Government of Andhra Pradesh
Department of School Education
State Council of Educational Research & Training
DSC-2024
Category of Post: TGT
TELUGU Syllabus

1.	**G.K & Current Affairs -**	-	**10M**
2.	**Perspectives in Education**	-	**05M**
3.	**Classroom implications of Educational Psychology**	-	**05M**
4.	**Content**	-	**40M**
5.	**Methodology**	-	**20M**
	Total	-	**80 M**

PART - I

I. General Knowledge and Current Affairs (Marks: 10)

PART - II

II. Perspectives in Education (Marks: 05)

1. **History of Education :**
   - The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
   - Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
   - Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992
2. **Teacher Empowerment:**
   - Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.
3. **Educational Concerns in Contemporary India:**
   - Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
   - Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
   - Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
   - Adolescence Education
   - Value Education – Moral Value and Professional Ethics in Education.
   - Health and Physical Education
   - Inclusive Education - Classroom Management in Inclusive Education
   - Role of Education in view of Liberalization, Privatization and Globalization
   - Programmes and Projects – APPEP, DPEP, Sarva Shiksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya

Madhyamika Shiksha Abhiyan (RMSA), Rashtriya Avishkar Abhiyan (RAA), KGBVs, Model Schools.

- Incentives and special provisions – Mid Day Meals, Free Books, Scholarships, Awards, Welfare Hostels, Transportation.
- Current Trends in Education

4. **Acts / Rights:**
   - Right of Children to Free and Compulsory Education Act - 2009
   - Right to Information Act - 2005
   - Child Rights
   - Human Rights.

5. **National Curriculum Framework - 2005:** Perspectives, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessments, Systemic Reforms.

6. **National Education Policy-2020**

PART - III

III. Classroom implications of Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

PART – IV

I. Content (40 Marks)

1) తెలుగు సాహిత్య చరిత్ర:

- కవులు, కాలం, రచనా విశేషాలు, బిరుదులు, ఇతివృత్తం, పాత్రలు, విశేషాంశాలు, వివిధ ప్రక్రియలు
- ఆధునిక కవిత్వ ధోరణులు, లక్షణాలు

2) తెలుగు భాషా చరిత్ర:

- మాండలిక భాష – స్వభావం, ఉత్పత్తి, భేదాలు
- గ్రాంథిక భాష, వ్యావహారిక భాష – ఆధునిక ప్రామాణిక భాష
- అర్థ విపరిణామం
- ధ్వని – ధ్వన్యుత్పత్తి స్థానాలు

3) సాహిత్య విమర్శ:

- కావ్యం – నిర్వచనం – కావ్య ప్రయోజనం – కవిత్వ హేతువులు – శైలి – సంస్కృత, పాశ్చాత్య లాక్షణికుల సిద్ధాంతాలు

4) బాల వ్యాకరణం:

- సంజ్ఞ, సంధి, తత్సమ, ఆచ్చిక, సమాస, పరిచ్ఛేదములు.

6వ తరగతి నుండి ఇంటర్మీడియట్ వరకు గల ఆంధ్రప్రదేశ్ ప్రభుత్వ పాఠ్యపుస్తకాలు

1) తెలుగు వాచకాలలోని అంశాలు: (ఉపవాచకాలతో సహా)

కవికాలాదులు, నేపథ్యాలు, ఉద్దేశాలు, మూల గ్రంథాలు, విశేషాంశాలు, ఇతివృత్తాలు, పాఠ్యాంశ విషయాలు మొ॥వి; విద్యాప్రమాణాలు.

2) పదజాలం:

అర్థాలు, పర్యాయపదాలు, నానార్థాలు, వ్యుత్పత్త్యర్థాలు, ప్రకృతి – వికృతులు, జాతీయాలు, సామెతలు మొ॥వి.

3) భాషాంశాలు:

సంధులు, సమాసాలు, ఛందస్సు, అలంకారాలు, పారిభాషికపదాలు క్రియలు, వాక్యాలు మొ॥వి.

4) ఛందస్సు: (వృత్తాలు, జాతులు, ఉపజాతులు)

యతులు, ప్రాసల రకాలు – ఛందో దర్పణం

II. తెలుగు బోధన పద్ధతులు : 20 మార్కులు

బి.ఎడ్ తెలుగు బోధన పద్ధతులు. (తెలుగు అకాడమీ ప్రచురణ)

1. భాష – వివిధ భావనలు
2. భాషానైపుణ్యాలు
3. ప్రణాళిక రచన – పాఠ్యగ్రంథాలు
4. విద్యా సాంకేతిక శాస్త్రం – సహపాఠ్య కార్యక్రమాలు
5. సాహిత్య ప్రక్రియలు – బోధన పద్ధతులు
6. మూల్యాంకనం – పరీక్షలు

Government of Andhra Pradesh
Department of School Education
State Council of Educational Research & Training
DSC-2024
Category of Post: TGT
HINDI Syllabus

1.	**G.K & Current Affairs**	-	**10M**
2.	**Perspectives in Education**	-	**05M**
3.	**Classroom implications of Educational Psychology**	-	**05M**
4.	**Content**	-	**40M**
5.	**Methodology**	-	**20M**
	Total	-	**80 M**

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I. General Knowledge and Current Affairs (Marks: 10)

PART - II

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PART - III

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1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
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PART - IV

IV. Content (Marks: 40)) (Class VI to Intermediate level syllabus)

1. **हिंदी साहित्य का इतिहास**: काल विभाजन - विभिन्न विद्वानों के विचार आदिकाल, भक्ति काल, रीति काल और आधुनिक काल
2. **आधुनिक साहित्य**: विभिन्न प्रवृत्तियाँ और प्रमुखवाद (छायावाद, प्रगतिवाद,प्रयोगवाद, रहस्यवाद आदि) साहित्यक विधाएँ (कविता, कहानी, उपन्यास, नाटक आदि)
3. **हिंदी भाषा का इतिहास**: उद्भव और विकास: हिंदी राष्ट्र भाषा, राजभाषा और विश्व भाषा के रुप में हिंदी देवनागरी लिपि का विकास, देश की एकता और हिंदी।
4. **हिंदी भाषा का क्षेत्र**: उपभाषाएँ और बोलियाँ

5. **भारतीय काव्यशास्त्रः** अर्थ, परिभाषा, प्रयोजन और लक्षण, रस, छंद, अलंकार
6. **भाषा तत्व और व्याकरणः** वर्णमाला : (स्वर, व्यंजन भेद वर्णों का उच्चारण स्थान) **शब्दभेदः** (रूप परिवर्तन के अधार पर विकारी अविकारी शब्द व्युत्पत्ति के आधार पर शब्द भेद रूढी,यौगिक, योग रूढ) उपसर्ग, प्रत्यय, लिंग वचन, कारक - काल - संधि - समास। पर्यायावाची शब्द, विलोम शब्द, शब्द परिचय तत्सम, तद्भव, देशी, विदेशी, क्रिया - सकर्मक, अकर्मक प्रेरणार्थक क्रियाएँ - मुहावरे, लोकोक्ति, कहावत, विराम चिह्न। वाक्य भेद, वाक्य और प्रयोग, वाक्य संरचना, भेद वाच्य कर्तृ वाच्य, कर्म वाच्य और भाव वाच्य पद-परिचय
7. हिंदी पाठ्य पुस्तकें (द्वितीय भाषा) छठवीं कक्षा से दसवीं कक्षा सहित (उपवाचक और पठनहेतु साहित)

V. Methodology (Marks: 20)

1. भाषा-अर्थ, परिभाषा, महत्व, प्रकृति और स्वरूप, ध्वनि विज्ञान, शब्द विज्ञान, व ाक्य विज्ञान, विवध स्तरों पर हिंदी शिक्षण के लक्ष्य और उद्देश्य, प्रथम भाषा के रूप में हिंदी द्वितीय भाषा के रूप में हिंदी, त्रिभाषा सूत्र, भारतीय संविधान में ि हंदी का स्थान।
2. हिंदी भाषा शिक्षण प्राथमिक, माध्यमिक और उच्च माध्यमिक स्तर पर
   (1) हिंदी भाषा - शिक्षण के उद्धेश्य
   (2) अच्छे शिक्षण और अच्छे शिक्षण की विशेषताएँ।
   (3) हिंदी अध्यापक और शिक्षण की विशेषताएँ
   (4) भाषा - शिक्षण के सामान्य सिद्धांत
   (5) भाषा शिक्षण प्रणालियाँ
   (6) भाषा शिक्षण की पद्धतियाँ (प्रत्यक्ष, परोक्ष, खेल माँन्तेसरी, निर्देशित, डाल्टन, आगमन, सूक्ष्म शिक्षण आदि)
   (7) शिक्षण सूत्र
3. **शिक्षण में भाषा - कौशलों का महत्व**
   सुनना - ध्वनि की उत्पत्ति - ध्वनि और श्रवण का पारस्परिक संबंध
   बोलना - शब्दोच्चारण, वाक्यंत्र, शुदुधोच्चारण का अभ्यास, मौखिक अभिव्यक्ति, पाठशाला में वार्तालाप का अभ्यास।
   पढनाः वाचन की विशेषताएँ, प्रकार दोष और उपचार
   लिखनाः महत्व, नियम विधियाँ, प्रकार, अक्षर-विन्यास
4. **पाठ्यक्रम और सहगामी क्रियाएँ**
   पाठ्यक्रम-पाठ्य पुस्तक, पुस्तकालय - दृश्य - श्रव्य उपकरण (शिक्षण उपकरण) पाठ सहागामी क्रियाएँ, भाषा प्रयोगशाला।
5. **शिक्षण योजनाः**
   (1) पाठ-योजना (गद्य, पद्य, व्याकरण, पत्र लेखन और रचना)
   (2) इकाई पाठ योजना
   (3) सूक्ष्म शिक्षण पाठ योजना

6. **मूल्यांकन**
   मूल्यांकन की धारणा, निरंतर समग्र मूल्यांकन, उत्तम परीक्षा की विशेषताएँ, प्रश्न पत्र का निर्माण, उपलब्धि परीक्षा, निदानात्मक एंव उपचारात्मक शिक्षण, अभिलेख।
7. आंध्रप्रदेश में हिंदी शिक्षण में आनेवाली समस्याएँ व उनका निराकरण।
8. ध्वनि, वर्ण, शब्द, वाक्य रचना व शुद्धाशुद्ध वर्तनी व वाक्य ज्ञान।

Government of Andhra Pradesh
Department of School Education
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DSC - 2024
Category of Post: TGT
SANSKRIT Syllabus

1.	**G.K & Current Affairs**	-	**10M**
2.	**Perspectives in Education**	-	**05M**
3.	**Classroom implications of Educational Psychology**	-	**05M**
4.	**Content**	-	**40M**
5.	**Methodology**	-	**20M**
	Total	-	**80 M**

PART - I

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PART - II

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6. **National Education Policy - 2020**

PART - III

III. Classroom Implications of Educational Psychology – 05marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
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PART - IV

IV. Sanskrit Content (Marks: 40)) (Class VI to Intermediate level syllabus)

Note: 6 कक्ष्यातः 12 कक्ष्यापर्यन्तं प्राच्य / संयुक्त पाठशालासंस्कृतपाठ्यपुस्तेकषु विद्यमानांशाः पाठ्येतरांशाः च ।

कवयः - काव्यम् - रचयितारः - रचनाः स्तोत्राणि शास्त्रग्रन्थाः - कर्तारः (आलङ्कारिक - न्याय व्याकरणेत्यादि ग्रन्थाः।) इत्यादयः।

रचनाप्रक्रियाः इतिहास - पुराण - काव्य - नाटक - कथा - आत्मकथा - गीतम् - इत्यादि प्रक्रियानां स्वरूपविवरणम् - ।

वेदवाङ्मयम् - वेदाः - वेदाङ्गानि - उपनिषदः।

भाषास्वरूपम् - भाषोत्पत्ति विषयकवादाः - भाषाकुटुंबम् - वैदिकलौकिक संस्कृतयोः साम्यं वैषम्यं च।

साहित्यविमर्शः - काव्यप्रयोजनं - काव्यलक्षण - काव्यभेदाः - शैली -

	अलङ्काररससंप्रदायाः - रसवादाः च।
संस्कृतव्याकरणम् -	संज्ञाप्रकरणम्
	संधिप्रकरणम्
	समासप्रकरणम्
	स्त्रीप्रत्ययप्रकरणम्
	विभक्त्यर्थप्रकरणम्
भाषांशाः	समानार्थकाः
	विरुद्धार्थकाः
	छन्दः
	अलङ्कारः
	प्रत्ययाः
	विभक्तिः
	क्रियापदानि
	व्युत्पत्यर्थाः
	संख्यावाचकाः
	प्रयोगविपरिणामः इत्यादयः
पठनावगमनम्	परिचित/अपरिचत पद्य/गद्यांशाः - तदाधारितप्रश्नाः।

V. Methodology (20 Marks)

पाठ्यक्रमे संस्कृतस्य महत्वम् - स्थानम्।
संस्कृतशिक्षणस्य उद्देश्यानि - सामान्यसिद्धान्ताः - शिक्षणापद्धतीः।
पाठ्यक्रमयोजना - पाठ्यग्रन्थः।
विद्यासांकेतिक - सहपाठ्यकार्यक्रमाः।
विद्यालयव्यवस्था।
साहित्यप्रक्रियाः बोधनापद्धतीः।
शिक्षणाकौशलानि।
मूल्याङ्कनम् - परीक्षा च।

Government of Andhra Pradesh
Department of School Education
State Council of Educational Research & Training
DSC-2024
Category of Post: TGT, PGT & Principals
Paper I – ENGLISH LANGUAGE PROFICIENCY (For Non Languages)
Syllabus

English: (Content) (Marks: 100) (Intermediate level)

Area		Level Of Testing
Parts of Speech		Nouns, Pronouns, Adjectives, Adverbs, Conjunctions, Interjections - Types and functions
Synonyms		Identification of Shades of Meaning
Antonyms		Identifying Antonyms in a Context
Homophones		Identification & Usage
Homonyms		Identification & Usage
Hypernyms& Hyponyms		Identification & Usage
Spelling		Spelling
One-word Substitutes		Referring to Persons / Professions, Places, Collections
Phrasal Verbs		Identification of Meaning and usage
Idiomatic Expressions		Identification, Usage
Proverbs		Proverbs
Word Formation		Suffixes, Prefixes and other forms
Short Forms - Full Forms		Common Short Forms - Full Forms
Abbreviations - Full Forms		Common Abbreviations - Full Forms
Word Collocations		Word Collocations
Foreign Phrases Used in English		Standard and common Foreign Phrases Used in English
Helping Verbs		Form, Function & Contractions
Modal Auxiliaries		Form, Function & Contractions
Ordinary Verbs		Form, Function & Contractions
Articles		Use of Articles Including Omissions
Prepositions		Simple, Compound Prepositions Including Prepositions following Certain Words and Prepositional Phrases

Clauses		Main Clauses, sub-ordinate Clauses, Adjectival Clauses, Noun Clauses, Adverbial Clauses, Relative Clauses, Finite and Non-finite Clauses
Sentence Structures		Sentence Structures
Degrees of Comparison		Form, Function, Construction, Transformation
Language Functions		Language Functions with social norms (formal and informal)
Question Tags		Imperatives and Statements with semi negatives and indefinites subjects
Types of Sentences		Types of Sentences
Sentence Improvement		Sentence Improvement
Direct Speech & Indirect Speech		Statements, Questions, Imperatives and Exclamatory Sentences
Active Voice & Passive Voice		Active Voice & Passive Voice
Tenses		Use of tenses and framing including 'IF' conditionals Type 1, 2 &3
Agreement between subject & Verb		Agreement between subject & Verb
Word Order		Word Order In a phrase or a sentence
Linkers		Linkers
Transformation of Sentences		Simple. Compound and Complex Sentences
Common Errors		Based on all Vocabulary and Grammar Topics
Punctuation and Capitalization		Use of capital letters, comma, full stop, question mark, exclamation mark and inverted commas
Writing of Discourses		Letter Writing, News Report, Diary Entry, Conversation, Description, Diary Entry, Biographical Sketch, Story, Script for a speech
Dictionary Skills		Dictionary Skills
Reading comprehension		Prose (GENERAL)

Government of Andhra Pradesh
Department of School Education
State Council of Educational Research & Training
DSC-2024
Category of Post: TGT
Paper II – MATHAMETICS Syllabus

1.	**G.K & Current Affairs**	-	**10M**
2.	**Perspectives in Education**	-	**05M**
3.	**Classroom implications of Educational Psychology**	-	**05M**
4.	**Content**	-	**40M**
5.	**Methodology**	-	**20M**
	Total	-	**80 M**

PART - I

I. General Knowledge and Current Affairs (Marks: 10)

PART - II

II. Perspectives in Education (Marks: 05)

1. **History of Education :**
   - The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
   - Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
   - Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992
2. **Teacher Empowerment:**
   - Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.
3. **Educational Concerns in Contemporary India:**
   - Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
   - Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Sakshar Bharat Mission.
   - Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
   - Adolescence Education
   - Value Education – Moral Value and Professional Ethics in Education.
   - Health and Physical Education
   - Inclusive Education - Classroom Management in Inclusive Education

- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Shiksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Shiksha Abhiyan(RMSA), Rashtriya Avishkar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarships, Awards, Welfare Hostels, Transportation.
- Current Trends in Education

4. **Acts / Rights:**
   - Right of Children to Free and Compulsory Education Act - 2009
   - Right to Information Act - 2005
   - Child Rights
   - Human Rights.

5. **National Curriculum Framework - 2005:** Perspectives, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessments, Systemic Reforms.

6. **National Education Policy-2020**

PART - III

III. Classroom implications of Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

PART - IV

IV. Maths –Content (40 Marks)) (Class VI to Intermediate level syllabus)

1. Arithmetic

BODMAS rule - Ratios and Proportions (Direct, Inverse) - comparing quantities using ratios, proportion, percentage and their applications - Profit and Loss - Discount - Sales Tax/Value Added Tax/Goods and Services Tax - Simple, Compound Interest and their applications.

2. Number System

Numbers - Four fundamental operations (Addition, Subtraction, Multiplication, Division) - Knowing about Numbers - Hindu-Arabic system of numeration (Indian system of numeration) - International system of numeration (British system of numeration) - Place value and Face values of a digit in a number - Comparing and Ordering of Numbers - Whole Numbers - Factors and Multiples - Prime and Composite numbers - Even and Odd numbers - Tests for Divisibility of Numbers - Common Factors and Common Multiples - Prime factorisation - Highest Common Factor (G.C.D) - Lowest Common Multiple - Integers - properties and fundamental operations - Fractions and decimals - Types of fractions - comparison - Applications of fractions in daily life - four fundamental operations on fractions and decimals - Euclid's Division Lemma and its application - Rational Numbers - Properties of Rational Numbers - Representation of Rational Numbers on the Number line - Rational Numbers between two rational numbers - Four fundamental Operations on Rational Numbers – Rational numbers and their decimal expansions - Non-terminating, recurring decimals in rational numbers - Product of reciprocals - Squares - Square roots (Numbers and Decimals) - Properties of Square Numbers - Cubes - Cube roots of Numbers - Playing with Numbers - Games with Numbers - Letters for Digits - Irrational numbers - Real Numbers and their Decimal Expansions - Operations on Real Numbers - Laws of Exponents for Real Numbers – Properties & Laws of logarithms.

Sets and their representation (Roster form and Set builder form) – Classification of sets (Empty, Universal, subset, Finite & Infinite, disjoint sets) - difference of sets - Equal sets - Using diagrams to represent sets - Venn diagrams and cardinality of sets - Basic operations on sets (Union, Intersection).

3. Geometry

Basic geometrical concepts (Point, Line, Line segment, Ray, Curves, Polygons, Angles) - Measuring of Lines - Pairs of Lines - Intersecting Lines and Non-intersecting Lines – Lines parallel to the same line - Elements of Angles - Measuring of Angles - Types of Angles – Pairs of Angles - Naming of the given 2D figures of Triangles, Square and Rectangle - The Triangle - Types of Triangles and its Properties – Congruence and some properties of Triangles - Some more criteria for Congruence of Triangles – Criteria for similarity of triangles – Areas of similar triangles – Pythagoras theorem - Classification of Polygons - Angle sum property - Kinds of Quadrilaterals (Trapezium, Kite, Parallelogram) - Some special parallelograms (Rhombus, Rectangle, Square) - Constructing different types of Quadrilaterals - Views of 3D-Shapes - Identification of Edges, Vertices and Faces of 3D figures (Euler’s Rule) - Nets for building 3D shapes – Introduction to Euclid’s geometry – Euclid’s definitions, axioms and postulates - Angle Subtended by a Chord at a Point - Perpendicular from the Centre to a Chord - Equal Chords and Their Distances from the Centre - Angle Subtended by an Arc of a Circle - Cyclic Quadrilaterals – Tangents of a circle – Number of Tangent to a Circle from any point – Segment of a circle formed by a Secant.

4. Mensuration

Measuring Length, Weight, Capacity, Time-Seasons, Calendar, Money, Area - Symmetry (Line and Rotational) - Perimeter of Triangle, Square, Rectangle, Rhombus, Trapezium, Parallelogram, Circle and Polygon, Properties of a Parallelogram - The Mid-point Theorem - Area of a Quadrilateral, Surface Area and Volume of Cube, Cuboid and Cylinder -Volume and capacity - Surface Area and volume of a Sphere - Volume of a Right Circular Cone – Surface area of the combination of Solids – Volume of combination of solids – Conversion of solid from one shape to another

5. Algebra

Patterns - making rules - The idea of variables - formation of algebraic expressions - Terms, Factors and Coefficients - Linear equations in one variable – Linear equations in two variables - Solutions of Pair of Linear Equations in Two Variables – Algebraic methods of finding the solutions for a pair of linear equations -Equations reducible to a pair of linear equations in two variables -Solution of a quadratic equation by factorisation & by completing the square – Nature of roots - terms and types of algebraic expressions - finding the value of an expression - Addition, Subtraction and Multiplication of Algebraic Expressions - Multiplying a Monomial by a Monomial and polynomial - Multiplying a Polynomial by a Polynomial - Standard Identities and their applications - Applications of simple equations to practical situations - Exponents and Powers - Negative exponents - Laws of exponents - Expressing large numbers in the standard form - Factorisation - Division of Algebraic Expressions Continued (Polynomial ÷ Polynomial) - Linear Graphs – Polynomials in one variable – Degree, Value, zeroes of a polynomial - Geometrical meaning of the Zeroes of a Polynomial - Graphical representation of linear, Quadratic and Cubic Polynomials - Factorisation of Polynomials - Algebraic Identities - Working with Polynomials – Division algorithm for polynomials - Arithmetic progressions – Parameters of Arithmetic progressions – n^{th} term of an Arithmetic progression – Sum of first n terms in Arithmetic progression – Geometric progressions – n^{th} term of a GP.

Functions :

- Ordered pair- Cartesian product of sets – Relation - Function & its types - image & pre-image – Definitions.
- Inverse functions and Theorems.
- Domain, Range, Inverse of real valued functions.

Mathematical Induction

- Principle of Mathematical Induction & Theorems.
- Applications of Mathematical Induction.
- Problems on divisibility.

Matrices:

- Types of matrices
- Scalar multiple of a matrix and multiplication of matrices
- Transpose of a matrix
- Determinants
- Adjoint and Inverse of a matrix
- Consistency and inconsistency of Equations- Rank of a matrix
- Solution of simultaneous linear equations

Complex Numbers:

- Complex number as an ordered pair of real numbers- fundamental operations
- Representation of complex numbers in the form a+ib.
- Modulus and amplitude of complex numbers –Illustrations.
- Geometrical and Polar Representation of complex numbers in Argand plane- Argand diagram.

De Moivre's Theorem:

- De Moivre's theorem- Integral and Rational indices.
- n^{th} roots of unity- Geometrical Interpretations – Illustrations.

Quadratic Expressions:

- Quadratic expressions, equations in one variable
- Sign of quadratic expressions – Change in signs – Maximum and minimum values
- Quadratic in-equations

Theory of Equations:

- The relation between the roots and coefficients in an equation
- Solving the equations when two or more roots of it are connected by certain relation
- Equation with real coefficients, occurrence of complex roots in conjugate pairs and its consequences
- Transformation of equations – Reciprocal Equations.

Permutations and Combinations:

- Fundamental Principle of counting – linear and circular permutations
- Permutations of 'n' dissimilar things taken 'r' at a time
- Permutations when repetitions allowed
- Circular permutations

- Permutations with constraint repetitions.
- Combinations-definitions and certain theorems

Binomial Theorem:

- Binomial theorem for positive integral index
- Binomial theorem for rational Index (without proof).
- Approximations using Binomial theorem

Partial fractions:

- Partial fractions of f(x)/g(x) when g(x) contains non –repeated linear factors.
- Partial fractions of f(x)/g(x) when g(x) contains repeated and/or non-repeated linear factors.
- Partial fractions of f(x)/g(x) when g(x) contains irreducible factors.

6. Statistics

DATA HANDLING -Frequency Distribution Tables and Graphs- Grouped data-ungrouped data – Measures of Central Tendency -Mean, median & mode of grouped and ungrouped data – Ogive curves.

MEASURES OF DISPERSION

- Range
- Mean deviation
- Variance and standard deviation of ungrouped/grouped data.
- Coefficient of variation and analysis of frequency distribution with equal means but different variances.

7. Probability

Probability - Linking chances to probability - Chance and probability related to real life - Probability - a theoretical approach - Mutually exclusive events - Finding probability - Complementary events and probability - Impossible and certain events - Deck of Cards and Probability – Use and Applications of probability.

- Random experiments and events
- Classical definition of probability, Axiomatic approach and addition theorem of probability.
- Independent and dependent events conditional probability- multiplication theorem and Bayee's theorem.

Random Variables and Probability Distributions:

- Random Variables

- Theoretical discrete distributions – Binomial and Poisson Distributions

8. Coordinate Geometry

Cartesian System – Distance between two points – distance between two points on a line parallel to the co-ordinate axis – Distance between any two points on a line in the x-y plane – Section formula – centroid of a triangle – Tri-sectional points of a line – Area of the triangle – Heron's formula- Collinearity – Straight lines – Slope of the straight line – slope of a line joining two points.

Locus :

- Definition of locus – Illustrations.
- To find equations of locus - Problems connected to it.

Transformation of Axes :

- Transformation of axes - Rules, Derivations and Illustrations.
- Rotation of axes - Derivations – Illustrations.

The Straight Line :

- Revision of fundamental results.
- Straight line - Normal form – Illustrations.
- Straight line - Symmetric form.
- Straight line - Reduction into various forms.
- Intersection of two Straight Lines.
- Family of straight lines - Concurrent lines.
- Condition for Concurrent lines.
- Angle between two lines.
- Length of perpendicular from a point to a Line.
- Distance between two parallel lines.
- Concurrent lines - properties related to a triangle.

Pair of Straight lines:

- Equations of pair of lines passing through origin, angle between a pair of lines.
- Condition for perpendicular and coincident lines, bisectors of angles.
- Pair of bisectors of angles.
- Pair of lines - second degree general equation.
- Conditions for parallel lines - distance between them, Point of intersection of pair of lines.

- Homogenizing a second degree equation with a first degree equation in X and Y.

Circle :

- Equation of circle -standard form-centre and radius of a circle with a given line segment as diameter & equation of circle through three non collinear points - parametric equations of a circle.
- Position of a point in the plane of a circle – power of a point-definition of tangent-length of tangent
- Position of a straight line in the plane of circle-conditions for a line to be tangent – chord joining two points on a circle – equation of the tangent at a point on the circle-point of contact-equation of normal.
- Chord of contact - pole and polar-conjugate points and conjugate lines - equation of chord with given middle point.
- Relative position of two circles- circles touching each other externally, internally common tangents-centres of similitude- equation of pair of tangents from an external point.

System of circles:

- Angle between two intersecting circles.
- Radical axis of two circles- properties- Common chord and common tangent of two circles – radical centre.
- Intersection of a line and a Circle.

Parabola:

- Conic sections –Parabola- equation of parabola in standard form-different forms of parabola- parametric equations.
- Equations of tangent and normal at a point on the parabola (Cartesian and parametric) - conditions for straight line to be a tangent.

Ellipse:

- Equation of ellipse in standard form- Parametric equations.
- Equation of tangent and normal at a point on the ellipse (Cartesian and parametric) - condition for a straight line to be a tangent.

Hyperbola:

- Equation of hyperbola in standard form- Parametric equations.
- Equations of tangent and normal at a point on the hyperbola (Cartesian and parametric) - conditions for a straight line to be a tangent- Asymptotes.

Three Dimensional Coordinates :

- Coordinates.
- Section formulas - Centroid of a triangle and tetrahedron.

Direction Cosines and Direction Ratios :

- Direction Cosines.
- Direction Ratios.

Plane :

- Cartesian equation of Plane - Simple Illustrations.

9. Trigonometry

Trigonometry – Naming the sides in a Right triangle – Trigonometric Ratios – Defining Trigonometric Ratios – Trigonometric ratios of some specific and complementary angles – Trigonometric identities – Applications of Trigonometry – Drawing figures to solve problems – solutions for two triangles.

Trigonometric Ratios up to Transformations:

- Graphs and Periodicity of Trigonometric functions.
- Trigonometric ratios and Compound angles.
- Trigonometric ratios of multiple and sub- multiple angles.
- Transformations - Sum and Product rules.

Trigonometric Equations:

- General Solution of Trigonometric Equations.
- Simple Trigonometric Equations – Solutions.

Inverse Trigonometric Functions:

- To reduce a Trigonometric Function into a bijection.
- Graphs of Inverse Trigonometric Functions.
- Properties of Inverse Trigonometric Functions.

Hyperbolic Functions:

- Definition of Hyperbolic Function – Graphs.
- Definition of Inverse Hyperbolic Functions – Graphs.
- Addition formulas of Hyperbolic Functions.

Properties of Triangles:

- Relation between sides and angles of a Triangle
- Sine, Cosine, Tangent and Projection rules.
- Half angle formulae and areas of a triangle
- In-circle and Ex-circle of a Triangle.

10. Vector Algebra

Addition of Vectors:

- Vectors as a triad of real numbers.
- Classification of vectors.
- Addition of vectors.
- Scalar multiplication.
- Angle between two non-zero vectors.
- Linear combination of vectors.
- Component of a vector in three dimensions.
- Vector equations of line and plane including their Cartesian equivalent forms.

Product of Vectors:

- Scalar Product - Geometrical Interpretations - orthogonal projections.
- Properties of dot product.
- Expression of dot product in i, j, k system – Angle between two vectors.
- Geometrical Vector methods.
- Vector equations of plane in normal form.
- Angle between two planes.
- Vector product of two vectors and properties.
- Vector product in i, j, k system.
- Vector Areas.
- Scalar Triple Product.
- Vector equations of plane in different forms, skew lines, shortest distance and their Cartesian equivalents. Plane through the line of intersection of two planes, condition for coplanarity of two lines, perpendicular distance of a point from a plane, Angle between line and a plane. Cartesian equivalents of all these results
- Vector Triple Product – Results

11. Calculus

Limits and Continuity:

- Intervals and neighbourhoods.
- Limits.
- Standard Limits.
- Continuity.

Differentiation:

- Derivative of a function.
- Elementary Properties.

- Trigonometric, Inverse Trigonometric, Hyperbolic, Inverse Hyperbolic Function - Derivatives.
- Methods of Differentiation.
- Second Order Derivatives.

Applications of Derivatives:

- Errors and approximations.
- Geometrical Interpretation of a derivative.
- Equations of tangents and normal's.
- Lengths of tangent, normal, sub tangent and sub normal.
- Angles between two curves and condition for orthogonality of curves.
- Derivative as Rate of change.
- Rolle's Theorem and Lagrange's Mean value theorem without proofs and their geometrical interpretation.
- Increasing and decreasing functions.
- Maxima and Minima.

Integration:

- Integration as the inverse process of differentiation- Standard forms –properties of integrals.
- Method of substitution- integration of Algebraic, exponential, logarithmic, trigonometric and inverse trigonometric functions. Integration by parts.
- Integration- Partial fractions method.
- Reduction formulae.

Definite Integrals:

- Definite Integral as the limit of sum
- Interpretation of Definite Integral as an area.
- Fundamental theorem of Integral Calculus.
- Properties.
- Reduction formulae.
- Application of Definite integral to areas.

Differential equations:

- Formation of differential equation-Degree and order of an ordinary differential equation.
- Solving differential equation by

a) Variables separable method.

b) Homogeneous differential equation.

c) Non - Homogeneous differential equation.

d) Linear differential equations.

V. Methodology (20 Marks)

1. Meaning and Nature of Mathematics, History of Mathematics.
2. Contributions of Great Mathematicians - Aryabhatta, Bhaskaracharya, Srinivasa Ramanujan, Euclid, Pythagoras, George cantor.
3. Aims and Values of teaching Mathematics, Instructional objectives (Blooms taxonomy)
4. Mathematics curriculum: Principles, approaches of curriculum construction, - Logical and Psychological, Topical and Concentric, Spiral approaches. Qualities of a good Mathematics text book.
5. Methods of teaching mathematics- Heuristic method, Laboratory method, Inductive and Deductive methods, Analytic and Synthetic methods, Project method and Problem Solving method.
6. Unit Plan, Year Plan, Lesson Planning in Mathematics.
7. Instructional materials, Edgar Dale's Cone of Experience.
8. Evolving strategies for the gifted students and slow learners,
9. Techniques of teaching mathematics like Oral work, written work, Drilling, Assignment, Project, Speed and Accuracy.
10. Mathematics club, Mathematics structure, Mathematics order and pattern sequence.
11. Evaluation - Types, Tools and Techniques of Evaluation, Preparation of Standard Assessment Tools,Analysis, Characteristics of a good test.

Government of Andhra Pradesh
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DSC - 2024
Category of Post: TGT
Paper II – Genaral Science Syllabus

1.	**G.K & Current Affairs**	-	**10M**
2.	**Perspectives in Education**	-	**05M**
3.	**Classroom implications of Educational Psychology**	-	**05M**
4.	**Content**	-	**40M**
5.	**Methodology**	-	**20M**
	Total	-	**80 M**

PART - I

I. General Knowledge and Current Affairs (Marks: 10)

PART - II

II. Perspectives in Education (Marks: 05)

1. **History of Education :**
   - The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
   - Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
   - Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992
2. **Teacher Empowerment:**
   - Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.
3. **Educational Concerns in Contemporary India:**
   - Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
   - Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
   - Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
   - Adolescence Education
   - Value Education – Moral Value and Professional Ethics in Education.
   - Health and Physical Education
   - Inclusive Education - Classroom Management in Inclusive Education
   - Role of Education in view of Liberalization, Privatization and Globalization
   - Programmes and Projects – APPEP, DPEP, Sarva Shiksha Abhiyan, National

Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Shiksha Abhiyan(RMSA), Rashtriya Avishkar Abhiyan (RAA), KGBVs, Model Schools.

- Incentives and special provisions – Mid Day Meals, Free Books, Scholarships, Awards, Welfare Hostels, Transportation.
- Current Trends in Education

4. **Acts / Rights:**
   - Right of Children to Free and Compulsory Education Act - 2009
   - Right to Information Act - 2005
   - Child Rights
   - Human Rights.

5. **National Curriculum Framework - 2005:** Perspectives, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessments, Systemic Reforms.

6. **National Educational Policy-2020**

PART - III

III. Classroom implications Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

PART - IV

IV. Content Science (40Marks) (Class VI to Intermediate level syllabus)

Physical Science (Marks: 20)

1. MEASUREMENT

Story of transport, Non- standard units of Measurements, Measuring the length of a Curved line, Measurement of length, area, volume and time. CGS and SI units of length, area, volume and time, Conversion of units from CGS to S.I and Vice versa.

2. MOTION

Describing Motion, Motion and Rest, Motion Along a Straight Line, Types of motion (Translatory, Rotatory and oscillatory), Scalars and vectors, Distance, Displacement, Speed, Velocity, Average speed, Average velocity, Acceleration, Graphical Representation of Motion, Distance-Time Graphs, Velocity-Time Graphs, Uniform

Motion and Non- Uniform Motion, Equations of Motion, Uniform Circular Motion, Laws of Motion, Balanced and Unbalance Forces, First Law of Motion, Inertia and Mass, Momentum, Second Law of Motion, Third law of motion.

3. FORCE, FRICTION AND PRESSURE

Force – A Push or a Pull, Exploring Forces, Effect of Force on Objects, Types of forces (field force and contact force), Net force, Types of friction (static, Sliding and Rolling), Factors effecting Friction, Friction: A Necessary Evil, Increasing and Reducing Friction, Fluid friction, Pressure, Pressure Exerted by Liquids and Gases, Pressure of liquids at different depths, Atmospheric Pressure.

4. GRAVITATION

Uniform circular motion, Universal law of gravitation, Free Fall, Acceleration due to Gravity, Motion of Objects Under the Influence of Gravitational Force of the Earth, Mass and Weight, Thrust and Pressure, Pressure in Fluids, Buoyancy, Floating and Sinking Objects, Archimedes' Principle.

5. WORK, ENERGY

Scientific Conception of Work, Work Done by a Constant Force, Energy, Forms of Energy, Kinetic Energy, Potential Energy, Mechanical Energy. Law of Conservation of Energy, Conversion of Energy from one form to another, Power and its units.

6. SOUND

Sound - a form of energy, Production of sound, Some musical instruments, Sound Needs a Medium for Propagation, Human ear, Hearing Impairment, Noise and Music, Propagation of Sound, Types of waves (longitudinal and transverse), Characteristics of sound waves (Wavelength, Frequency, Time period, Speed of the wave), Relation between frequency and time period, Pitch, Loudness and Quality, Intensity of Sound, Speed Of Sound in Different Media, Reflection of Sound, Echo, Reverberation, Uses of Multiple Reflection of Sound, Range of Hearing, Infrasonic and Ultrasonics, Applications of Ultrasound, Sound pollution.

7. HEAT

Heat and temperature, Transfer of Heat (Conduction, convection, radiation), Kinds of clothes we wear in summer and winter, Units of temperature (centigrade, Fahrenheit and Kelvin; Conversions), Expansion of liquids due to heat, Types of thermometers, Thermal equilibrium, Temperature and Kinetic energy, Specific Heat, Applications of Specific heat capacity, Principle of method of mixtures, Determination of Specific heat of a solid, Evaporation, Condensation, Humidity, Dew and Fog, Boiling, Latent heat of vapourisation, Melting, Latent heat of fusion, Freezing, Temperature- time graph.

8. LIGHT

Light, Transparent, Opaque and Translucent Objects, Shadows and Images, Rectilinear Propagation of Light, A Pinhole Camera, Regular and Diffused Reflection, Reflection of light by plane surfaces (laws of reflection, periscope, multiple images, kaleidoscope, Characteristics of image formed by plane mirrors), Spherical Mirrors and Images, Spectrum, Wave nature of light, Fermat principle, Sign convention, Refraction,

Refraction of Light at Plane Surfaces, Refractive index, Absolute refractive index, Relative refractive index, Snell's law, Critical angle, Total Internal Reflection, Applications of total internal reflection, Mirages, Optical fibres, Refraction Through a Glass Slab, Lateral shift, Vertical shift, Refraction of Light at Curved Surfaces, Lenses, Terminology used in the case of lenses -Focal length, Focus, Optic Centre, Principal axis, Radius of curvature, Centre of curvature, Focal plane, Behaviour of certain light rays when they are incident on a lens, Images formed by lenses for various distances of objects, UV method, Lens formula, Lens maker's formula, Human Eye, Least distance of distinct vision, Angle of vision, Myopia, Hypermetropia, Presbyopia, Care of the Eyes, Braille System, Visually Impaired Persons, Power of lens, Refractive index of a Prism, Dispersion of light through prism, Sunlight-Dispersion, Rainbow, Scattering of light.

9. ELECTRICITY

Simple Electric circuit and its components, Conductors, Insulators, Type of cells (Dry and liquid), Electric symbols and uses, Series and parallel connection of cells and bulbs, Heating effects of Electricity, Understanding of CFL, Fuse and MCBs, Chemical Effects Of Electric Current, Good/Poor Conducting Liquids, Electroplating, Magnetic Effects of Electric Current, Electromagnet, Electric bell, Electric current, Drude and Lorentz theory, Potential difference and EMF, Drift velocity and working of a cell, Ohm's law, Electric shock, Factors affecting the resistance, Series connection of resistors, Parallel Connection of resistors, Multi-meter, Kirchhoff's laws, Sign convention in a circuit, Electric power, Power consumption, Electric energy, Overload.

10. MAGNETISM AND ELECTROMAGNETISM

How Magnets were discovered, Magnetic and Non-Magnetic Materials, Types of Magnets, Poles of Magnet, Properties of Magnets, Storing magnets safely, Magnetic compass, Earth as a Magnet, Magnetic Induction, Oersted's experiment, Magnetic Field, Magnetic flux – Magnetic flux density, Magnetic field due to straight wire /circular coil/solenoid carrying current, Magnetic Force, Electric Motor, Electromagnetic induction, Faraday's Law, Lenz Law, Applications of Faraday's law of electromagnetic induction, Induced current, Induced EMF, Electric generator, DC and AC currents, rms values.

11. PRINCIPLES OF METALLURGY

Metallurgy, Occurrence of the metals in nature, Ores and Minerals, Extraction of metals, Activity series, Concentration or Dressing of the ore, Hand picking, Washing, Froth flotation, Magnetic Separation, Extraction of crude metal from the ore, Reduction of purified ore to the metal, Purification of the crude metal, Distillation, Poling, Liquation, Electrolytic refining, Corrosion, Prevention of corrosion, Thermite process, Smelting, Roasting, Calcination, Flux, Gangue, Blast furnace, Reverberatory furnace.

12. CARBON AND ITS COMPOUNDS

Allotropes of Carbon, Amorphous forms, Crystalline forms, Diamond, Graphite, Buckminsterfullerene, Nanotubes, Versatile nature of Carbon, Catenation, Tetravalency, Hydrocarbons, Saturated and unsaturated hydrocarbons, Homologous series, Isomerism, Functional groups, Nomenclature of Aliphatic Hydrocarbons,

IUPAC names, Chemical properties of carbon compounds- Combustion, Oxidation reactions, Addition reactions, Substitution reactions, Ethanol, Ethanoic acid, Esters, Esterification Reactions, Soaps – Saponification and Micelles, Cleansing action of soap, Detergents.

13. SOME NATURAL PHENOMENON

The Story of Lightning, charging by Rubbing, Electric charge and properties of electric charge, Types of charges and their interactions, Transfer of charge, lightning, lightning safety, lightning conductors, Earthquake, Tsunami, Causes and effects, Protective measures.

14. STARS AND SOLAR SYSTEM

The Moon, The Moon's Surface, Phases of Moon, Eclipses (Solar and lunar eclipses), The Stars, Movement of Stars (Constellation, pole star), Movement of the sun, Solar System, Planets and Some Other Members of the Solar System, Artificial Satellites.

15. CHANGES AROUND US

Slow/fast changes, Temporary/permanent changes, Natural/man made changes, Physical/ chemical changes, Rusting of iron, Crystallisation, Galvanization, Corrosion, Rancidity, Oxidation / reduction

16. MATTER

Objects Around Us, Properties of Materials, Physical Nature of Matter, Characteristics of Particles of Matter, States of matter, Properties of solids, liquids and gases, Change of state of Matter –effect of change of temperature and pressure, Evaporation, Factors Affecting Evaporation, Sublimation, Deposition, Boiling, Latent heat of vaporisation, Latent heat of fusion, Mixture, Types of Mixtures, Solutions., Properties of a Solution, Types of Solutions, Concentration of solution, Expressing Concentration of Solutions, Suspension, Properties of a Suspension, Colloidal Solution, Properties of a Colloid, Common examples of colloids, Mixtures, Methods of separation–handpicking, Threshing, Winnowing, Sedimentation, Decantation, Sieving, Filtration, Sublimation, Chromatography, Distillation and fractional distillation, Evaporation, Condensation, Use of more than one method of separation, Saturated and unsaturated solutions, Separation of immiscible liquids, Types of Pure Substances – Elements and Compounds.

17. ATOMS AND MOLECULES

Laws of Chemical Combination - Law of Conservation Of Mass, Law of Constant Proportions, Atom, Symbols of Atoms of Different Elements, Atomic Mass, Atomicity, Valency, Molecule, Molecules Of Elements, Molecules Of Compounds, Ion – Cation & Anion, Polyatomic ions, Names and symbols of ions, Formation of ions, Writing Chemical Formulae, Molecular Mass, Molar mass, Formula Unit Mass, Structure of The Atom, Subatomic particles, Charged Particles in Matter, Thomson's Model of an Atom, Rutherford's Model of an Atom, Bohr's Model of an Atom, Bohr-Sommerfeld model of an atom, Neutrons, Distribution of electrons into different Orbits, Atomic Number and Mass Number, Isotopes, Isobars, Atomic line spectra,

Planck's quantum theory, Quantum numbers, Shapes of orbitals, Electronic Configuration, Pauli Exclusion Principle, Aufbau principle, Hund's Rule.

18. CLASSIFICATION OF ELEMENTS-THE PERIODIC TABLE

Dobereiner's law of Triads, Newlands' law of Octaves, Mendeleev's Periodic Table, Modern Periodic Table, Periodic properties of the elements and their gradation in the modern periodic table.

19. CHEMICAL BONDING

Lewis dot structures, Covalency, Electronic theory of valence by Lewis and Kossel, Octet rule, Ionic and Covalent bonds, Ionic and Covalent compounds, Bond lengths and Bond energies of covalent bonds, Valence shell electron pair repulsion theory, Valence bond theory, Hybridisation.

20. METALS AND NON METALS

Physical Properties of Metals and Non-metals, Chemical Properties of Metals and Non-metals, Uses of Metals and Non-metals, Examples of metals and non-metals, Reactivity order of metals.

21. SYNTHETIC FIBRES AND PLASTICS

Natural and Synthetic fibres, Preparation and uses, Types of Synthetic Fibres, Characteristics of Synthetic Fibres, Plastics as Materials of Choice, Types of plastics, Plastics and environment, Biodegradable – Non biodegradable materials.

22. COAL AND PETROLEUM

Exhaustible and inexhaustible Resources, Fuels – Types, Coal, Story of Coal, Uses of Coal and Coal products, Refining of petroleum, Petrochemical products in various sectors, Various Constituents of Petroleum and their Uses, Formation of coal and petroleum, Natural Gas, Misuse of Energy resources and Consequences.

23. COMBUSTION FUELS AND FLAME

Combustion, Types of Combustion, Ignition temperature, Inflammable substances, Flame, Fuel Efficiency, Burning of Fuels Leads to Harmful Products, Fire control, Structure of flame – colors zones – Intensities.

24. AIR

Atmosphere, Components of air, Availability of oxygen to plants and animals, Replacement of Oxygen in the Atmosphere.

25. ACIDS, BASES AND SALTS

Natural acid-base indicators, Synthetic acid-base Indicators, Olfactory indicators, Universal Indicator, Chemical properties of Acids and Bases, Reaction of Acids and bases with Metals, Reaction of Acids with carbonates and metal hydrogen Carbonates, Neutralization reaction, Reaction of Acids with metal oxides, Reaction of base with non-metal oxide, Production of H^+ ions and OH- ions, Electrical conductivity of Acids and Bases, Properties of Bases, Dilution, Strength of acid or base, pH scale,

Importance of pH in everyday life, Self defense by animals and plants through chemical warfare, Family of salts, pH of Salts, Chemicals from common salt, Important product from chlor-alkali process and their uses, Water of crystallization, Common salt, Bleaching Powder, Baking soda, Washing soda, Plaster of paris, Gypsum, and their uses.

Intermediate:

PHYSICS

- Physical World
- Units and Measurements
- Motion in a Straight Line
- Motion in a Plane
- Laws of Motion
- Work, Energy and Power
- System of Particles and Rotational Motion
- Oscillations
- Gravitation
- Mechanical Properties of Solids
- Mechanical Properties of Fluids
- Thermal Properties of Matter
- Thermodynamics
- Kinetic Theory
- Waves
- Ray Optics and Optical Instruments
- Wave Optics
- Electric Charges and Fields
- Electrostatic Potential and Capacitance
- Current Electricity
- Moving Charges and Magnetism
- Magnetism and Matter
- Electromagnetic Induction
- Alternating Current
- Electromagnetic Waves
- Dual Nature Of Radiation And Matter
- Atoms

CHEMISTRY

- Atomic Structure
- Classification of Elements & Periodicity in Properties
- Chemical Bonding & Molecular Structure

- States of Matter: Gases and Liquids
- Stoichiometry
- Thermodynamics
- Chemical Equilibrium & Acids-Bases
- Hydrogen & it's compounds
- s-Block elements (Alkali & Alkaline Earth Metals)
- p-Block Elements Group 13 (Boron family)
- p-Block Elements Group 14 (Carbon family)
- Environmental Chemistry
- Organic Chemistry-Some Basic Principles & Techniques & Hydrocarbons
- Solid State
- Solutions
- Electrochemistry & Chemical Kinetics
- Surface Chemistry
- General Principles of Metalillurgy
- p-Block elements (Group-15,16,17,18 Elements)
- d & f Block Elements & Coordination Compoounds
- Polymers
- Biomolecules
- Chemistry in Everyday life
- Halo Alkanes & Haloarenes
- Organic Compounds containing C, H & O (Alcohols, Phenols, Ethers, Aldehydes, Ketones & Carboxylic acids)
- Organic Compounds Containing Nitrogen

Biology Content (Marks: 20)

1. **Life Process:** Our food, Components of food, Balanced diet, Malnutrition, Deficiency diseases, Plants – Types, Plant parts – functions, Types of nutrition, Nutrition in plants – Autotrophic, Parasitic, saprophytic, Insectivorous; Nutrition in animals - Different ways of taking food, Digestion in humans, Digestion in grass eating animals, feeding and digestion in amoeba; Cellular respiration, Types of respiration, Respiration in plants, Respiration in animals, Respiration versus combustion, Photosynthesis versus Respiration, Circulatory system - Human Circulatory system, Evolution of the transport system in animals, Transportation in plants; Excretion - Excretion in Human Beings, Excretion in other organisms, Excretion and release of substances in plants, Excretion Vs Secretion; Coordination in animals- Nervous and Endocrine systems, Control mechanism in plants – Plant hormones, tropic and nastic movements, Modes of reproduction – sexual, asexual and vegetative; Sexual reproduction in plants, Seed dispersal, Sexual and Asexual Reproduction in Animals, Metamorphosis, Reproduction in a placental mammal – Man, Reproductive health, Birth control methods, Fighting against social ills, Adolescence and puberty – changes, role of hormones, Reproductive phase, Variations, Mendel's experiments on inheritance, Sex determination in human beings, Evolution – Lamarckism, Darwinism, Evidences of evolution, Human evolution
2. **Living World:** Living and Nonliving things, Characteristics of living organisms, Different types of habitat and adaptation, Skeletal parts – Bones, Joints, Cartilage; muscles, Movements in animals, Cell – The basic unit of life, Types of cells, Cell structure and function, Cell division, Animal Tissues, Plant tissues, Introduction to

microorganisms, Useful Microorganisms, Harmful microorganism, Food preservation, Agricultural Practices, Improvement in crop yields, Storage of food, Food from Animals - Animal Husbandry

3. **Our Environment – Ecology:** Our Environment - Food chain, Food web, Ecological pyramids, Effects of human activities on ecosystems, Steps towards prevention; Natural resources - Renewable and non-renewable resources, conservation; Bio diversity - Forests, Flora, fauna, interrelation of organisms, Advantages of forests, Deforestation - effects, Conservation of forest and wildlife – Protecting areas, endangered and endemic species; Air & water pollutions -Cusses, effects and prevention, Water, Sewage, Treatment of polluted water, Better housekeeping practices, Sanitation and Disease, Alternative arrangement for sewage disposal; Global Environmental Issues - Green house effect, Global warming, Acid rains; Nitrogen cycle.

Intermediate:

BOTANY

- Diversity in the Living World:
- The living world – Biological – Classification – Science of plants – Botany – Plant King dom
- Structural Organisation in Plants - Morphology,
- Representation in Plants
- Plants Systematics,
- Cell: Structure and Functions,
- Internal Organizations of Plants
- Plant Ecology
- Plant Physiology
- Microbiology
- Genetics
- Molecular Biology
- Biotechnology
- Plants
- Microbes and Human Welfare.

ZOOLOGY

- Diversity of Living World
- Structural organization in Animals
- Animal Diversity-I
- Animal Diversity-II (Phylum: Chordata)

- Locomotion & Reproduction in Protozoa
- Biology in Human Welfare
- Type study of Periplaneta Americana
- Ecology & Environment.
- Human Anatomy and Physiology- I
- Human Anatomy and Physiology- II
- Human Anatomy and Physiology- III
- Human Anatomy and Physiology- IV
- Human Reproduction
- Generics
- Organic Evolution
- Applied Biology

V. Methodology (Marks: 20)

1. The Nature of Science: Nature and scope of science, Science, ideology and Society, Structure of Science (a) Substantive structure - Empirical knowledge, Theoretical Knowledge - (Facts, Concepts, hypothesis, theory, Principle Law), (b)Syntactic Structure of Science - Scientific inquiry, Processes of Science, Attitudes of inquiry
2. The History and Development of Science: A brief introduction to oriental and western science, Contribution of the following Scientists in the Development of Science: Aryabhatta, Bhaskara Charya, Aristotle, Copernicus, Newton, Einstein, C.V.Raman, Various organizations working for the development of science in India
3. Aims and Values of teaching Sciences: Aims of teaching Sciences, Values of teaching Science, Correlation of Science with other subjects
4. Objectives of teaching Sciences: Meaning and importance of objectives, Bloom's Taxonomy of Educational objectives, Specific / Behavioral objectives / (Instructional objectives), Critique on Bloom's Taxonomy
5. Approaches and Methods of teaching Sciences: Inductive and Deductive Approaches, Micro Teaching, Team Teaching, Lecture Method, Lecture cum Demonstration Method, Historical Method, Heuristic Method, Project Method, Laboratory method, Problem Solving Method, Scientific Method, Multimedia Approach in Teaching Learning process, Programmed Learning, CAI and CAL
6. Planning for effective instruction in Science: Year Plan, Unit Plan, Lesson Plan, Learning experience, characteristics, classification, source and relevance.
7. Teaching Learning Material (TLM): Characteristics and Importance of TLM, Classification and Types of TLM, Hardware and Software in TLM, TLM-Principles to be followed, Edgar Dale's cone of learning experience.
8. Science laboratories: Importance of Practical work in science, Planning of Science laboratories, Procurement, care and maintenance of laboratory equipment, Registers, Management of safety and science kits, Development of improvised Apparatus.

9. Physical Science Curriculum: Principles of Curriculum Construction, Defects in the existing school science curriculum, Qualities of a good Science Text Book.
10. Non-formal Science Education: Science Clubs, Science Fairs - purposes, levels, organization, advantages, Science Library, Role of NGOs and State in popularizing Science
11. Evaluation: Concept and Process of Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of Scores.

Government of Andhra Pradesh
Department of School Education
State Council of Educational Research & Training
DSC – 2024

Category of Post: TGT

Paper II – Physical Science Syllabus

1.	**G.K & Current Affairs**	-	**10M**
2.	**Perspectives in Education**	-	**05M**
3.	**Classroom implications of Educational Psychology**	-	**05M**
4.	**Content**	-	**40M**
5.	**Methodology**	-	**20M**
	Total	-	**80 M**

PART - I

I. General Knowledge And Current Affairs (Marks: 10)

PART - I

II. Perspectives in Education (Marks: 05)

1. **History of Education :**
   - The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
   - Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
   - Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992
2. **Teacher Empowerment:**
   - Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.
3. **Educational Concerns in Contemporary India:**
   - Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
   - Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
   - Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
   - Adolescence Education
   - Value Education – Moral Value and Professional Ethics in Education.
   - Health and Physical Education
   - Inclusive Education - Classroom Management in Inclusive Education
   - Role of Education in view of Liberalization, Privatization and Globalization

- Programmes and Projects – APPEP, DPEP, Sarva Shiksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Shiksha Abhiyan (RMSA), Rashtriya Avishkar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarships, Awards, Welfare Hostels, Transportation.
- Current Trends in Education

4. **Acts / Rights:**
   - Right of Children to Free and Compulsory Education Act - 2009
   - Right to Information Act - 2005
   - Child Rights
   - Human Rights.

5. **National Curriculum Framework - 2005:** Perspectives, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessments, Systemic Reforms.

6. **National Education Policy-2020**

III. Classroom implications of Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

PART - B

IV. Content (Marks: 40) (Class VI To Intermediate level syllabus)

(6 – 10 Classes)

1. MEASUREMENT

Story of transport, Non- standard units of Measurements, Measuring the length of a Curved line, Measurement of length, area, volume and time. CGS and SI units of length, area, volume and time, Conversion of units from CGS to S.I and Vice versa.

2. MOTION

Describing Motion, Motion and Rest, Motion Along a Straight Line, Types of motion (Translatory, Rotatory and oscillatory), Scalars and vectors, Distance, Displacement, Speed, Velocity, Average speed, Average velocity, Acceleration, Graphical Representation of Motion, Distance-Time Graphs, Velocity-Time Graphs, Uniform Motion and Non-Uniform Motion, Equations of Motion, Uniform Circular Motion, Laws of Motion,

Balanced and Unbalance Forces, First Law of Motion, Inertia and Mass, Momentum, Second Law of Motion, Third law of motion.

3. FORCE, FRICTION AND PRESSURE

Force – A Push or a Pull, Exploring Forces, Effect of Force on Objects, Types of forces (field force and contact force), Net force, Types of friction (static, Sliding and Rolling), Factors effecting Friction, Friction: A Necessary Evil, Increasing and Reducing Friction, Fluid friction, Pressure, Pressure Exerted by Liquids and Gases, Pressure of liquids at different depths, Atmospheric Pressure.

4. GRAVITATION

Uniform circular motion, Universal law of gravitation, Free Fall, Acceleration due to Gravity, Motion of Objects Under the Influence of Gravitational Force of the Earth, Mass and Weight, Thrust and Pressure, Pressure in Fluids, Buoyancy, Floating and Sinking Objects, Archimedes' Principle.

5. WORK, ENERGY

Scientific Conception of Work, Work Done by a Constant Force, Energy, Forms of Energy, Kinetic Energy, Potential Energy, Mechanical Energy. Law of Conservation of Energy, Conversion of Energy from one form to another, Power and its units.

6. SOUND

Sound - a form of energy, Production of sound, Some musical instruments, Sound Needs a Medium for Propagation, Human ear, Hearing Impairment, Noise and Music, Propagation of Sound, Types of waves (longitudinal and transverse), Characteristics of sound waves (Wavelength, Frequency, Time period, Speed of the wave), Relation between frequency and time period, Pitch, Loudness and Quality, Intensity of Sound, Speed Of Sound in Different Media, Reflection of Sound, Echo, Reverberation, Uses of Multiple Reflection of Sound, Range of Hearing, Infrasonic and Ultrasonics, Applications of Ultrasound, Sound pollution.

7. HEAT

Heat and temperature, Transfer of Heat (Conduction, convection, radiation), Kinds of clothes we wear in summer and winter, Units of temperature (centigrade, Fahrenheit and Kelvin; Conversions), Expansion of liquids due to heat, Types of thermometers, Thermal equilibrium, Temperature and Kinetic energy, Specific Heat, Applications of Specific heat capacity, Principle of method of mixtures, Determination of Specific heat of a solid, Evaporation, Condensation, Humidity, Dew and Fog, Boiling, Latent heat of vapourisation, Melting, Latent heat of fusion, Freezing, Temperature- time graph.

8. LIGHT

Light, Transparent, Opaque and Translucent Objects, Shadows and Images, Rectilinear Propagation of Light, A Pinhole Camera, Regular and Diffused Reflection, Reflection of light by plane surfaces (laws of reflection, periscope, multiple images, kaleidoscope, Characteristics of image formed by plane mirrors), Spherical Mirrors and Images, Spectrum, Wave nature of light, Fermat principle, Sign convention, Refraction, Refraction of Light at Plane Surfaces, Refractive index, Absolute refractive index, Relative refractive

index, Snell's law, Critical angle, Total Internal Reflection, Applications of total internal reflection, Mirages, Optical fibres, Refraction Through a Glass Slab, Lateral shift, Vertical shift, Refraction of Light at Curved Surfaces, Lenses, Terminology used in the case of lenses -Focal length, Focus, Optic Centre, Principal axis, Radius of curvature, Centre of curvature, Focal plane, Behaviour of certain light rays when they are incident on a lens, Images formed by lenses for various distances of objects, UV method, Lens formula, Lens maker's formula, Human Eye, Least distance of distinct vision, Angle of vision, Myopia, Hypermetropia, Presbyopia, Care of the Eyes, Braille System, Visually Impaired Persons, Power of lens, Refractive index of a Prism, Dispersion of light through prism, Sunlight-Dispersion, Rainbow, Scattering of light.

9. ELECTRICITY

Simple Electric circuit and its components, Conductors, Insulators, Type of cells (Dry and liquid), Electric symbols and uses, Series and parallel connection of cells and bulbs, Heating effects of Electricity, Understanding of CFL, Fuse and MCBs, Chemical Effects Of Electric Current, Good/Poor Conducting Liquids, Electroplating, Magnetic Effects of Electric Current, Electromagnet, Electric bell, Electric current, Drude and Lorentz theory, Potential difference and EMF, Drift velocity and working of a cell, Ohm's law, Electric shock, Factors affecting the resistance, Series connection of resistors, Parallel Connection of resistors, Multi-meter, Kirchhoff's laws, Sign convention in a circuit, Electric power, Power consumption, Electric energy, Overload.

10. MAGNETISM AND ELECTROMAGNETISM

How Magnets were discovered, Magnetic and Non-Magnetic Materials, Types of Magnets, Poles of Magnet, Properties of Magnets, Storing magnets safely, Magnetic compass, Earth as a Magnet, Magnetic Induction, Oersted's experiment, Magnetic Field, Magnetic flux – Magnetic flux density, Magnetic field due to straight wire /circular coil/solenoid carrying current, Magnetic Force, Electric Motor, Electromagnetic induction, Faraday's Law, Lenz Law, Applications of Faraday's law of electromagnetic induction, Induced current, Induced EMF, Electric generator, DC and AC currents, rms values.

11. PRINCIPLES OF METALLURGY

Metallurgy, Occurrence of the metals in nature, Ores and Minerals, Extraction of metals, Activity series, Concentration or Dressing of the ore, Hand picking, Washing, Froth flotation, Magnetic Separation, Extraction of crude metal from the ore, Reduction of purified ore to the metal, Purification of the crude metal, Distillation, Poling, Liquation, Electrolytic refining, Corrosion, Prevention of corrosion, Thermite process, Smelting, Roasting, Calcination, Flux, Gangue, Blast furnace, Reverberatory furnace.

12. CARBON AND ITS COMPOUNDS

Allotropes of Carbon, Amorphous forms, Crystalline forms, Diamond, Graphite, Buckminsterfullerene, Nanotubes, Versatile nature of Carbon, Catenation, Tetravalency, Hydrocarbons, Saturated and unsaturated hydrocarbons, Homologous series, Isomerism, Functional groups, Nomenclature of Aliphatic Hydrocarbons, IUPAC names, Chemical properties of carbon compounds- Combustion, Oxidation reactions, Addition reactions, Substitution reactions, Ethanol, Ethanoic acid, Esters, Esterification Reactions, Soaps – Saponification and Micelles, Cleansing action of soap, Detergents.

13. SOME NATURAL PHENOMENON

The Story of Lightning, charging by Rubbing, Electric charge and properties of electric charge, Types of charges and their interactions, Transfer of charge, lightning, lightning safety, lightning conductors, Earthquake, Tsunami, Causes and effects, Protective measures.

14. STARS AND SOLAR SYSTEM

The Moon, The Moon's Surface, Phases of Moon, Eclipses (Solar and lunar eclipses), The Stars, Movement of Stars (Constellation, pole star), Movement of the sun, Solar System, Planets and Some Other Members of the Solar System, Artificial Satellites.

15. CHANGES AROUND US

Slow/fast changes, Temporary/permanent changes, Natural/man made changes, Physical/ chemical changes, Rusting of iron, Crystallisation, Galvanization, Corrosion, Rancidity, Oxidation / reduction

16. MATTER

Objects Around Us, Properties of Materials, Physical Nature of Matter, Characteristics of Particles of Matter, States of matter, Properties of solids, liquids and gases, Change of state of Matter –effect of change of temperature and pressure, Evaporation, Factors Affecting Evaporation, Sublimation, Deposition, Boiling, Latent heat of vaporisation, Latent heat of fusion, Mixture, Types of Mixtures, Solutions., Properties of a Solution, Types of Solutions, Concentration of solution, Expressing Concentration of Solutions, Suspension, Properties of a Suspension, Colloidal Solution, Properties of a Colloid, Common examples of colloids, Mixtures, Methods of separation–handpicking, Threshing, Winnowing, Sedimentation, Decantation, Sieving, Filtration, Sublimation, Chromatography, Distillation and fractional distillation, Evaporation, Condensation, Use of more than one method of separation, Saturated and unsaturated solutions, Separation of immiscible liquids, Types of Pure Substances – Elements and Compounds.

17. ATOMS AND MOLECULES

Laws of Chemical Combination - Law of Conservation Of Mass, Law of Constant Proportions, Atom, Symbols of Atoms of Different Elements, Atomic Mass, Atomicity, Valency, Molecule, Molecules Of Elements, Molecules Of Compounds, Ion – Cation & Anion, Polyatomic ions, Names and symbols of ions, Formation of ions, Writing Chemical Formulae, Molecular Mass, Molar mass, Formula Unit Mass, Structure of The Atom, Subatomic particles, Charged Particles in Matter, Thomson's Model of an Atom, Rutherford's Model of an Atom, Bohr's Model of an Atom, Bohr-Sommerfeld model of an atom, Neutrons, Distribution of electrons into different Orbits, Atomic Number and Mass Number, Isotopes, Isobars, Atomic line spectra, Planck's quantum theory, Quantum numbers, Shapes of orbitals, Electronic Configuration, Pauli Exclusion Principle, Aufbau principle, Hund's Rule.

18. CLASSIFICATION OF ELEMENTS-THE PERIODIC TABLE

Dobereiner's law of Triads, Newlands' law of Octaves, Mendeleev's Periodic Table, Modern Periodic Table, Periodic properties of the elements and their gradation in the modern periodic table.

19. CHEMICAL BONDING

Lewis dot structures, Covalency, Electronic theory of valence by Lewis and Kossel, Octet rule, Ionic and Covalent bonds, Ionic and Covalent compounds, Bond lengths and Bond energies of covalent bonds, Valence shell electron pair repulsion theory, Valence bond theory, Hybridisation.

20. METALS AND NON METALS

Physical Properties of Metals and Non-metals, Chemical Properties of Metals and Non-metals, Uses of Metals and Non-metals, Examples of metals and non-metals, Reactivity order of metals.

21. SYNTHETIC FIBRES AND PLASTICS

Natural and Synthetic fibres, Preparation and uses, Types of Synthetic Fibres, Characteristics of Synthetic Fibres, Plastics as Materials of Choice, Types of plastics, Plastics and environment, Biodegradable – Non biodegradable materials.

22. COAL AND PETROLEUM

Exhaustible and inexhaustible Resources, Fuels – Types, Coal, Story of Coal, Uses of Coal and Coal products, Refining of petroleum, Petrochemical products in various sectors, Various Constituents of Petroleum and their Uses, Formation of coal and petroleum, Natural Gas, Misuse of Energy resources and Consequences.

23. COMBUSTION FUELS AND FLAME

Combustion, Types of Combustion, Ignition temperature, Inflammable substances, Flame, Fuel Efficiency, Burning of Fuels Leads to Harmful Products, Fire control, Structure of flame – colors zones – Intensities.

24. AIR

Atmosphere, Components of air, Availability of oxygen to plants and animals, Replacement of Oxygen in the Atmosphere.

25. ACIDS, BASES AND SALTS

Natural acid-base indicators, Synthetic acid-base Indicators, Olfactory indicators, Universal Indicator, Chemical properties of Acids and Bases, Reaction of Acids and bases with Metals, Reaction of Acids with carbonates and metal hydrogen Carbonates, Neutralization reaction, Reaction of Acids with metal oxides, Reaction of base with non-metal oxide, Production of H^+ions and OH- ions, Electrical conductivity of Acids and Bases, Properties of Bases, Dilution, Strength of acid or base, pH scale, Importance of pH in everyday life, Self defense by animals and plants through chemical warfare, Family of salts, pH of Salts, Chemicals from common salt, Important product from chlor-alkali process and their uses, Water of crystallization, Common salt, Bleaching Powder, Baking soda, Washing soda, Plaster of paris, Gypsum, and their uses.

Intermediate:

PHYSICS

- Physical World
- Units and Measurements
- Motion in a Straight Line
- Motion in a Plane

- Laws of Motion
- Work, Energy and Power
- System of Particles and Rotational Motion
- Oscillations
- Gravitation
- Mechanical Properties of Solids
- Mechanical Properties of Fluids
- Thermal Properties of Matter
- Thermodynamics
- Kinetic Theory
- Waves
- Ray Optics and Optical Instruments
- Wave Optics
- Electric Charges and Fields
- Electrostatic Potential and Capacitance
- Current Electricity
- Moving Charges and Magnetism
- Magnetism and Matter
- Electromagnetic Induction
- Alternating Current
- Electromagnetic Waves
- Dual Nature Of Radiation And Matter
- Atoms

CHEMISTRY

- Atomic Structure
- Classification of Elements & Periodicity in Properties
- Chemical Bonding & Molecular Structure
- States of Matter: Gases and Liquids
- Stoichiometry
- Thermodynamics
- Chemical Equilibrium & Acids-Bases
- Hydrogen & it's compounds
- s-Block elements (Alkali & Alkaline Earth Metals)
- p-Block Elements Group 13 (Boron family)
- p-Block Elements Group 14 (Carbon family)
- Environmental Chemistry
- Organic Chemistry-Some Basic Principles & Techniques & Hydrocarbons
- Solid State
- Solutions
- Electrochemistry & Chemical Kinetics
- Surface Chemistry
- General Principles of Metalillurgy
- p-Block elements (Group-15,16,17,18 Elements)
- d & f Block Elements & Coordination Compoounds
- Polymers

- Biomolecules
- Chemistry in Everyday life
- Halo Alkanes & Haloarenes
- Organic Compounds containing C, H & O (Alcohols, Phenols, Ethers, Aldehydes, Ketones & Carboxylic acids)
- Organic Compounds Containing Nitrogen

V. Methodology (Marks: 20)

1. The Nature of Science: Nature and scope of science, Science, ideology and Society, Structure of Science (a) Substantive structure - Empirical knowledge, Theoretical Knowledge - (Facts, Concepts, hypothesis, theory, Principle Law), (b)Syntactic Structure of Science - Scientific inquiry, Processes of Science, Attitudes of inquiry
2. The History and Development of Science: A brief introduction to oriental and western science, Contribution of the following Scientists in the Development of Science: Aryabhatta, BhaskaraCharya, Aristotle, Copernicus, Newton, Einstein, C.V.Raman, Various organizations working for the development of science in India
3. Aims and Values of teaching Physical Sciences: Aims of teaching Physical Sciences, Values of teaching Physical Science, Correlation of Physics and Chemistry with other subjects
4. Objectives of teaching Physical Sciences: Meaning and importance of objectives, Bloom's Taxonomy of Educational objectives, Specific / Behavioral objectives / (Instructional objectives), Critique on Bloom's Taxonomy
5. Approaches and Methods of teaching Physical Sciences: Inductive and Deductive Approaches, Micro Teaching, Team Teaching, Lecture Method, Lecture cum Demonstration Method, Historical Method, Heuristic Method, Project Method, Laboratory method, Problem Solving Method, Scientific Method, Multimedia Approach in Teaching Learning process, Programmed Learning, CAI and CAL
6. Planning for effective instruction in Science: Year Plan, Unit Plan, Lesson Plan, Learning experience, characteristics, classification, source and relevance.
7. Teaching Learning Material (TLM): Characteristics and Importance of TLM, Classification and Types of TLM, Hardware and Software in TLM, TLM-Principles to be followed, Edgar Dale's cone of learning experience.
8. Science laboratories: Importance of Practical work in science, Planning of Science laboratories, Procurement, care and maintenance of laboratory equipment, Registers, Management of safety and science kits, Development of improvised Apparatus.
9. Physical Science Curriculum: Principles of Curriculum Construction, Defects in the existing school science curriculum, Qualities of a good Science Text Book.
10. Non-formal Science Education: Science Clubs, Science Fairs - purposes, levels, organization, advantages, Science Library, Role of NGOs and State in popularizing Science
11. Evaluation: Concept and Process of Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of Scores.

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Paper II – Biological Science Syllabus

1.	**G.K & Current Affairs**	-	**10M**
2.	**Perspectives in Education**	-	**05M**
3.	**Classroom implications of Educational Psychology**	-	**05M**
4.	**Content**	-	**40M**
5.	**Methodology**	-	**20M**
	Total	-	**80 M**

PART - I

I. General Knowledge And Current Affairs (Marks: 10)

PART - II

II. Perspectives in Education (Marks: 05)

1. **History of Education :**
   - The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
   - Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
   - Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992
2. **Teacher Empowerment:**
   - Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.
3. **Educational Concerns in Contemporary India:**
   - Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
   - Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
   - Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
   - Adolescence Education
   - Value Education – Moral Value and Professional Ethics in Education.
   - Health and Physical Education
   - Inclusive Education - Classroom Management in Inclusive Education
   - Role of Education in view of Liberalization, Privatization and Globalization

- Programmes and Projects – APPEP, DPEP, Sarva Shiksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Shiksha Abhiyan(RMSA), Rashtriya Avishkar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarships, Awards, Welfare Hostels, Transportation.
- Current Trends in Education

4. **Acts / Rights:**
   - Right of Children to Free and Compulsory Education Act - 2009
   - Right to Information Act - 2005
   - Child Rights
   - Human Rights.

5. **National Curriculum Framework - 2005:** Perspectives, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessments, Systemic Reforms.

6. **National Education Policy-2020**

PART - III

III. Classroom implications of Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

PART - IV

IV. Content (Marks: 40) (Class VI To Intermediate level syllabus)

6 – 10 Classes:

1. **Life Process:** Our food, Components of food, Balanced diet, Malnutrition, Deficiency diseases, Plants – Types, Plant parts – functions, Types of nutrition, Nutrition in plants – Autotrophic, Parasitic, saprophytic, Insectivorous; Nutrition in animals - Different ways of taking food, Digestion in humans, Digestion in grass eating animals, feeding and digestion in amoeba; Cellular respiration, Types of respiration, Respiration in plants, Respiration in animals, Respiration versus combustion, Photosynthesis versus Respiration, Circulatory system - Human Circulatory system, Evolution of the transport system in animals, Transportation in plants; Excretion - Excretion in Human Beings, Excretion in other organisms, Excretion and release of substances in plants, Excretion

Vs Secretion; Coordination in animals- Nervous and Endocrine systems, Control mechanism in plants – Plant hormones, tropic and nastic movements, Modes of reproduction – sexual, asexual and vegetative; Sexual reproduction in plants, Seed dispersal, Sexual and Asexual Reproduction in Animals, Metamorphosis, Reproduction in a placental mammal – Man, Reproductive health, Birth control methods, Fighting against social ills, Adolescence and puberty – changes, role of hormones, Reproductive phase, Variations, Mendel's experiments on inheritance, Sex determination in human beings, Evolution – Lamarckism, Darwinism, Evidences of evolution, Human evolution

2. **Living World:** Living and Nonliving things, Characteristics of living organisms, Different types of habitat and adaptation, Skeletal parts – Bones, Joints, Cartilage; muscles, Movements in animals, Cell – The basic unit of life, Types of cells, Cell structure and function, Cell division, Animal Tissues, Plant tissues, Introduction to microorganisms, Useful Microorganisms, Harmful microorganism, Food preservation, Agricultural Practices, Improvement in crop yields, Storage of food, Food from Animals - Animal Husbandry
3. **Our Environment – Ecology:** Our Environment - Food chain, Food web, Ecological pyramids, Effects of human activities on ecosystems, Steps towards prevention; Natural resources - Renewable and non-renewable resources, conservation; Bio diversity - Forests, Flora, fauna, interrelation of organisms, Advantages of forests, Deforestation - effects, Conservation of forest and wildlife – Protecting areas, endangered and endemic species; Air & water pollutions -Cusses, effects and prevention, Water, Sewage, Treatment of polluted water, Better housekeeping practices, Sanitation and Disease, Alternative arrangement for sewage disposal; Global Environmental Issues - Green house effect, Global warming, Acid rains; Nitrogen cycle.

Intermediate:

BOTANY

- Diversity in the Living World:
- The living world – Biological – Classification – Science of plants – Botany – Plant King dom
- Structural Organisation in Plants - Morphology,
- Representation in Plants
- Plants Systematics,
- Cell: Structure and Functions,
- Internal Organizations of Plants
- Plant Ecology
- Plant Physiology
- Microbiology
- Genetics

- Molecular Biology
- Biotechnology
- Plants
- Microbes and Human Welfare.

ZOOLOGY

- Diversity of Living World
- Structural organization in Animals
- Animal Diversity-I
- Animal Diversity-II (Phylum: Chordata)
- Locomotion & Reproduction in Protozoa
- Biology in Human Welfare
- Type study of Periplaneta Americana
- Ecology & Environment.
- Human Anatomy and Physiology- I
- Human Anatomy and Physiology- II
- Human Anatomy and Physiology- III
- Human Anatomy and Physiology- IV
- Human Reproduction
- Generics
- Organic Evolution
- Applied Biology

V. Teaching Methodology (Marks: 20)

1. The Nature & Scope of Science: A brief introduction of Oriental and Western Science, Nature of Science, Scope of Science, Substantive and Syntactic Structure of Science.
2. Aims and Values of Teaching Biological Sciences: Aims of teaching Biological Sciences, Values of teaching Biological Sciences.
3. Objectives of Teaching Biological Sciences: Importance of Objectives of Teaching Biological Sciences, Bloom's Taxonomy of Educational Objectives and limitations, Writing Instructional Objectives and Specifications.
4. Academic Standards in Biological Science.
5. Approaches and Methods of Teaching Biological Sciences: Inductive Approach and Deductive Approach, Methods of Teaching 1. Lecture Method, 2. Lecture cum Demonstration Method, 3. Heuristic Method, 4. Project Method, 5. Experimental Method, 6. Laboratory Method.

6. Planning for effective Instruction: Year Plan, Unit Plan, Lesson Plan - Herbartian and Bloom's Approach, Criteria for Evaluation of Lesson Plan. Self Evaluation and Peer Evaluation, Learning experiences - Characteristics, Classification, Sources and Relevance, Teaching - Learning Material and Resources in Biological Sciences.
7. Science Laboratories: Importance of Practical work in Biological Sciences, Planning Science Laboratory, Procurement, Care and Maintenance of Laboratory Equipment, Maintenance of different Registers, Safety and First aid, Development of Improvised Apparatus
8. Science Curriculum: Principles of Curriculum Construction, Defects in the existing School Science Curriculum, Correlation of Biological Sciences with other School Subjects, Qualities of a good Biological Science Text-book.
9. Biological Science Teacher: Qualities of a good Biological Sciences Teacher, Roles and Responsibilities
10. Non-formal Science Education: Science club, Eco-club, Blue-club, Red ribbon club, Science fairs - Objectives, levels of organizations, importance, Science Laboratories, Role of NGOS and State in popularizing science.
11. Evaluation: Concept and process of Measurement and Evaluation, Continuous Comprehensive Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test(SAT), Analysis and interpretation of scores.

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Paper II – SOCIAL STUDIES Syllabus

1.	**G.K & Current Affairs**	-	**10M**
2.	**Perspectives in Education**	-	**05M**
3.	**Classroom implications of Educational Psychology**	-	**05M**
4.	**Content**	-	**40M**
5.	**Methodology**	-	**20M**
	Total	-	**80 M**

PART - I

I. General Knowledge And Current Affairs (Marks: 10)

PART - II

II. Perspectives in Education (Marks: 05)

1. **History of Education :**
   - The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
   - Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
   - Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992
2. **Teacher Empowerment:**
   - Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.
3. **Educational Concerns in Contemporary India:**
   - Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
   - Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
   - Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
   - Adolescence Education
   - Value Education – Moral Value and Professional Ethics in Education.
   - Health and Physical Education
   - Inclusive Education - Classroom Management in Inclusive Education

- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Shiksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Shiksha Abhiyan (RMSA), Rashtriya Avishkar Abhiyan (RAA), KGBVs, Model Schools.
- Incentives and special provisions – Mid Day Meals, Free Books, Scholarships, Awards, Welfare Hostels, Transportation.
- Current Trends in Education

4. **Acts / Rights:**
    - Right of Children to Free and Compulsory Education Act - 2009
    - Right to Information Act - 2005
    - Child Rights
    - Human Rights.

5. **National Curriculum Framework - 2005:** Perspectives, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessments, Systemic Reforms.

6. **National Education Policy-2020**

PART - III

III. Classroom implications of Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

PART - IV

IV. Content: (40 Marks) (Class VI to Intermediate level syllabus)
Classes VI – X Syllabus

Theme - I: Diversity on the Earth

Universe- origin, Galaxy, Celestial bodies, Constellations, The Solar System, Our Earth ; Globe, Axis, Latitudes, Longitudes, Movements of the Earth, Equinox, Eclipses, Components of the Environment, Maps- Types, Components, Conventional Symbols, uses; Forests - Climatic regions, Types of forests, Uses, Forests in AP, Deforestation, Social Forestry and

Conservation; Landforms - Major Landforms of AP, Podu Cultivation, Diversity in Lifestyles; Resources-Types, Conservation; Land, Soil, Water, Natural Vegetation and Wildlife Resources, Landslides, Factors of Soil formation, Degradation of soil and conservation measures, Water problems of water availability; India Size and Location, India's Neighbours, India Relief Features-Major Relief Divisions, Climate of India-Monsoon, Climogrphs, Climatic Controls, Drainage-The Himalayan Rivers and Peninsular rivers and river pollution, Indian Rivers and Water Resources.

Theme - II: Production Exchange and Livelihoods

Markets around us-Types of Markets, Consumer Protection; Road Safety-Traffic Signs, Road marking signs-using methods, Road safety measures, pedestrian safety, safe cycling, safety travelling; Mineral and Power Resources- Types of Minerals, Distribution, Conservation, Power Resources -Conventional, Non-Conventional; Agriculture- Types of farming, major crops; Industries-Classification, Distribution ; Human Resources-Population Density, Population size and distribution, Population Change Population growth, National population policy; Population composition; Weavers, Iron Smelters and Factory Owners- Indian Textiles and the World Market, The Sword of Tippu Sultan and Woods Steel; Public Facilities-Water as part of the Fundamental Right to life, Govt. role, The story of village Palampur, Ideas of Development-HDI, Production and Employment-GDP, organised, Unorganised Sectors, The People-Census, Changing Population Size, People as a Resource-Economic activities by men and women Quality of population, Unemployment, Poverty as a Challenge-Poverty line, Global poverty Scenario, anti-poverty measures, People and Settlement-Urbanisation, People and Migration-Rural, Urban and Seasonal, Temporary, International migrations, Rampur: A Village Economy, Globalisation-MNC,WTO, Food Security-Food Security in India, Access to Food, Nutritional status, MSP, PDS; Role of Cooperatives in Food Security, Sustainable Development with Equity.

Theme -III: Political Systems and Governance

Early life to Settled life - Belum Caves, Rock Paintings; Emergence of Kingdoms and Republics-Janapadas, Mahajanapadas; kingdoms and Empires- Mauryan, Gupta, Satavahana, Pallava, Chalukya; Delhi Sultanate; Kakatiya Kingdom, Vijayanagara Empire, Mughal Empire,How When and Where,From Trade to Territory- The company establishes Power - East India Company, The Battle of Plassey, Tipu sultan, The Doctrine of Lapse; Ruling the Countryside - The company becomes the Diwan, The need to improve Agriculture, Munro System, Crops for Europe, Why the demand for indian Indigo?, The Blue Rebellion and After; Tribals, Dikus and the Vision of a Golden Age-How did Tribal groups live?, How did colonial rule affect tribal lives?; Forest Loss and their Impact, Birsa Munda; When people rebel 1857 and after-Policies and the people, Through the Eyes of the people, A Mutiny becomes a popular Rebellion, The Company fights back; Civilizing the "Native" Educating the nation-How the British saw Education, The agenda for a National education of British; The making of the National Movement-1870's - 1947,The Emergence of Nationalism, The growth of mass Nationalists, Dandi March, Quit India and Later; India after Independence-A new and Divided Nation, A Constitution is written, How were States to be formed, Planning

for development, A Nation sixty years on; The French Revolution, Socialism in Europe and the Russian Revolution, Nazism and the rise of the Hilter, Forest society and Colonialism, Pastoralists in the Modern World, The World Between Wars Part-1,2, National Liberation Movement in the Colonies-China, Vietnam, Nigeria, National Movement in India and Partition and Independence:1939-1947, Independent India[The First 30 years-1947-77],Emerging Political Trends 1977-2000,Post-War World and India-UNO, Cold War, Military Alliances, India and its Neighbours.

Theme -IV: Social Organisation and Inequities

Towards Equality- Diversity, discrimination, Types, Constitutional Provisions; Women Change the World- Women's movement, Inspirational Women; Women, Caste and Reform-Working towards Change-Changing the lives of widows, Girls begin to going to School, Women write about Women, Caste and Social Reform-Gulamgiri who could enter, The Non Brahman movement; Indian Constitution - Introduction, Key features, Fundamental Rights and Duties ;Government- Types, Levels, Local self-Government, State Government-Legislative, Executive, Judiciary; Working of Institutions, Understanding Secularism; Why do we need Parliament, The role of the Parliament, Houses of Parliament, Who are the people in parliament?; Understanding Laws-How do new laws come out?, Unpopular and Controversial Laws, Judiciary-Independent Judiciary, Structure of Courts in India, Different Branches of the Legal System, Understanding Our Criminal Justice System-Role of the police, Public prosecutor, Judge, What is a Trial Crime?; Understanding Marginalisation-Who are Adivasis?, Adivasis and development, Minorities and Marginalisation; Confronting Marginalisation-Invoking Fundamental Rights, Laws for the Marginalised, Protecting the Rights of Dalits and Adivasis, Adivasi demands and 1989 Act; Law and Social Justice-Bhopal Gas tragedy, Enforcement of safety Laws, New Laws to protect the Environment, What is Democracy? why Democracy?, Constitutional Design-Democratic Constitution in South Africa, Struggle against Apartheid, Electoral politics, Democratic Rights, The Making of Independent India's Constitution, Social Movements in Our Times, Citizens and the Governments-RTI, Legal Service Authority.

Theme - V: Religion and Society

Religions-Hinduism, Jainism, Buddhism, Islam, Sikhism, Unity in Diversity; Bhakti Movement - Sufi Movement;

Theme -VI: Culture and Communication

Early Civilisations-Indus, Vedic period, Vedic Literature, Indian Culture, Languages.

Intermediate Syllabus:

Geography:

General Geography-Definition and scope of Geography – Branches of Geography-Geography as an integrating Discipline and as Spacial Science with physical, biological and social sciences.

Solar System-Origin and Evolution of solar system-Rotation and Revolution of the Earth and their effects-Latitudes and Longitudes-Standard Time and International Date line.
The Earth - Interior of the Earth-Wegner's theory of continental drift -Major Rock types and their characteristics.
Geomorphology -Major landforms: Mountains, Plateaus and Plains-Geomorphic Process: Weathering - Physical and Chemical Weathering-Landforms associated with wind and river – Erosional and depositional.
Climatology -Climate: Elements of weather and climate-Atmosphere: Composition and structure of atmosphere -Insolation: Insolation and Heat Budget of the Planet Earth-Temperature: Factors influencing Temperature, Vertical and horizontal distribution of temperature Pressure- Global pressure belts WindsPlanetary winds, Seasonal and Local winds-Precipitation: Forms and types of rain fall (Convectional, Orographic and Cyclonic rain fall).
Bio geography -Biomes of the world- Equatorial, Tropical and Temperate zones -Biodiversity and Conservation -Concept of Ecosystem and Ecological Balance- Oceanography, Hydrology and Natural hazards
Oceanography-Divisions of the Ocean floor- Continental shelf, Continental slope, Deep Sea plains and Ocean deeps-Ocean Temperatures- Vertical and horizontal distribution-Ocean Salinity Definition, vertical and horizontal distribution-Oceanic Movements: Waves, Tides and Currents, (Currents of Atlantic, Pacific and Indian Ocean)
Hydrology-Elements of Hydrological cycle: Precipitation, evaporation, evaporation-transpiration, run off, infiltration and recharge -Hydrological Cycle.
Natural Hazards-Causes and Spatial distribution of floods, droughts, cyclones, Tsunamis, Earthquakes and landslidesGlobal Warming and its consequences-Disaster Management in India-Human Geography : Definition, Content and scope- Man and Environment: Definition, Content, Classification of environment-Environmental impact World Population : Growth, Factors influencing, density and distribution
Human activities - Primary, Secondary and tertiary activities-Resources - Definition, Classification and Conservation-Agriculture -Definition, Types, food crops (Rice and wheat) Nonfood crops (Cotton, Sugarcane) and Plantation crops-(Rubber, tea and coffee) their Significance, Conditions - for cultivation, production and distribution.
Definition and Classification (Metallic - Iron), nonMetallic – bauxite and (fuel minerals - coal andpetroleum) Industries - Location factors, types of industries -Agro – based (Cotton textiles) Forest based (Paper mills) -Mineral based (Iron and steel) - Chemical based (Fertilizers)- Transportation -Road ways, Railways, Water ways and Air ways - Rail ways-Intensive net work rail way, Regional rail-ways and Trans continental railways - Water ways-Major sea ports: London, San Francisco-Reo De Janeiro, Cape Town, Kolkata and Sydney-Major Air ports- Tokyo, Paris, Chicago, Bogota and -Wellington
Physical features of India - Major features - Northern mountains, Indo – Gangetic-plains, Peninsular plateau of India and coastal plains- Major rivers of India - Perennial rivers- Indus, Ganges and Brahmaputra-Non Perennial rivers- Narmada, Tapati, Mahanadi, -Godavari, Krishna, Pennar and Cauvery - Climate of India - Cold weather season: Temperature Rainfall &Pressure distribution Hot weather season- Temperature, Rainfall &Pressure distribution South west monsoon season- Temperature, Rainfall &Pressure distributionNorth east monsoon season: Temperature, Rainfall &Pressure distribution-Natural vegetation of India-Types of vegetation based on rainfall and their-distribution. Evergreen forest, deciduous forest, scrub -forest,& Thorny forest -Soils - Definition, factors for formation, types and -their distribution.
Population- Growth trends from 1901 to 2001, Distribution based-on density, problems of high population- Irrigation-Types of irrigation: canals, wells and tanks. Major -multipurpose

projects. Bakranangal, Hirakud, -Damodarvalley corporation and Nagarjuna Sagar-Agriculture: Cropped area, production and distribution of -selected crops: Rice, Wheat, Millets, Coffee, Tea,Sugarcane, Cotton, Jute and tobacco; Problems ofIndian agriculture.
Minerals- Production and distribution of coal, petroleum, iron,mica and manganese, bauxite. Industries- Location factors growth and distribution of iron andsteel, cotton textile and ship building industries- Transportation-Means of Transport – Road ways, Rail ways, Water -ways and Air ways; Major ports of India – Mumbai, -Cochin, Kandla, Kolkata, Visakhapatnam and Chennai.
Geography of Andhra Pradesh: Location, Physiography and Climate, Population.

History:

What is History: Definition - Scope – Sources – Historiography – Relationship with other Social Sciences – Impact of Geography on history - Relevance of History.
Ancient Civilizations and Culture : Pre Harappan Cultures - Harappan Civilization – Script, town planning, society, economy and culture - Vedic age and Post Vedic Culture.
Early States, Empires and Economy: Early States – 16 Mahajanapadas - Rise of Magadha – Economy and Agriculture – urbanization.
Early Societies, and religious movements: Early Societies – Social differences – Religious movements – Jainism – Buddhism and other sects Ajjivikas and Lokayats.
Polity, Economy, Society and Culture between 3rd to 7th Century A.D. :Mauryas - Kushanas – Guptas – Pushyabhuties – Origin of feudalism – Polity, Society, Economy and Culture.
Deccan and South India up to 8th A.D: Sangam age – Satavahanas – Pallavas – Chalukyas – Rastrakutas – Cholas – Polity, Society, Economy and culture.
Age of Delhi Sultanate: Sources/Travellers Accounts - Arab Invasions – Turkish invasions – Delhi Sultanate – Polity, Economy, Society and Culture.
Age of Mughals: Chronicles/Sources – Mughal rule – Babur, Humayun, Shershah, Akbar, Jahangir, ShahJahan and Aurangazeb - Polity, Economy, Society and culture - Disintegration - Maratas, Sikhs.
Bhakti and Sufi Traditions 8 A.D. 16 Century A.D: Prevailing Religious Traditions and beliefs in the Society – Bhakti Saints and their Preachings – Sufism – Main features and their impact.
Deccan and South India 8th A.D – 16 the A.D : Sources - Kakatiyas – Vijyanagara – Bahamanis – Qutbshahis and Asafjahis – a brief survey.
India under the Colonial Rule : Sources - Portuguese – Dutch – French – English East India Company – Era of Governor Generals and their Polices – Reforms of Viceroys – 1857 Mutiny.
Indian National Movement: Background to National Movement, Socio-religious movement – rise of Nationalism – Vandemataram movement – Home rule movement – Emergence of Mahatma Gandhi and leadership – Revolutionary movement, Subhash Chandra Bose – Poona Pact Quit India movement – Partition of India – Emergence of Independent India.
The Modern World- Beginning of Modern Age, Renaissance, Development in Science, The Reformation Movement, Rise of Nation States, Struggle against Absolute Monarchies - Capitalism and Industrial Revolution -The Revolutionary Movements -The Glorious Revolution, The American war of Independence, The French Revolution of 1789 - .Nationalist Movements: Rise and fall of Napoleon, French Revolution of 1830 and the 1848 Revolt, Unification of Germany and Italy, Socialist Movements – Rise of Working class, Paris Commune of 1871
Imperialism: Factors in the rise of Imperialism, Forms and Methods of Imperialism, Scramble for Africa and Asia

Contemporary World: The First World war, League of Nations, The Russian Revolution of 1905 and 1917 -The World upto World War II: Rise of Fascism and Nazism, Militarism in Japan, U.S.A. and U.S.S.R. after World War I, Turkey after World War I, Failure of League of Nations, Spanish Civil war, World war II, The Nationalist Movements in Asia and Africa, Emergence of Latin America

The World after World War II: Formation of Military Blocks, Role of independent Nations of Asia and Africa in the World Affairs, Non-Alignment Movement, Role of UNO in preserving World Peace, Problems of Disarmament and Nuclear Weapons, Prominent Personalities of the World.

Civics:

Scope and Significance of political Science - Introduction to Civics and Political Science, Origin and Evolution, Meaning, Definitions, What do we study? Why do we study?

State - State – Meaning, Definitions, Elements, Relation of state with other Institutions – Society, Association, Government.

Nationalism - Nation, Nationality, Nationalism, Factors contributing for Nationality, Is India a Nation? Meaning, Forms (Traditional and modern)

law -Meaning, Definitions, Classification, Law and morality, Rule of Law. Liberty and Equality – Meaning, Definitions, Types, Safeguards, Liberty – Equality.

Rights and Responsibilities– Meaning, Definitions, functions Forms, Relationship between Rights and Responsibilities, Human Rights

Justice - Justice – Meaning, Forms of Justice, Social Justice.

Citizenship - Meaning, Definitions, Methods of Acquiring, Citizen – Alien , Loss of Citizenship, Hindrances to Good Citizenship, Universal Citizenship

Democracy- Meaning, Definitions, features, types, merits, devices, future

Secularism -Meaning, Secular State, Western Model, Indian Model, Why India was made a Secular State? Criticism of Indian Secularism

Constitution– Meaning, Definitions, features, Classification

Government - Unitary, Federal, Parliamentary, Presidential, Theory of Separation of Powers, Organs of Government

Indian Constitution: Indian National Movement- Government of India Acts – 1909, 1919 & 1935-

Salient features of Indian Constitution

Fundamental Rights &Directive Principles of State Policy- Fundamental Rights- Directive Principles of state Policy- Fundamental Duties

Union Government- Union Executive – President of India - Vice – President of India - Prime Minister & Council of Ministers

Indian Parliament - LokSabha-Composition – Powers and functions- Rajya Sabha: Composition – Powers and functions

Parliamentary Committees- Public Accounts Committee – Estimates -Committee – Committee on Public Undertakings

Union Judiciary - Supreme Court of India – Composition- Powers and Functions of Supreme Court -of India - Judicial Review

State Government- State Executive – Governor- Powers and Functions-Chief Minister - Powers and Functions- Council of Ministers

State Legislature-Legislative Assembly- Composition – Powers and Functions- Legislative Council-Composition – Powers and Functions - Legislative Committees: Public Accounts Committee – Estimates-Committee and Ethics Committee

State Judiciary-High Court – Composition- Powers and Functions of High Court- District Courts: Composition – Powers and Functions.

Union – State Relations - Legislative Relations-Administrative Relations- Financial Relations
Local Government-Rural Local Government - Panchayati Raj Institutions – 73rd Constitution Amendment Act- Urban Local Government: Municipalities - Municipal Corporation – 74th Constitution Amendment Act- District Collector : Role in Local Governments
India's Foreign Policy - Determinants of Foreign Policy- Basic features of India's Foreign Policy-
South Asian Association for Regional Cooperation (SAARC)
United Nation Organization (UNO)-Origin of UNO-Principal Organs of UNO- Achievements and failures of UNO
Contemporary Trends and Issues- Globalization- Terrorism-Corruption.

Economics:

Origin and meaning of Economics - Definitions of Economics; Adam Smith, Alfred Marshall, Lionel Robbins, Paul Samuelson, &Jocob Viner- Concept of Economics – Micro & Macro Economics Deductive and Inductive Method, Static and Dynamic Analysis, Positive and Normative Economics. Goods: (Free, Economic, Consumer, Producer, and Intermediary), Wealth, Income, Utility, Value, Price, wants and welfare.

Theory of Consumption - Cardinal and Ordinal Utility, the law of Diminishing Marginal Utility – Limitations – Importance; law of Equi-Marginal Utility Limitations and – Importance of the Law, Indifference Curve Analysis – Properties and Consumer's Equilibrium.

Theory of Demand - Meaning – Demand Function – Determinants of Demand, Demand Schedule – Demand Curve, Law of Demand, Exceptions to Law of Demand - Causes for the downward slope of the demand curve, Types of Demand – Price Demand, Income Demand, and Cross Demand- Elasticity of Demand – Meaning and Types – Price Elasticity, and Income Elasticity and Cross Elasticity – Price Elasticity-Types; Measurement of Price Elasticity of Demand- Point Method. Arc Method, Total Outlay Method. Determinants of Elasticity of Demand; Importance of Elasticity of Demand.

Theory of Production - Meaning - Production Function – Factors of Production; Short-run and Long-run Production Function; Law of variable proportions - Law of returns to scale; Economies of Scale - Internal and External- Supply – Supply Function - Determinants of Supply — Law of Supply- Cost Analysis – Basic Concepts of Costs- (Money, Real, Opportunity, Fixed and Variable, Total, Average and Marginal costs)- Revenue Analysis – Revenue under perfect and imperfect competition.

Theory of Value - Meaning and Classification of Markets – Perfect competition – features – price determination- Short-run and Long-run equilibrium of a firm and Industry- Imperfect Competition – Monopoly – Price Determination – Price-Discrimination-Monopolistic Competition- Features- Meaning of Oligopoly – Duopoly.

Theory of Distribution - Determination of Factor Prices – Marginal Productivity Theory - Rent – Ricardian theory of Rent – Modern theory - Quasi Rent – Transfer earnings - Wages – Meaning and types of wages – Money and Real wages - Interest- Meaning – Gross and Net interests - Profits – Meaning – Gross and Net profits.

National Income : Definitions of National Income and Concepts- Measurement of National Income – Census of Product Method – Census of Income Method – Census of Expenditure Method- Methods of Measuring National Income in India; Problems and importance

Macro Economic Aspects - Classical theory of Employment –J.B. Say Law of Markets-Limitations – J.M. Keynes Effective Demand- Public Economics - Public Revenue – Public Expenditure – Public debt – Components of Budget.

Money, Banking and Inflation - Money – Definitions and Functions of money – Types of Money - Banking – Commercial Banks – Functions; Central Bank – Functions – Reserve Bank of India – Net Banking- Inflation – Definitions – Types – Causes and Effects of inflation – Remedial Measures.

Statistics for Economics - Meaning, Scope and Importance of Statistics in Economics with Diagrams (Bar diagrams and Pie diagrams)-Measures of central tendency – Mean, Median, Mode.

Economic Growth And Development - Differences Between Economic Growth and Development classification of the world countries - Indicators of Economic development - Determinants of Economic Development - Characteristic features of Developed Countries - Characteristic features of Developing countries with special reference to India

Population and Human Resources Development - Theory of Demographic Transition - World Population - Causes of rapid Growth of population in India - Occupational distribution of population of India - Meaning of Human Resources Development - Role of Education and Health in Economic Development- Human Development Index (HDI)

National Income - Trends in the growth of India's National Income - Trends in distribution of national income by industry Origin - Share of Public Sector and Private Sector in Gross Domestic Product - Share of Organised and Un-organised Sector in Net Domestic Product - Income Inequalities - Causes of Income Inequalities - Measures to control income inequalities -Unemployment in India – Poverty - Micro Finace-Eradication of Poverty

Agriculture Sector-Importance of agriculture in India - Features of Indian agriculture - Agriculture Labour in India - Land utilization pattern in India - Cropping pattern in India - Organic Farming -Irrigation facilities in India - Productivity of agriculture - Land holdings in India - Land reforms in India - Green Revolution in India - Rural credit in India - Rural Indebtedness in India - Agricultural

Marketing - Industrial Sector - Significance of the Indian Industrial Sector in Post –Reform Period -Industrial Policy Resolution 1948 - Industrial Policy Resolution 1956 - Industrial Policy Resolution 1991 - National Manufacturing Policy- Disinvestment - National Investment Fund (NIF) -Foreign Direct Investment -Special Economic Zones (SEZs) - Causes of industrial backwardness in India -Small Scale Enterprises (MSMEs) - Industrial Estates - Industrial Finance in India - The Industrial Development under the Five Year Plans in India.

Tertiary Sector - Importance of Services Sector -India's Services Sector - State-Wise Comparison of Services - Infrastructure Development - Tourism - Banking and Insurance - Communication -Science and Technology - Software Industry in India

Planning And Economic Reforms - Meaning of Planning -NITI Ayog -Five Year Plans in India - XII Five Year Plan - Regional Imbalances - Role of Trade in Economic Development - Economic Reforms in India - GATT – WTO

Environment and Sustainable Economic Development - Environment - Economic Development -Environment and Economic Linkages. - Harmony between Environment & Economy

Economy Of Andhra Pradesh - History of Andhra Pradesh - Characteristic features of A.P. Economy -Demographic features - Occupational distribution of labour - Health Sector - Education -Environment - Agricultural sector - Industrial sector - Service and Infrastructure sector - Information and Technology - Tourism -Andhra Pradesh and Welfare Programmes/ Schemes

Economic Statistics - Measures of Dispersion - Definitions of Dispersion - Importance of Measuring Variation -Properties of a good measure of variation -Methods of Studying Variation - Measures of Dispersion for average - Lorenz Curve - Correlation -Index Numbers - Weighted Aggregation Method.

V. Methodology (Marks: 20)

1. **Aims and objectives of learning Social Sciences**

   - values through Social Sciences - learning objectives and illustrations - learning objectives in constructivist approach - Academic Standards

2. **School curriculum and resources in Social Sciences**

   - NCF-2005, RTE-2009, SCF-2011 - syllabus – Learning Resources.

3. **Social Sciences as on integrating area of study: Context and concerns**

   - Distinguishing between Natural and Social Sciences - Social Studies and various Social Sciences -contributions of some eminent Social Scientists

4. **Approaches and strategies for learning Social Sciences**

   - Teaching methods- collaborative learning approach - 5E learning model - problem solving approach -concept mapping– planning: Lesson plan, Year Plan- Teaching Learning Material .

5. **Community Resources and Social Sciences Laboratory**

6. **Tools and techniques of assessment for learning: Social Sciences**

7. Understanding concept of Evaluation - CCE - assessment framework - assessment learning of students with specialneed