Category II - Paper II

(For classes VI to VIII)

KERALA TEACHER ELIGIBILITY TEST (K-TET)

Category II - Paper II (For classes VI to VIII)

SYLLABUS

I. Child Development and Pedagogy — 30 Questions

A. Child development (Elementary Child) (15 Questions)

1. Concept of development and its relation with learning

Growth and Development - stages of development - Infancy, Child hood, Adolescence - Maturation - Relationship between development, Maturation and learning.

Principles of development of children

Major principles of growth and development - Implication of learning -

Influence of Heredity and Environment

Role of Heredity and Environment on the development of child -Teacher's role.

2. Socialization Process

Concept of Socialization - Social world and children: Role of family, peers, teachers in the process of socialization - pattern of social development - Erick Erikson's theory of psychosocial development.

3. Piaget, Kohlberg, Vygotsky - Constructs and Critical Perspectives

Cognitive development theory of Piaget, Kohlberg's theory of moral development - Vygotsky's theory of social constructivism - Educational Implications.

4. Concept of child centered and progressive Education.

Concept of child centeredness - Individual difference - Methods of teaching and learning - Activity methods - Concept of progressive education - Role of teacher.

5. Critical perspective of the construct of Intelligence

Concept of Intelligence - Theories of intelligence - factor theories - S -I model of Intellect - multiple Intelligences - Concept of I Q - Intelligence Tests (Examples) - Sternberg's Information processing theory.

6. Language and Thought

Language development - stages, Theories - Piaget, Vygotsky, Chomsky - Relationship between language and thought -approaches to language learning and teaching.

7. Gender as a social construct

Gender Roles, bias, educational practices - Gender equality - teacher's role.

8. Individual difference among learners

Understanding differences based on diversity of language, caste, gender, community, religion etc. Individual difference - socio cultural determinants

9. Continuous and Comprehensive Evaluation

(C C E) Concept - Assessment to learning - strategies - Cumulative records, Anecdotal records, Portfolios Assessment Techniques. - Feed back

10. Nature of prior learning

Readiness for learning - Strategies for assessment - Encouraging critical thinking - Teacher's role.

B. Inclusive Education (5 Questions)

Addressing learners from diverse back grounds - including disadvantaged and deprived. LD, MR, O P H, Sensorily deprived - socially and culturally deprived - Educational Implications/ Addressing the needs of LD. Exceptional children - Gifted, creative, specially abled children - Educational provision - Needs - characteristics - Identification and Remedial measures

C. Learning and Pedagogy (10 Questions)

Identification of individual learner needs - Intellectual, Emotional, Social, Creative needs, Catering to the individual needs of learners.

1. Process of teaching and learning -

Creating Learning situations - criteria of learning experiences - different modes of learning - social learning (Bandura) - co-operative and collaborative learning, Group discussion - Role of Teacher.

2. Cognitive Process and Emotions

Perception - concept formation - thinking - Imagination - Reasoning - Inductive and deductive - Problem solving - Memory - Emotional development - characteristics, Emotional maturity Emotional Intelligence - Emotional Quittance (EQ)

3. Motivation and Learning

Learning - Factors affecting Learning - Theories of Learning - Pavlov, Thorndike, Skinner, Gagne's hierarchy of learning, Insightful learning (Kohler) - Constructivism - Piaget, Bruner, Vygotsky, Ausubel - Educational Implications

Motivation - Concept, types - Importance to learning - Theories of motivation - Abraham Maslow, Mc Clelland

4. Personality and adjustment

Concept - Approaches - Type, Trait - Allport - Measurement of personality - Projective and Non projective techniques - Adjustment Mechanisms

Total 30 Marks

II. LANGUAGE I - MALAYALAM/ENGLISH/TAMIL/KANNADA

A. MALAYALAM **30 Questions**

1. അവധാരണം (ഗദ്യം)
   - A. കേന്ദ്രാശയം കണ്ടെത്തൽ
   - B. വിശകലനം
   - C. നിഗമനരൂപീകരണം (അഞ്ച് ബഹുവികല്പ ചോദ്യങ്ങൾക്ക് 5 മാർക്ക്)
2. അവതരണം (പദ്യം)
   - A. കേന്ദ്രാശയം കണ്ടെത്തൽ
   - B. അർത്ഥ സാധ്യതകൾ കണ്ടെത്തൽ
   - C. വ്യാഖ്യാനം (അഞ്ച് ബഹുവികല്പ ചോദ്യങ്ങൾക്ക് 5 മാർക്ക്)
3. മാതൃഭാഷാപഠനത്തിന്റെ ബോധനശാസ്ത്രം (ക്ലാസ്സ് VI-VIII)
   - A. ഭാഷാപഠനം സംബന്ധിച്ച സിദ്ധാന്തങ്ങൾ
   - B. വ്യത്യസ്ത കഴിവുകളുള്ള കുട്ടികൾക്ക് പ്രത്യേക പരിഗണന നൽകൽ
   - C. പാഠ്യപദ്ധതി വിനിമയത്തിന്റെ രീതിശാസ്ത്രം (പത്ത് ബഹുവികല്പ ചോദ്യങ്ങൾക്ക് 10 മാർക്ക്)
4. ഭാഷ, സാഹിത്യം, സംസ്കാരം
   - A. ശൈലികളും പ്രയോഗങ്ങളും
   - B. പ്രായോഗിക വ്യാകരണം
   - C. പഴഞ്ചൊല്ലുകൾ
   - D. സാഹിത്യത്തിലെ നൂതന പ്രവണതകൾ
   - E. കാവ്യശാസ്ത്രം
   - F. താളബോധം (പത്ത് ബഹുവികല്പ ചോദ്യങ്ങൾക്ക് 10 മാർക്ക്)

(ആകെ 30 ബഹുവികല്പ ചോദ്യങ്ങൾക്ക് 30 മാർക്ക്)

B. ENGLISH **30 Questions**

a. Language Comprehension 15 Questions

- An unfamiliar passage or poem with questions on reading comprehension, inference, vocabulary and language elements.
- Questions to evaluate the knowledge of basic grammar such as Tense forms, Articles, Prepositions and Linkers.

b. Pedagogy of Language Development 15 Questions

- Language Acquisition and Learning - Theories and their classroom implications.
- Principles of Language Teaching
- Language skills - Strategies to develop them
- Problems and challenges in language classrooms
- Teaching learning materials - Textbook, ICT and other teaching aids.
- Learner Assessment - Self, Peer, Teacher
- Strategies for teaching children with special needs (CWSN)
- Teacher Attitude and Aptitude

Total 30 Marks

C. TAMIL — 30 Questions

1. Reading Comprehension - Prose — 5 Questions
   - A. Comprehension of theme
   - B. Interpretation
   - C. Inference
2. Reading Comprehension - Poem. — 5 Questions
   - A. Poetic images
   - B. Comprehension of themes
   - C. Interpretation
   - E. Extended Meaning
3. Pedagogical aspects of Mothertongue education - Class - VI - VIII — 10 Questions
   - A. Principles of Language Learning
   - B. Inclusion of differently abled children
   - C. Methodology of curriculum Transaction
4. Language Literature and culture. — 10 Questions
   - A. Books and Authors
   - B. Functional Grammar
   - C. Proverbs
   - D. Trends in Literature
   - E. Foreign Contribution in Tamil Literature
   - F. Tamil Festivals and Folk Arts

Total 30 Marks

D. KANNADA — 30 Questions

1. Reading comprehension - Prose — 5 Questions
   - A. Comprehension of Theme
   - B. Interpretation
   - C. Inference

2. Reading comprehension –Poem — 5 Questions
   - A. Comprehension of Theme
   - B. Poetic images
   - C. Poetic emotions and feelings
   - D. Imaginating elements

3. Pedagogical aspects of Kannada Language – Class 6 to 8 — 10 Questions
   - A. Principles of Language learning
   - B. Classroom Practices
   - C. Inclusion of differently abled children
   - D. Methodology of curriculum transaction

4. History of Language, Literature and Culture — 10 Questions
   - A. Idioms, Phrases and usages
   - B. Functional grammar
   - C. Proverbs
   - D. Rhythms
   - E. History and Forms of Literature

Total 30 Marks

III. LANGUAGE II - MALAYALAM/ENGLISH/HINDI/ ARABIC/URDU/SANSKRIT

A. MALAYALAM

30 Questions

1. **അവധാരണം - ഗദ്യം** (അഞ്ച് ബഹു വികല്പ ചോദ്യങ്ങൾക്ക് 5 മാർക്ക്)
   - A. കേന്ദ്രാശയം കണ്ടെത്തൽ
   - B. വിശകലനം
   - C. നിഗമനരൂപീകരണം
2. **അവധാരണം - പദ്യം** (അഞ്ച് ബഹു വികല്പചോദ്യങ്ങൾക്ക് 5 മാർക്ക്)
   - A. കാവ്യബിംബങ്ങൾ കണ്ടെത്തൽ
   - B. കേന്ദ്രാശയം കണ്ടെത്തൽ
   - C. വ്യാഖ്യാനിക്കൽ
   - D. അർത്ഥതലങ്ങൾ കണ്ടെത്തൽ
3. **ഭാഷാ പഠനത്തിന്റെ ബോധനശാസ്ത്രം (ക്ലാസ്സ് VI-VIII)**
   (പത്ത് ബഹുവികല്പ ചോദ്യങ്ങൾക്ക് 10 മാർക്ക്)
   - A. ഭാഷാപഠനസിദ്ധാന്തങ്ങൾ
   - B. വ്യത്യസ്ത കഴിവുകളുള്ള കുട്ടികൾക്ക് പ്രത്യേക പരിഗണന നൽകൽ
   - C. പാഠ്യപദ്ധതിവിനിമയത്തിന്റെ രീതിശാസ്ത്രം
4. **ഭാഷ, സാഹിത്യം, സംസ്കാരം** (പത്ത് ബഹുവികല്പ ചോദ്യങ്ങൾക്ക് 10 മാർക്ക്)
   - A. ശൈലികളും പ്രയോഗങ്ങളും
   - B. പ്രായോഗിക വ്യാകരണം
   - C. പഴഞ്ചൊല്ലുകൾ
   - D. സാഹിത്യത്തിലെ നൂതന പ്രവണതകൾ
   - E. കാവ്യശാസ്ത്രം
   - F. താളബോധം

(ആകെ 30 ബഹുവികല്പ ചോദ്യങ്ങൾക്ക് 30 മാർക്ക്)

B. ENGLISH

30 Questions

a. Language Comprehension 15 Questions

- One or two unfamiliar passages or poems with questions on comprehension, inference, vocabulary and elements of grammar.
- A few questions to evaluate knowledge of basic grammar, such as
  - Article
  - Concord
  - Question tags
  - Prepositions

- Tense and time
- Modal Auxiliaries
- Phrasal verbs and idioms
- Degrees of comparison
- Active and passive voice
- Reported speech
- Language functions
- Error identification

b. Pedagogy of Language Development 15 Questions

- Language Acquisition and Learning - Theories and their classroom implications.
- Principles of Language Teaching
- Problems and challenges in the language classrooms
- Language skills - strategies to develop them
- Teaching learning materials - Textbook, ICT and other teaching aids.
- Assessment - Self, Peer, Teacher
- Strategies for teaching children with special needs (CWSN)

Total 30 Marks

C. HINDI **30 Questions**

A. Pedagogy of language development. 15 Questions

- Concepts and process in language learning and acquisition.
- Developments - principles of language teaching.
- Role of listening and speaking.
- Functions of language and how children use it as a tool in formal and informal situations.
- Role of grammar in learning language for communicating ideas verbally and in written forms-critical perspective.
- Challenges in language teaching.
- Diverse classroom - errors and disorders.
- Language skills.
- Evaluation in language learning-comprehension and proficiency.
- Teaching-learning material-other resource materials to be used in class rooms.
- Remedial measures to be taken in language class.
- Creating proper interactive situations in language class rooms.
- Competence of a teacher in selecting proper extended materials in language class rooms.
- Various forms of presentation of discourses in language class rooms.
- How to address the special needs of differently abled children in language class rooms.

B. Questions for Language comprehension - 15 Questions

Reading unseen passages (prose, poem) and elements of language

Division of Questions

Question from Poem	5 Questions
Question from Prose	6 Questions
Question from Language Elements	4 Questions

(Translation, technical terms, history of language, language elements)

- Question to be asked on the basis of the poem given to test the competence to comprehend ideas and enjoy the poetic emotions and feelings, imaginative elements, ideas and views beyond the lines, particular forms of composition, etc.
- Questions on the given prose or drama to test the competencey for comprehension, interpretation and language usage.
- Language elements like structure of sentences, combination of words, usage of words in various situations, idioms in use and basic grammar.
- History & Culture of Languages - Major landmarks - developments of modern prose (Discourses)

Total 30 Marks

D. ARABIC

30 Questions

تتضمن هذا قسمين. الأول استيعاب اللغة(Language Comprehension) والثاني العلم التربوي لتنمية اللغة(Pedagogy of Language development). وكلّ قسم يحتوي على خمسة عشر سؤالا. لكل سؤال علامة واحدة. والأسئلة في القسم الأول تكون على أساس فقرتين، نثرا ونظما- الغير المألوفة- وتستهدف هذه الأسئلة اختبار قابلية استيعاب اللغة وقابلية التخمين(inference) وقابلية تطبيق قواعد اللغة (Grammar)، وقابلية الألفاظ (Verbal ability). والفقرة النثرية ستكون أدبيا أو علميا أوحكائيا أو وصفيا من إحدى المصادر اللغوية.

قسم العلم التربوي لتنمية لغة الدارس يحتوي على المناطق التالية:

العلم التربوي لتنمية لغة الدارس.

- اللغة: تعريفها ووظائفها وأشكالها.
- اللغة العربية تاريخها وامتيازاتها وآدابها وأهميتها – في العصر الجاهلي والإسلامي والعصر الحديث عل نظرية عامة.
- دراسة اللغة واكتساب اللغة.
- مبادئ تدريس اللغة.
- دور الاستماع والتحدث.
- توظيف اللغة وكيف يستخدمها الدارس أداة.
- الرؤية الانتقادية عن دور قواعد اللغة للتواصل عما في ذهنه شفويا وتحريريا.
- تحديات تدريس اللغة في الصف المتنوع، المشكلات اللغوية والأخطاء والاضطرابات.

- المهارات اللغوية.
- تقويم استيعاب اللغة وإتقانها: الاستماع والتحدث والقراءة والكتابة.
- الوسائل التدرّسية والتدريسية: الكتاب المقرر، الوسائل ذات متعدد الوسائط(Multimedia ، المصادر اللغوية المتعددة.
- التدريس العلاجي.

Total 30 Marks

E. URDU

30 Questions

A تفہیم

- عبارت کا مطالعہ اور دیے گئے سوالوں کے جواب لکھنا۔
- عبارت غیر مانوس ہو، جو نثر اور نظم سے لی گئی ہو۔
- جس کا مفہوم ادب، سائنس یا حکایت سے تعلق رکھتا ہو۔
- سوالات ایسے ہوں جن سے تفہیم مطلب، تحلیلی صلاحیت، قواعد اور لسانی قابلیت کا جائزہ لیا جائے۔

B زبانی صلاحیتیں اور طریقہء تعلیم

I زبان کی تعلیم کے اغراض و مقاصد

- تبادلہء خیالات
- تمدن اور ثقافت کی ترسیل
- معلومات کا تحفظ اور ترسیل

II زبان کی تعلیم کے اصول اور نظریے

- بچّوں کی مرکزیت
- فطرت سے مطابقت
- زندگی سے مربوط

III زبان اور اس کی آموزش

- زبان ایک حیاتیاتی عنصر
- شعوری اور غیر شعوری تعلیم
- لسانی قابلیت کی نشوونما میں سماج کا رول
- تعلیم اور آموزش
- تعلیم و تعلّم

IV زبان کی تعلیم

- تعلیم کا ماحول
- تعلیم کے طریقے
- سرگرمیاں / حکمتِ عملیاں
- وسائلِ تعلیم

V بنیادی لسانی مہارتیں اوران کی نشوونما

- اہمیت اورضرورت
- چاراہم لسانی مہارتیں
- مختلف سرگرمیاں/حکمتِ عملیاں

VI قواعد کی تعلیم

- اہمیت اورضرورت
- تعلیم کے اصول اورنظریے
- قواعد کے اقسام
- علمی قواعد
- عملی قواعد
- حکمتِ عملی/سرگرمیاں

VII وسائلِ تعلیم

- ضرورت اوراہمیت
- مختلف قسم کے وسائل

VIII جائزہ

- جائزہ کے طریقے
- آلاتِ جائزہ

- سرگرمیاں/حکمتِ عملیاں

IX اصلاحی تعلیم

- ضرورت اوراہمیت
- ہم سرا تالیقی تعلیم
- تکنیک/سرگرمیاں
- استادکارول

X خصوصی توجہ کی ضرورت والے طلبہ کی تعلیم

- اہمیت اورضرورت
- اصول اورنظریے
- سرگرمیاں اورحکمتِ عملیاں

Total 30 Marks

F. SANSKRIT

30 Questions

(A) Language Comprehension

15 Questions

(i) अदृष्टं गद्यभागं/नाटकं पठित्वा तद्गतप्रश्नानानामुत्तराणामङ्कनम्। बहुविकल्पमातृकाप्रश्नाः षट्।
पदम्, आशयः, सन्धिः, समासः, धातुः, लकारः, कारकम्, प्रयोगः।

(ii) अदृष्टं श्लोकं/सुभाषितं पठित्वा तद्गतप्रश्नानाम् उत्तराङ्कनम्। बहुविकल्पमातृकाप्रश्नाः पञ्च।
पदम्, आशयः, वृत्तम्, अलङ्कारः, सन्धिः, समासः।

(iii) संस्कृतशास्त्र/ साहित्यसम्बन्धि सामान्यज्ञानम्। चत्वारः प्रश्नाः।

(B) Pedagogy of Language Development - 15 Questions

(i) भाषावगमः। (Learning and acquisition)

(ii) भाषाबोधनतत्त्वानि। (Principles of Language teaching)

(iii) भाषाधर्माः तेषां छात्राणां उपयोगिता च। (Role of listening and speaking, function of language and how children use it as a tool)

(iv) मौखिकरीत्या वाचिकरीत्या च आशयविनिमयार्थं व्याकरणाध्ययनस्यावश्यकता। (Critical perspective on the role of grammer in learning a language for communicating ideas verbally and in written form)

(v) भाषाध्यापनसमस्याः। (Challenges of teaching language in diverse classrooms - language difficulties, errors and disorders)

(vi) संकलितशिक्षा। (Inclusive education)

(vii) भाषानैपुण्यः। (Language skills)

(viii) भाषावगमस्य भाषानैपुणीनां च मूल्याङ्कनं - श्रवणम्, भाषणम्, वाचनम्, लेखनम् । (Evaluating language comprehension and proficiency - speaking, listening, reading and writing)

(ix) पठनोपकरणानि - पाठपुस्तकम्, नूतनसाङ्केतिकसामग्रयः, बहुभाषायुक्तकक्ष्या। (Teaching learning materials - textbook, multi-media materials, multi lingual resources of the classroom)

(x) परिहारबोधनम्, (Remedial teaching)

Total 30 Marks

IV.A SCIENCE & MATHEMATICS **60 Questions**

SCIENCE **30 Questions**

a) Content 20 Questions

○ **Germination of seed**

- Steps of seed germination.
- Plant adaptations.
- Pest-pest control.
- Chemical and biological pest control.

○ **Cell**

- Cell structure.
- Cell organelles.
- Tissue.
- Types of tissues.
- Organ system.
- Levels of organisation.

○ **Diseases**

- Micro organisms.
- Mode of disease transmission.
- Preventive measures.

○ **Pollution**

- Different types of pollution.
- Bio-degradable and non bio degradable pollutants.
- Plastic waste.

- **Cardio vascular system**
  - Heart -blood-lymph
  - Arteries- veins- capillaries
  - Cardio vascular diseases
- **Cellular equilibrium**
  - Osmosis-diffusion-active transport
  - Cellular equilibrium
- **Excretion**
  - Kidney-skin.
- **Plant reproduction**
  - Agents of pollination
  - Seed dispersal
  - Types of fruits.
- **Animal nutrition**
  - Human digestive system
  - Indigenous food
  - Food adulteration.
- **Human nervous system**
  - Brain-nervous disorders.
- **Body structure**
  - Human skeletal system
  - Joints
  - First aid.
- **Agriculture**
  - Hybrid varieties of plants
  - Crop rotation
  - Nitrogen fixation
  - Vegetative propagation- (budding, grafting, layering)
  - Tissue culture
  - Plant nutrition
  - Chemical and bio fertilizers
- Integrated farming
- Pisciculture- sericulture- epiculture
- Plant diseases-plant disease control measures
- Agricultural garden- agricultural research institutes.
- Indegenous varieties of animals- hybrid varieties of animals.
- Taxonomy
- Two kingdom and five kingdom classification
- Binomial nomenclature.
- **Ecosystem**
- Food chain- food web- positive and negative interactions.
- **Bio diversity**
- Conservation of bio diversity

- Biosphere reserve- national park- zoological park- gene bank-
- Endemic species
- Hot spot- sustainable development.

- **Transparent and opaque objects**

  Reflection of light - images-different types of mirrors. solar eclipse-lunar eclipse-orbit-satellite-information technology, Image formation by spherical mirrors.

- **Solar system**

  Sun, planets, satellites, asteroids, meteorites, comets, etc.

- **Simple machines**

  Inclined plane-pulleys-lever-fulcrum-resistance-effort -application of simple machines-electromagnet

- **Magnetism**

  Properties of magnet, applications, earth's magnetism

- **Energy**

  Different forms of energy-fuels-conservation of energy-forms of fuels-potential energy- kinetic energy-evaporation of water-

- **Thermal Expansion**

  Density - heat and change of state-sea breeze and land breeze-atmospheric pressure and its application-fluid pressure. temperature, thermometer

- **Static Electricity**

  Frictional electricity, electroscope, earthing, lightning and lightning arresters, conductors and insulators.

- **Sound**

  Production of sound-characteristics of sound, application of sound (sonar, ultra sound etc) propagation of sound - sound pollution-musical instruments.

- **Motion**

  Different types of motion-uniform, non-uniform speed-velocity-acceleration-Newton's laws of motion-friction-advantages and disadvantages.

- Thermal conductivity

  Radiation-applications of thermal insulators (flask, casseroles)

- **Basic concepts of force**

  Types of force-inertia-relation between inertia and mass.
  Basic concepts of thrust and pressure-relationship between surface area and thrust.
  Atmospheric pressure - barometer

- **Different types of mixtures**

  Methods of separation of pure substances-acids and bases and its characteristics, reaction with metals and carbonates.

  Neutralisation, PH

- **Metals**

  Metals and its characteristics-prevention of corrosion.

- **Cosmetics**

- **Chemical reactions and its classification**

  Chemical reactions in day to day life-effect of chemical reactions on nature.

Molecules and atoms- fundamental concepts-classification of matter-symbols of elements-properties of elements and matter-structure of atom-discovery-Dalton's concept- atom model-Bohr' model of atom-atomic number and mass number.

Octet electronic configuration

Role of electrons in bonding- valency-ions - atomicity

b. Pedagogy 10 Questions

Approaches to the science curriculum-criticism of contemporary science education-Aims and objectives of science education-science literacy.

Approaches of science education-taxonomy of science education.

Knowledge domain

Problem solving skills-creativity domain-attitudinal domain-application domain

Scientific inquiry

Pedagogic strategies-activity based - collaborative and cooperative learning.

Significance of the history of science

Significance of laboratory

Evaluation, CCE, assessment of performance

Scientific attitude

Methods of science teaching

Role of science teacher

Teaching and learning aids

Psychological basis of science learning

Total 30 marks

MATHEMATICS **30 Questions**

The examination will be broadly based on the topics prescribed for classes 6 to 8 in the Kerala State syllabus for mathematics but some problems may have links to extension of these concepts to the Higher Secondary stage. The details are given below:

1. Content

Arithmetic

Fractions : Different forms of the same fraction and reduction to lowest terms. Operations on fractions. Representation of certain fractions as terminating decimals. Operations on such decimals.

Percent : Concept of percent and its relation to fractions. Applications of percent in monetary transactions, such as interest (simple and compound), profit and loss, and discount.

Average : Average as representative number of a group of numbers. Computation of average. Quick computation of the change in average when one number of the group is replaced by another. Average of combined groups

Negative Numbers : Use of negative numbers in certain physical contexts such as temperature and scoring. Fundamental operations of negative numbers. Use of negative numbers in algebra.

Exponentiation : Exponentiation as repeated multiplication. Positive integral powers. Multiplication and division of numbers expressed as powers. Meaning of negative powers and its use in simplification.

Ratio and Proportion : Ratios for comparing two or more magnitudes using a common unit. Multiple interpretations of comparisons involving ratios. Uses of the idea in such contexts as comparing different types in a group, different ingredients in a mixture, monetary division, aspect ratio in geometry and so on. Proportion as change of quantities without changing the ratio. The idea of the constant of proportion.

Inverse proportion as proportionality with the reciprocal. The equations $y = kx$ and $y = \frac{k}{x}$. Use of these ideas in physics, such as in elasticity, levers and gravitation.

Time and Distance : The concept of average speed. Relation between time, distance and average speed. Finding average speed of trips done in two parts in various cases such as when the distance in both parts are equal and when the time for both parts are the same.

Algebra

Use of algebra to express unchanging relations between changing physical quantities. Algebraic expressions as shorthand for arithmetical operations on unspecified numbers. General properties of arithmetic operations, especially products of sums and differences as algebraic identities. Formulation and solution of a linear equation in one unknown, arising from certain physical and mathematical contexts.

Geometry

Angles : Angle as measure of slant and as measure of spread. Degree measure of an angle by dividing a circle into 360 equal sectors. Perpendicularity relation between the four angles made by two intersecting lines.

Parallel Lines : A pair of parallel lines as lines keeping the same distance throughout and as lines having the same slant with a third line. Characterization of a pair of parallel lines in terms of various pairs of angles from the eight angles made by intersection with a third line. Sum of angles of a triangle and polygons.

Triangles : Area of a triangle in terms of base and height. Drawing triangles according to some specified measures. Cases where two different triangles are possible and no triangle is possible. The concept of congruency of triangles, Sufficient conditions for two triangles to be congruent, such as having lengths of all three sides equal, lengths of two sides and included angle equal, lengths of one side and the two angles on it equal. Various applications of these ideas such as in proving properties of parallelograms and isosceles triangles, drawing the perpendicular bisector of a line and bisector of an angle.

Quadrilaterals : Classification of quadrilaterals as rectangle, square, parallelogram, rhombus, and trapezium and their various characterizations. Drawing these types of quadrilaterals of specified measures. Areas of various types of quadrilaterals.

Solids : The idea of a rectangular prism. Its volume and surface area.

Statistics

Graphical Representation : Representing numerical data as pictographs, bar graphs, multiple bar graphs, line graphs and pie charts. Drawing inferences from such graphs.

Tabular Representation : Representing numerical data as a frequency table.

2. Pedagogy

Nature of Mathematics

Abstraction, Understanding children's thinking and reasoning. Language of Mathematics.

Place of Mathematics in Curriculum

Aims and objectives of learning mathematics in primary classes -Values of mathematics learning.

Correlation with other subjects, Lower primary and Upper primary Mathematics curriculum

Mathematics - Trends and Developments

Historical development of mathematics

History of great mathematicians and their contributions

Approach to Mathematics Learning

Proper learning experiences keeping in mind the characteristics of children, his natural learning capacity and the learning process of the child.

Theoretical base of learning mathematics

Learning of Mathematics - Strategies and Methods

learning strategies- Concept attainment, Process oriented approach, Projects, Seminars, Field trip, etc.

Different teaching learning methods –Inductive and deductive method, Analytic and Synthetic method, Project Method, laboratory method. Planning of a lesson

Learning Materials in Mathematics

Textbook and Handbooks, Information technology, Mathematics club, Mathematics laboratory, Mathematics fair, Mathematics library. Mathematics collection - collection of mathematical puzzles, riddles, etc.

Mathematics Learning - Evaluation

Concept of continuous and comprehensive evaluation, Evaluation activities, Grading the performance and recording the results.Diagnosis,Remedial Teaching and Error Analysis.

Total 30 Marks

IV. B SOCIAL SCIENCE

60 Questions

(i) History

(12 Questions)

1. Stone age, beginning of agriculture
2. Civilizations - Egypt, China, Mesopotamia, Harappa
3. Industrial and agrarian revolutions, capitalism
4. Socialism, labour movements and labour struggles
5. Colonialism in India
6. Struggles of peasants, workers, tribals, women, sepoys, poligars, rulers and chieftains
7. Revolt of 1857
8. Social reform movements of India
9. Indian national movement and Gandhian era.
10. Movements for social change, peasant struggles and national movement in modern Kerala

(ii) Geography

(12 Questions)

1. Planets and other heavenly bodies
2. Size, shape, interior structure of the earth, seasons, temperature zones
3. Latitude, longitude, longitude and time
4. Map and its types, scale, topographical maps, globe
5. Climate & weather, temperature, pressure, rainfall and winds
6. India - Relief, climate, drainage, vegetation
7. India - Resources, agriculture, industry, transport, population
8. Kerala - Physiography, drainage, agriculture, transport, human life
9. Environmental problems and conservative measures.

(iii) Economics (8 Questions)

1. Economic growth, development and human development - concepts and trends
2. Five Year Plans
3. Agriculture, food security and poverty
4. Traditional industries of Kerala
5. Money and banking
6. Demographic trends - India and Kerala
7. Globalisation and India

(iv) Political Science (8 Questions)

1. Democracy
2. People and state Government
3. Political parties - Types and functions
4. Election process and the Role of Election Commission
5. Local Self Governments

(v) Social Science - Pedagogy (20 Questions)

1. Nature, scope, importance and correlation
2. National goals, aims & objectives of instruction
3. Curriculum - trends, principles & orgnaisations
4. Analysis and planning of instruction.
5. Types of learners and requirements for learning
6. Learning resources and co-curricular activities
7. Purpose and modern trends of evaluation
8. Methods, approaches & techniques of instruction
9. Characteristics of modern instructional strategies