Question Tags, Remove „too“, Model auxiliaries (can, may, should, must)
- ii) Teachers of English, Methods & Approaches - Qualities, Competency, Professional skills and Education qualification of an English teacher, Role of English teacher in the classroom, Curriculum and Syllabus: Meaning, Concept, Importance Difference between curriculum and syllabus, Methods & Approach: Bilingual method, Discussion cum Narration method, Question answer method, Project method and Communicative approach, An Eclectic approach, Stress, Intonation and Rhythm in English language
- iii) Related Literature, Language Laboratory, Language Room, English club, Related literature: (Importance and use in teaching and learning English): Dictionary, Encyclopaedias, Newspaper, Magazines, Workbook, Language

Laboratory: Meaning, Tools, Characteristics, Advantages and Limitations, Language
Room: Importance, Teaching Aids, Arrangement, Use, Different Activities, English
Club: Meaning, Importance, Activities of an English Club.

4) TEACHING OF SANSKRIT

a) વિષયવસ્તુ

i) ધોરણ 6 થી 12નું વિષયાંગ અને વ્યાકરણ

b) પદ્ધતિશાસ્ત્ર

- i) સંસ્કૃત ભાષાનું મહત્વ અને સિદ્ધાંતો સંસ્કૃત ભાષાની વિશેષતાઓ, સંસ્કૃત ભાષાનું મહત્વ (સાંસ્કૃતિક, સાહિત્યિક, અને રાષ્ટ્રીય એકતાના વિશેષ સંદર્ભમાં) હિન્દી અને ગુજરાતી ભાષાના વિકાસમાં સંસ્કૃતનું પ્રદાન
- ii) સંસ્કૃત શિક્ષણના સિદ્ધાંતો, સંસ્કૃત શિક્ષણના હેતુઓ અને પાઠ આયોજન ઉચ્ચ પ્રાથમિક અને માધ્યમિક કક્ષાએ સંસ્કૃત શિક્ષણના ધ્યેયો, માનવ વર્તનનાં ક્ષેત્રો(સંજ્ઞાનાત્મક ભાવાત્મક અને મનોશારીરિક)ના સંદર્ભમાં સંસ્કૃત શિક્ષણના હેતુઓ સંકલ્પના અને પ્રકાર, પાઠ આયોજન: અર્થ, પ્રકાર, અને મહત્ત્વ, પાઠ આયોજન કરતી વખતે ધ્યાનમાં રાખવા યોગ્ય બાબતો
- iii) સંસ્કૃત શિક્ષણની પદ્ધતિઓ અને પ્રયુક્તિઓ સંસ્કૃત શિક્ષણમાં સંરચનાત્મક અભિગમ : અર્થ સંસ્કૃત શિક્ષણની વિવિધ પદ્ધતિઓ (સંકલ્પના, લાક્ષણિકતા મહત્ત્વ અને મર્યાદાના સંદર્ભમાં) : પાઠશાલા, ભાંડારકર, પ્રત્યક્ષ. ભાષાન્તર આગમન- નિગમન, અન્વય, અને પ્રોજેક્ટ. સંસ્કૃત શિક્ષણની પ્રયુક્તિઓ (લાક્ષણિકતા અને ઉપયોગના સંદર્ભમાં): નિદર્શન, નિરીક્ષણ, ઉદાહરણ, પ્રશ્નોત્તરી, ગાન, અંતકડી, સ્પષ્ટીકરણ, તુલના, નાટ્યીકરણ, સંસ્કૃત શિક્ષણમાં ઉપયોગી સાધન-સામગ્રી: મહત્ત્વ અને પ્રકાર, સાધન-સામગ્રીનાં નિર્માણ અને ઉપયોગ વખતે ધ્યાન રાખવા યોગ્ય બાબતો, ભાષા પ્રયોગશાળા: મહત્ત્વ, પ્રકાર, ભૌતિક સુવિધાઓ અને પ્રયોગશાળાની જાળવણી, સંસ્કૃત અધ્યયન-અધ્યાપનમાં મલ્ટી મિડિયાનો વિનિયોગ,
- iv) સંસ્કૃત સાહિત્ય અને સાહિત્યકાર, સંસ્કૃત સાહિત્યની લાક્ષણિકતા, વૈદિક સાહિત્યનો પરિચય (ઋગ્વેદ, યજુર્વેદ, સામવેદ, અથવવેદ), ઇશોપનિષદ અને કઠોપનિષદનો પરિચય, વૈદિક સાહિત્યનાં મહત્ત્વપૂર્ણ સૂક્તિવાક્યો અને તેની વ્યાખ્યા, ઉચ્ચ પ્રાથમિક કક્ષા માટે નિર્ધારિત પાઠ્યપુસ્તકો આધારિત અનુવાદ સારાંશ અને પ્રશિષ્ટ બાબતો
- v) સંસ્કૃત ભાષાના કૌશલ્યો, શ્રવણ, કથન, વાંચન અને લેખન કૌશલ્ય (અર્થ, લાક્ષણિકતાઓ ભાષા અધ્યયનમાં મહત્ત્વ), સંસ્કૃત ભાષાના વિવિધ સ્વરૂપ અને તેનું શિક્ષણ, ગદ્ય શિક્ષણ અને પદ્ય શિક્ષણ (સાહિત્યના વિવિધ સ્વરૂપ, શિક્ષણના હેતુઓ, ઉપયોગી પદ્ધતિઓ અને પ્રયુક્તિઓ).

5) TEACHING OF SOCIAL SCIENCE

a) Content

- i) Content of Standard – VI to X

b) Methodology

- i) Innovative Teaching Model & Technique in Social Science Teaching, Innovative Teaching Model-Meaning, Advance organizer model in social science teaching, Social Inquiry model in social Science teaching. Strategy of teaching: Brain storming, Field trip, Narration technique- Concept, merit & demerits, effective use of classroom in social science. Questioning technique: concept, aims, merit, demerits, characteristics of ideal / good question, types of questions. Role play technique: meaning, concept, importance, merits & demerits, use of role play in classroom, teacher's role in role play technique.
- ii) Social Science teacher, Correlation, Social Science room & Social Science Club, Teacher of Social Science: Educational qualifications, skills, professional efficiency competencies. Correlation: Meaning, concept, correlation of social science with other school subject: Language (literature), Economics, Geography, Art, Political Science, Psychology, Maths, Science & Technology. Social Science room: Importance, layout, arrangement of the material and the equipment, Functions of Social Science room, use of social science room in teaching social science, list of activities of programmes. Social Science Club: Aims, importance, layout, need, different activities in social science club, role of principal & teacher social science club.
- iii) Curriculum, Textbook & Evaluation - Curriculum (Meaning, definition, characteristics), Syllabus (Meaning, concept, importance), Difference between curriculum & syllabus. Textbook of social science – importance, utilities, limitations, Characteristics of ideal textbook, Criteria textbook evaluation, Evaluation of the current textbook of Social Science of std.- 6 to 10
- iv) Examination – Concept, importance, Types of examination (Oral, Practical) performance, written test. Evaluation- Meaning, concept, importance, characteristics, steps, utilities function of educational evaluation, Evaluation tool- Rating Scale, Check list, questionnaire, cumulative record card.

6) TEACHING OF MATHEMATICS

a) Content

- i) Content of CLASS I TO XII.

b) Methodology

- i) Learning Resources in Mathematics Teaching - Teaching Aids in Mathematics teaching: Need & Types (audio, visual, audio-visual), Self-made TLMs: preparation & development.
- ii) Use of ICT in Mathematics Teaching as a CAL & CAI and PPT Presentation as a learning resource. Reference Materials in teaching of Mathematics: Encyclopaedia, Magazines, Reference books & Websites. Need of Teacher handbook and Student workbook
- iii) Mathematics Club: Objectives, Importance & Activities.
- iv) Concept & Application in Mathematics Teaching - Test items as an Evaluation tool in Mathematics teaching: Types, Characteristics & Construction. Evaluation of Mathematics Textbook of Std. 9 & 10 on the basis of the characteristics of an ideal Textbook. Puzzle Solving in Mathematics teaching: Steps, Importance & Application in Classrooms. Correlation: Meaning & correlation of Mathematics with Science, Geography & Economics.

7) TEACHING OF SCIENCE AND TECHNOLOGY**a) Content**

- i) Content of Class VI to X.

b) Methodology

- i) TEACHING AIDS & LABORATORY - Need, Importance & Types of teaching aids (Audio, Visual, Audio-visual). Preparation & Development of improvised approaches. Selection and use of the Teaching aids, Science Laboratory: Management and safety, designing a science laboratory, laboratory equipment.
- ii) Science Teacher and References - Professional equipment of science teacher, Characteristics of an ideal textbook of science and technology. Reference material in teaching of science and technology(usefulness), Encyclopaedia, magazines and reference books. Importance and need of teaching of science and technology: Teacher handbook, Student practical workbook.
- iii) Science Club, Science Activities - Science club: Importance, establishment, Activities in teaching of science and technology. Meaning, importance and characteristics of correlation, correlation of science and technology with mathematics and social science. Correlation of science and technology with language and art.

8) TEACHING OF ECONIMICS

a) Content

- i) Content of Class XI & XII.

b) Methodology

- i) Innovative Teaching & Technique in Economics Teaching. Team-Teaching: Meaning, Concept, Advantages, limitations. Narration technique – importance, merits-demerits, effective use of narration technique in economics classroom. Questioning technique: concept, aims, types of questions, merit-demerits, Properties of a good Question. Role play technique: meaning, concept, importance, merits & demerits.
- ii) Economics teacher, Correlation, Economics room & Economics club. Economics Teacher – Qualities, Characteristics, Vocational development and training Qualification, Correlation: Meaning, concept, Importance, Types, Correlation of economics with other school subject – commerce, Statistics, Social Science, Physical Science, Psychology, Agricultural Science. Economics room: Importance, layout, equipment (materials) use of economics room in teaching of economics, barriers, different activities. Economics Club: Aims, importance, different activities in economics club, role of principal & teacher economic club, different committee.
- iii) Teaching aids, Text Book, Evaluation, Practical and field work, teaching aids: Meaning, concept, importance, Classification, Principle of Selection, Preparation, Control, Presentation, Response, Evaluation), Text Book – Main Function, Essential Characteristics of a Text Book in Economics, Use of Textbooks to Teachers and Students, Demerits of a Textbook

9) TEACHING OF ACCOUNTANCY

a) Content

- i) Content of Class XI & XII.

b) Methodology

- i) CORRELATION, TEACHING AID AND EDUCATIONAL METHOD: Correlation: Meaning, Concept, Importance and Types, Correlation with different Subjects (Commerce, Mathematics, Economics and Social Science) Correlation with daily life activity. Teaching Aids: Meaning and Importance, Types of Teaching Aids: Importance and Limitation of each Aid, Audio: Radio, Tape Recorder, Visual: OHP,

Slide Projector, Charts, Models, Audio- Visual Instruments: T.V, Film Projector, Computer, Internet,

- ii) Education Method - Assignment Method: Meaning, Merits and Demerits, Role of teacher for its effective use. Problem solving Method: Meaning, Merits and Demerits, Role of teacher for its effective use. Comparative Method: Meaning, Merits and Demerits, Role of teacher for its effective use.
- iii) ACCOUNTANCE TEACHER, ROOM, CLUB CO CURRICULAR ACTIVITY AND DRILL WORK -Accountancy Teacher: Educational Qualification, Qualities, skill, professional competency, Accountancy Room and Club: Objectives, Need/Importance, Activities, Co-curricular Activity, Development of School Magazine and Accountancy Corner, Class Room Interaction, Use Modern Software of Accountancy and its Importance, Drill Work of Accountancy: Concept, Important, Principal, Diagnosis Work and Remedial Work.
- iv) TEXT BOOK, RESOURCES AND APPROACHES OF TEACHING OF ACCOUNTANCY - Objectives of Text Book, Importance of Text Book, Characteristics of an Ideal text-book, Advantages of Text book, use of text book to teachers and students and Reference Books, Magazines and Journal, Criteria for evaluation of text book, Review of Present Text Book of Std-11 and Std-12 Accountancy. Approaches of Teaching of Accountancy: Journal Approach, Ledger Approach, Cash Book Approach, Balance Sheet Approach.

10) TEACHING OF PSYCHOLOGY

a) Content

- i) Content of Class XI & XII.

b) Methodology

- i) CORRELATION AND CO-CURRICULAR ACTIVITY, Correlation: Meaning, Types, Importance, Correlation with other subjects (History, Economics, Social Science, Science and Technology, Mathematics, Statistic and Language), Development of School Magazine and Psychology Corner, Co-Curricular Activities and Life Skill Development, Class Room Interaction
- ii) PSYCHOLOGY-TEACHER, LABORATORY AND CLUB - Psychology Subject Teacher: Educational Qualification, Qualities, Skill, Professional Competency, Two-fold Role of the Psychology Teacher, Laboratory of Psychology: Importance, Teaching Aids, Discipline, Infrastructure of Psychology Lab., Difficulties/Challenges

- face by School to Create Psychology Lab. Psychology Club: Importance, Objectives, Construction, Activities, Reference Book, Magazines and Journals
- iii) TEXT-BOOK, PSYCHOLOGICAL TOOLS AND TESTS - Text-Book: Use of Text-Book to Teacher and Students, Characteristics of Ideal Text-Book, Review of Present Text-Book (std. 11th and 12th) Criteria for Evaluation of Text-Book, Psychological Tools: Meaning, Importance, Planning of Experiments for Sensation, Perception and Learning, Psychological Tests: Meaning, Types, Importance
- iv) CONSCIOUSNESS AND MEDITATION - Consciousness: Concept, Definition and States of Consciousness, Indian Concept of Consciousness, Altered States of Consciousness: Concept and Definition Attention: As an Altered States of Consciousness, Meditation: Meaning, Importance Transcendental Meditation: Concept and Process.

11) TEACHING OF Organisation of Business and Management (BOM)

a) Content

- i) Content of Class XI & XII.

b) Methodology

- i) Method - Importance, Aims, Objective & planning, Meaning, Need & Aims of BOM, General & Specific objectives/Expected Behavioural changes, Planning: Micro, Simulation, Stray Lesson Planning, Meaning, importance & Planning. Methods & Techniques of BOM, Methods: Lecture Method, Demonstration Method, Comparative Method, Techniques: illustration, Field work and Interview.
- ii) Lesson Planning & Correlation, Unit Lesson Planning, Difference between Unit & Stray lesson planning, Meaning, importance & Types of Co-relation, Correlation with different subject: Economics, Accountancy & Social Science, Co-relation with the daily life activity.
- iii) BOM Method, Club, Teacher, Methods: Exhibition Method, Project Method, Assignment Method, CAI, BOM room & club: Concept, Needs, Importance, Different Activities. BOM Teacher: Education Qualification, Training. Vocational Competency, Qualities, Skills.
- iv) Teaching Aids: Types, Visual, Audio, Audio-Visual instrument. (Charts, Model, Tape-recorder, Computer, Slides, Video Programs, Internet, OHP, Reference Books & Magazine),

- v) Evaluation - Evaluation of textbook measurement of evaluation, Evaluation & Review of current textbook. Evaluation of BOM: Meaning, Objective tests, Blue Print & Ideal Question Paper, Ideal Question paper -Meaning, Characteristics. Structure of Blue Print

12) FINE ARTS

- a) Content
- i) Content of VII to X.
- b) Methodology
- i) Applied Art - Basic Design - Use of line, Study of line, Form of line, Character of line, Line Composition, Calligraphy, Element of Design, Form of visual language, Colour communication, 3D Composition (Design), History of art: Prehistoric art, Art of Gujarat, Famous artist of Gujarat, Indus valley, Egyptian civilization, Mesopotamian art, Greek art, Ancient European art, Ancient Chinese art.
- ii) Graphic Design - Basic Layout, Letter Composition, Logo/ Symbol, Space and Forms, 3D Composition, Pattern with grid, Drawing: Sketching (Perspective, Human, Nature), Sketch Development, Anatomy of Human Body, Head Study, Theory of Advertising (Introduction to Advertising), Gestures and signs, Languages, Mudra, Paper knowledge and art material's, Objects, Artefacts, Iconography, Signs and Symbols, Script evolution, hieroglyphs, pictographs, script and alphabets, Basic terminology and knowledge of layout, space, basic principles and elements of design. History of art: East Art, Maurya Art, Shung Art and Andhra Art, Kushan Period and Gandhar Art, Western Art.
- iii) Painting – Composition: Still life, Colour composition, Application of compositional techniques, Exercises in exploration of space in painting, Analysing composition, History of art: Indian & Western Art, Print making - Woodcut process, Terracotta, 2D exercise of high & low relief, Computer as a tool (introducing and awareness) - Coral Draw, Photoshop
- iv) Sculpture - Drawing from life: Object study from nature and manmade objects, sketching human, animal and nature, Anatomy study of human body, Head study in clay, Study of human body parts, Composition - Relief and round composition, Plaster of Paris moulding and casting, 3D design in colour - Paper cube composition, Paper collage, Colour theory and application, Advance exercise in basic design and colour, Moulding, History of art – Indian & Wester Art.

13) Physical Education

a) Content

- i) Content of Physical Education & Wellbeing from Class 1 to 10

b) Methodology

- i) Meaning, Definition and Aim, Objectives of Physical Education, Role of Physical Education in General Education. Historical Development of physical education in India and World, Policies, Schemes, Awards, Honours and Awardees, Trophies/ Cups in Physical Education and Sports at State / National level. Institutes for Physical Education and Sports in India.
- ii) Physical Activity – Concept, Benefits of participation in physical activities with specific reference to health, Wellness – Meaning, Components, Need and Importance, Concept and Components of Health; Health-promoting behaviour's; Type of Physical Activities.
- iii) Fitness and Aerobics, Physical Fitness – Concept, Components, Significance, Development and Maintenance, Effects of Exercise on Various Systems, Measurement and Evaluation of Physical Fitness, Forms of Aerobics; Development of Aerobic Fitness Programmes. Gym Operations
- iv) Meaning and Definition of Anatomy, Definition and Description of Cell, Tissue, Organ and System, Bones and Joints, Brief description of various systems (Skeletal, Muscular, Respiratory, Cardiovascular, Nervous, Digestive, Excretory, Endocrine and Reproductive), Effect of Exercise on Cardio-Respiratory and Muscular Systems, Skeletal Muscle and Exercise, Sliding Filament theory of Muscular Contraction. Types of Muscle Fiber. Muscle Tone, Chemistry of Muscular. Cardiovascular System and Exercise; Factors Affecting Heart Rate; Respiratory System and Exercise, Diffusion of Gases, Oxygen Debt– Effect of exercises and training on the respiratory system. Metabolism and Energy Transfer. Short Duration High Intensity Exercises.
- v) Climatic conditions and sports performance and ergogenic aids: Temperature and Humidity – Thermoregulation – Sports performance in hot & Cool Climate, high altitude. Influence of Amphetamine, Anabolic steroids, Androstenedione, Beta Blocker, Choline, Creatine, Human growth hormone on sports performance. Narcotic, Stimulants: Amphetamines, Caffeine, Ephedrine, Sympathomimetic amines. Stimulants and sports performance.
- vi) Historical development of the running events at national and international levels, National and International Bodies controlling track and field and their affiliated units; Major National and International competitions. Fundamental skills for Running,

Hurdles, Techniques, Relays, Ground Marking, Interpretation of Rules and Officiating,

- vii) Teaching Learning Strategies - The content will be taught by using lecture, demonstration, explanation, presentation methods, videos, learning by doing, Whole part whole method Drills.
- viii) Health - Meaning of health, definition, Types of Health: Physical, Mental and Social, Importance of health promotion through exercise, First aid - Meaning and importance of first aid, Physical Injuries Occurring During Sports and Their Treatment; Mental stress relief through sports: openness, sportsmanship, team spirit, fearlessness.
- ix) Concept of Yoga - Meaning and Concept of Yoga, Guidelines for Yoga, Astang Yoga, Meditation- meaning, definition and its types, Mudras, Yoga and Health, Yoga Education, History and Development of Yoga Education, Yoga Education in Schools, Yoga Education in Teacher Education, Yoga Education (Formal/ Non Formal/ Informal).

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