

SCHEDULE - I

- o Syllabi for direct competitive examinations under the Mizoram Legislative Assembly Secretariat.

SCHEDULE - I 'A'

COMMITTEE OFFICER

1. (a) The Examination shall comprise of written examination and interview. The written examination will consist of three compulsory subjects and two optional subjects.
- (b) There will be one paper in General English and General Essay carrying 100 marks. All other subjects will consist of two papers carrying 100 marks each.
- (c) Interview will also carry 100 marks.
- (d) Each paper will be of three hours' duration.
- (e) The question papers for the examination will be of conventional (essay) type and will be set in English (for compulsory and optional subjects) and Mizo (for Mizo papers only).
- (f) A candidate must write the answer papers in his own hand, and under no circumstances will be allowed to take the help of a scribe to write the answer papers for him.

A. COMPULSORY SUBJECTS :

- (i) General English
- (ii) General Studies Paper I & II
- (iii) General Essay

B. OPTIONAL SUBJECTS : (Paper I & II)

- | | |
|--|-------------------|
| (i) Economics | (ii) Education |
| (iii) English | (iv) Geography |
| (v) History | (vi) Law |
| (vii) Mizo | (viii) Philosophy |
| (ix) Political Science & International Relations | (x) Psychology |
| (xi) Public Administration | (xii) Sociology |
| (xiii) Civil Engineering. | |

A candidate shall not be allowed to offer the following combinations of subjects, namely:

- (a) Political Science & International Relations AND Public Administration
- (b) Education AND Psychology.

COMPULSORY SUBJECT**1. ENGLISH**

The aim of the paper is to test the candidate's ability to read and understanding serious discursive prose and to express his ideas clearly and correctly in English/ Indian language concerned. The pattern of questions would be broadly as follows :-

- | | |
|-------------------------------------|---------------------|
| (i) Comprehension of given passages | (ii) Precis writing |
| (iii) Usage and Vocabulary | (iv) Short Essay |

2. GENERAL STUDIES

General Studies Paper-I and Paper-II will cover the following areas of knowledge -

PAPER - I

- (1) Modern History of India and Indian Culture.
- (2) Current events of national and international importance.
- (3) Statistical analysis, graphs and diagram.

PAPER - II

- (1) Indian Polity
- (2) Indian Economy and Geography of India and
- (3) The role and impact of science and technology in the development of India.

In Paper - I, Modern History of India and Indian Culture will cover the broad history of the country from about the middle of the nineteenth century and would also include questions on Gandhi, Tagore, Nehru and Cultural heritage and traditional practices in Mizoram. The part relating to statistical analysis, graphs and diagrams will include exercise to test the candidate's ability to draw common sense, conclusions from information presented in statistical, graphical or diagrammatical form and to point out deficiencies, limitations or inconsistencies therein. In Paper II, the part relating to Indian Polity will include questions on the political system in India, in the part pertaining to the Indian Economy and Geography of India, questions will be put on planning in India and the physical, economic and social geography of India. In the third part relating to the role and impact of science and technology in the development of India, questions will be asked to test the candidate's awareness of the role and impact of science and technology in India, emphasis will be on applied aspects.

3. GENERAL ESSAY :

ECONOMICS

PAPER - I

1. The framework of an Economy : National Income Accounting.
2. Economic choice : Consumer behaviour and market forms.
3. Investment decisions and determination of income and employment. Macro-economic models of income, distribution and growth.
4. Banking, Objectives and instruments of Central Banking and Credit policies in a planned developing economy.
5. Types of taxes and their impacts on the economy. The impacts of the size and the content of budgets. Objectives and instruments of budgetary and fiscal policy in a planned developing economy.
6. International trade. Tariffs. The rate of exchange. The balance of payment. International monetary and banking institutions.

PAPER - II

1. The Indian Economy: Guiding principles of Indian economic policy - Planned growth and distributive justices - Eradication of poverty. The institutional framework of the Indian economy. Federal government structure - Agriculture and industrial sectors - Public and private sectors. National income - its sectoral and regional distribution. Extent and incidence of poverty.
2. Agriculture Production: Agriculture Policy : Land Reforms, Technological change, Relationship with the Industrial Sector.
3. Industrial Production: Industrial Policy; Public and private sector, Regional distribution, Control of monopolies and monopolistic practices.
4. Pricing Policies for agricultural and industrial outputs. Procurement and Public Distribution.
5. Budgetary trends and fiscal policy.
6. Monetary and credit trends and policy - Banking and other financial institutions.
7. Foreign trade and the balance of payments.
8. Indian Planning : Objectives, strategy, experience and problems.

EDUCATION

PAPER - I HUMAN DEVELOPMENT AND EDUCATION

1. *Education and Psychology* : Nature, Scope and Relationship between Education & Psychology; role of Educational Psychology in the field of Education.
2. *Growth and Development* : Meaning of Growth Development and Maturation, Principles of Growth and Development and their Educational Implications; Physical, Emotional, Social, Language and Intellectual Development at various stages with special emphasis on Adolescence period; Piaget's Stages of Cognitive Development.
3. *Intelligence and Creativity* : Meaning and Nature of Intelligence and Creativity. Spearman's and Thurstone's theories of intelligence; role of Education in the development of creativity.
4. *Equality of Educational Opportunities* : Policy measures and status, Education as an instrument of social change and modernization; Role of Education in value development.
5. *Learning and Motivation* : Nature of Learning and Motivation; Learning theories of Pavlov, Skinner and Tolman; Transfer of Learning; Role of Motivation in Learning.

6. *Personality and Mental Health* : Concepts of Personality and Mental Health, Types and Trait approaches to personality; Techniques of personality assessment; Adjustment Mechanisms, Role of Guidance and counseling in the improvement Mechanism, Role of Guidance and Counselling in the improvement and Maladjustment.

PAPER - II EDUCATIONAL THOUGHT AND SYSTEMS

1. Legal and Constitutional provision of Education, Role of local bodies, State and Centre in providing education.
2. Contribution to Education of Dewey, Gandhi, Tagore and Montessori.
3. Modern Trends and practices in Education, Educational Technology and Mass Media, International Cooperation in Education, Distance Education and Open Learning System, Environmental Education; National Literacy Mission (NLM).
4. Need and importance of Educational Aims; Immediate and Ultimate aims of Education, Process of Educational Planning, Budgeting, Accounting and Auditing in Education.
5. (a) Objectives and curriculum, organizational set-up, finance and resources mobilization recommended by –
 - (i) Kothari Commission (1964-66)
 - (ii) New Educational Policy (1986) and its revised version (1992)
- (b) (i) School without burden (Yash Pal Committee)
- (ii) Education for all (Delhi summit)
- (c) Education in the North – East with special reference to –
 - (i) Special Cultural and Organizational features of tribal communities.
 - (ii) Problems and Issues.
 - (iii) Role of Education in the modernization of Tribal Communities.

ENGLISH ELECTIVE

PAPER - I : 100 Marks

A detailed literacy study of the Victorian era with special reference to the works of the following writers :

- | | |
|-------------------------|--------------------|
| 1. Alfred Lord Tennyson | 2. Robert Browning |
| 3. Matthew Arnold | 4. Rossetti |
| 5. Swinburne | 6. Thackeray |
| 7. George Eliot | 8. Thomas Hardy |
| 9. John Ruskin | 10. Thomas |
| 11. John Stuart Mill | 12. Walter Pater |

PAPER - II : 100 Marks

First – hand reading of the following texts to test critical ability :

1. Shakespeare
 - Twelfth Night
 - King Lear
 - The Tempest

- | | | |
|--------------------|---|--------------------------|
| 2. Milton | - | Samson Agonistes |
| 3. Jane Austen | - | Pride and Prejudice |
| 4. Wordsworth | - | Lyrical Ballads |
| 5. Charles Dickens | - | Oliver Twist |
| 6. George Eliot | - | Adam Bede |
| 7. Thomas Hardy | - | The Return of the Native |
| 8. Yeats | - | Easter 1916 |
| | | Sailing to Byzantium |
| | | The Tower |
| | | The Winding Stair |
| 9. T.S. Eliot | - | The Wasteland |
| 10. D.H. Lawrence | - | Sons and Lovers |

GEOGRAPHY
PAPER – I PRINCIPLES OF GEOGRAPHY

Section A : Physical Geography :

1. Geomorphology - Origin and evolution of the earth's crust, earth movements and plate tectonics volcanism; rocks; weathering and erosion; cycle of erosion – Davis and Penck fluvial, glacial and marine and karst landforms; rejuvenated and polycyclic land – forms.
2. Climatology – The atmosphere, its structure and composition, temperature, humidity, precipitation pressure and winds; jet stream, air masses and fronts; cyclones and related phenomena; climatic classification : Koppen and Thornthwaite; groundwater and hydrological cycle.
3. Soils and Vegetation - Soil genesis, classification and distribution; Biotic successions and major biotic regions of the world with special reference to ecological aspects of savanna and monsoon forest biomes.
4. Oceanography – Ocean bottom relief; salinity, currents and tides; ocean deposits and coral reef, marine resource-biotic mineral and energy resources and their utilization.
5. Ecosystem - Ecosystem concept, interrelations of energy flows, water circulation, geomorphic processes, biotic communities and soils, land capability; Man's impact on the ecosystem, global ecological imbalances.

Section B : Human and Economic Geography :

1. Development of Geographical thought – Contributions of European and Arab Geographers. Determinism and Possibilism; regional concept, system approach, models and theory, quantitative and behavioural revolutions in geography.
2. Human Geography – emergence of man and races of mankind; cultural evolution of man, Major Cultural relays of the world; international migrations, past and present, world population distribution and growth; demographic transition and world population problems.
3. Settlement Geography – Concepts of rural and urban settlements; Origin of urbanization, Rural settlement pattern, central place theory, ranksize and primate city distributions; city classifications; urban spheres of influence and the rural urban fringe; the internal structure of cities – theories and cross culture comparisons, problems of urban growth in the world.
4. Political Geography – Concepts of nation and state, frontier boundaries and buffer zones; concept of heartland and rainland; federalism; political regions of the world; world geopolitics; resources, development and international politics.
5. Economic Geography – World economic development measurement and problems; world resources, their distribution and global problems; world energy crisis, the limits to growth; world agriculture – typology and world agricultural regions theory of agricultural location; diffusion of innovation and agricultural efficiency; world food and nutrition problems; world industry – theory of location of industries, world industrial patterns and problems, world of trade – theory and world patterns.

PAPER – II GEOGRAPHY OF INDIA

Physical Aspects – Geological history, physiography and drainage systems, origin and mechanism of the Indian Monsoon, identification and distribution of drought and flood prone areas, soils and vegetation, land capability, schemes of natural physiographic drainage and climate regionalism.

Human Aspects – Genesis ethnic/racial diversities; tribal areas and their problems and role of language, religion and culture in the formation of regions; historical perspectives and unity and diversity; population distribution, density and growth, population problems and policies, Resources conservation and utilization of land mineral, water, biotic and marine resources, man and environment – ecological problems and their management.

Agriculture – The infrastructure irrigation, power fertilizers and seeds; institutional factors land holdings, tenure, consolidation and land reforms; agricultural efficiency and productivity, intensity of cropping, crop combinations and agricultural regionalization, green revolution, dry-zone agriculture and agricultural land use policy; food and nutrition; rural economy, animal husbandry, social forestry and household industry.

Industry – History of industrial development factors of localization; study of mineral based, agro-based and forest based industries, industrial decentralization and industrial policy; industrial complexes and industrial regionalization, identification of backward areas and rural industrialization.

Transport and Trade – Study of the network of roadways, railways, airways and waterways, competition and complementarily in regional context; passenger and commodity flow, intra and interregional trade and the role of rural market centres.

Settlements - Rural settlement patterns; urban development in India; Census concepts of urban areas, functional and their archaic patterns of Indian cities, city regions and the rural urban fringe; internal

structure of Indian cities; town planning slums and urban housing; national urbanization policy.

Regional Development and Planning – Regional policies in Indian Five Years Plan; experience of regional planning in India, multi-level planning state, district and block level planning. Centre State relations and the Constitutional framework for multi-level planning. Regionalization for planning for metropolitan regions; tribal and hill areas, drought prone areas, command areas and river basins; regional disparities in development in India.

Political Aspects – Geographical basis of Indian federalism, state reorganization; regional consciousness and national integration; the international boundary of India and related issues; India and geopolitics of the Indian Ocean areas.

HISTORY

PAPER – I

SECTION – A : HISTORY OF INDIA (Down to A.D. 750)

1. The Indus Civilization : Origins, Extent; Characteristic features; Major Cities. Trade and contacts, causes of decline, survival and continuity.
2. The Vedic Age : Vedic Literature Geographical area known to Vedic Texts. Differences and similarities between Indus Civilization and Vedic Culture, Political, Social and Economic patterns, Major Religious ideas and rituals.
3. The Pre-Maurya Period : Religious movements (Jainism, Buddhism and other sects). Social and Economic Conditions Republic and growth of Magadha Imperialism.
4. The Maurya Empire : Sources, rise, extent and fall of the empire, Administration, Social Economic Conditions, Ashoka's Policy and Reforms, Art.
5. The Post-Maurya Period (200 BC – 300 AD): Principal dynasties in Northern and Southern India, Economy and Society : Sanskrit, Prakrit and Tamil Religion (Rise of Mahavana and their stick cults). Art (Gandhara, Mathura and other schools). Contacts with Central Asia.
6. The Gupta Age : Rise and fall of the Gupta Empire, the Vakatas, Administration, Society, Economy, Literature, Art and Religion. Contacts with South East Asia.
7. The Post-Gupta Period (BC 500-750) : Pushyabhytis, the Mukharis. The later Guptas. Harshavardhana and his times. Chalukyas of Badami. The Pallavas, Society, Administration and Art. The Arab conquest.
8. General review of Science and Technology, Education and Learning.

SECTION – B : MEDIEVAL INDIA (750 AD TO 1765 AD)

INDIA : 750 A.D. TO 1200 A.D.

1. Political and Social conditions, the Rajputs – their Polity and social structure, land structure and its impact on society.
2. Trade and commerce.
3. Art, Religion and Philosophy, Sankaracharya.
4. Maritime Activities; contacts with the Arabs, Mutual, Cultural impacts. Rashtrakutas, their role in History-Contribution to Art and Culture. The Chola Empire Local self-government, features of the Indian Village System; Society, Economy, Art and Learning in the South.
5. Indian Society on the eve of Mahmud of Ghazni's Campaigns; Al-Biruni's Observations.
INDIA : 1200-1765

6. Foundation of the Delhi Sultanate in Northern India; causes and circumstances; its impact on the Indian Society.
7. Khilji Imperialism, significance and Implications, Administrative and economic regulations and their impact on State and the People.
8. New Orientation of State Policies and Administrative Principles under Muhammad bin Tughlag; Religious Policy and Public Works of Firoz Shah.
9. Disintegration of the Delhi Sultanate : Causes and its effects on the Indian Polity and Society.
10. Nature and character of State : Political ideas and institutions. Agrarian structure and relations, growth of Urban Centres, Trade and Commerce, Conditions of artisans and peasants, new Crafts, Industry and Technology. Indian Medicines.
11. Influence of Islam on Indian Culture : Muslim mystic movements, nature and significance of Bhakti saints, Maharashtra Dharma, role of the Vaisnave revivalist Movement; Social and Religious Significance of the Chaitanya Movement, impact of Hindu Society on Muslim Social Life.
12. The Vijayanagar Empire: Its origin and growth; contribution to art; literature and culture, social and economic conditions, system of administration; break-up of the Vijayanagar Empire.
13. Sources of History : Important Chronicles, Inscriptions and Travellers' Accounts.
14. Establishment of Mughal empire in Northern India : Political and social conditions in Hindustan on the eve of Babur's invasion; Babur and Humayun. Establishment of the Portuguese control in the Indian Ocean, its political and economic consequences.
15. Sur Administration, political, revenue and military administration.
16. Expansion of the Mughal Empire under Akbar : political unification; new concept of monarchy under Akbar; Akbar's religio-political outlook; Relations with the non-Muslim.
17. Growth of regional languages and literature during the medieval period. Development of art and architecture.
18. Political ideas and institutions; Nature of the Mughal State, Land Revenue Administration; The Mansabdari and the jagirdari systems, the land structure and the role of Zamindars, agrarian relations, the military organization.
19. Aurangzeb's religious policy, expansion of the Mughal empire in Deccan; Revolts of Aurangzeb - character and consequences.
20. Growth of urban centres; industrial; economy-urban and rural : Foreign Trade and Commerce. The Mughals and the European trading companies.
21. Hindi Muslim relation; trend of integration; composite culture (16th to 18th centuries).
22. Rise of Shivaji : his conflict with the Mughals, administration of Shivaji: expansion of the Maratha power under the Peshwas (1707-1761). Maratha political structure under the first three Peshwas, Chauth and Sardeshmukhi, Third Battle of Panipat, cause and effects, emergence of the Maratha confederacy, its structure and role.
23. Disintegration of the Mughal empire, emergence of the new Rajput States.

PAPER - II

SECTION - A : MODERN INDIA (1757 - 1947)

1. Historical forces and Factors which led to the British conquest of India with special references to Bengal, Maharashtra and Sind : Resistance of Indian powers and causes of their failure.
2. Evolution of British Paramountcy over princely States.
3. Stages of colonialism and changes in Administrative and policies. Revenue, Judicial and Social and Educational and their linkages with British colonial interests.
4. British economic policies and their impact. Commercialization of agriculture, Rural indebtedness, Growth of Agriculture Labour, Destruction of handicraft industries, Drain of Wealth, Growth of modern industry and rise of a capitalist class. Activities of the Christian Missions.
5. Efforts at regeneration of Indian society - Socio - religious movements, social, religious, political and economic ideas of the reformers and their vision of future, nature and limitation of 19th century "Renaissance", caste movements in general with special reference to South India and Maharashtra, tribal revolts, specially in Central and Eastern India.
6. Civil rebellions, Revolt of 1857, Civil Rebellions and peasant Revolts with special reference to Indigo revolt, Deccan riots and Mappila Uprising.
7. Rise and Growth of Indian National Movement. Social basis of Indian nationalism policies. Programme of the early nationalists and militant nationalists, militant revolutionary group terrorists. Rise and Growth of communalism. Emergence of Gandhiji in Indian Politics and his techniques of mass mobilization : Non-cooperation, Civil Disobedience and Quit India Movement; Trade Union and peasant movements State(s) people movements. Rise and growth of Left-wing within the Congress Socialists and communists; British official response to national Movement Attitude of the Congress to Constitutional changes 1909-1935. Indian National Army, Naval mutiny of 1946. The partition of India and Achievement of Freedom.

SECTION - B : WORLD HISTORY (1500 - 1950)

- A. Geographical discoveries - decline of feudalism, Beginning of Capitalism. Renaissance and Reformation in Europe. The new absolute monarchies - Emergence of the Nation State. Commercial Revolution in Western Europe Mercantilism. Growth of Parliamentary institutions in England. The Thirty Year's War. Its significance in European History, ascendance of France.
- B. The emergence of a scientific view of the world. The age of Enlightenment. The American revolution - its significance. The French Revolution and Napoleonic Era (1789-1815). Its significance in World History. The growth of liberalism and democracy in Western Europe (1815-1914). Scientific and Technological background to the Industrial revolution - Stages of the Industrial Revolution in Europe. Socialist and Labour Movements in Europe.
- C. Consolidation of large Nation States. The Unification of Italy. The founding of the German Empire. The American Civil War. Colonialism and imperialism in Asia and Africa in the 19th and 20th Centuries. China and the Western Powers. Modernisation of Japan and its emergence as a great power. The European Powers and the Ottoman Empire (1815-1914); the First World War - The Economic and social impact of the War - The Peace of Paris 1919.
- D. The Russian Revolution, 1917 economic and social reconstruction in Soviet Union; rise of Nationalist Movements in Indonesia, China and Indo-China. Rise and establishment of Communism

in China. Awakening in the Arab World. Struggle for freedom and reform in Egypt - Emergence of Modern Turkey under Kemal Atatürk. The rise of Arab nationalism. World Depression of 1929-32. The New Deal of Franklin D. Roosevelt. Totalitarianism in Europe - Fascism in Italy, Nazism in Germany. Rise of Militarism in Japan. Origins and impact of Second World War.

LAW PAPER - I

I. CONSTITUTIONAL LAW OF INDIA

1. Nature of the Indian Constitution : The distinctive features and its federal character.
2. Foundational Rights: Directive Principles and their relationship with Fundamental rights : Fundamental Duties.
3. Right to Equality.
4. Right to Freedom of Speech and Expression.
5. Right to Life and Personal Liberty.
6. Religious, Cultural and Educational Rights.
7. Constitutional position of the President and relationship with Council of Ministers.
8. Governor and his powers.
9. Supreme Court and High Courts, their power and jurisdiction.
10. Union Public Service Commission and State Public Service Commission : Their powers and functions.
11. Principles of Natural Justice.
12. Distribution of Legislative powers between the Union and the States.
13. Delegated Legislation : its constitutionality, judicial and legislative controls.
14. Administrative and financial relations between the Union and the State.
15. Trade, Commerce and Inter-course in India.
16. Emergency provisions.
17. Constitutional safeguards to Civil Servants.
18. Parliamentary privileges and immunities.
19. Amendment of the Constitution.

II. INTERNATIONAL LAW

1. Nature of International Law.
2. Source : Treaty Customs. General principles of Law recognized by civilized nations, subsidiary means for the determination of law, Resolution of International organs and regulations of specialized Agencies.
3. Relationship between International Law and Municipal Law.
4. State Recognition and State Succession.
5. Territory of States : modes of acquisition, boundaries, International Rivers.
6. Sea : Inland Waters, Territorial Sea, Contiguous Zone, Continental Shelf, Exclusive Economic Zone and Ocean beyond national jurisdiction.
7. Air - space and aerial navigation.

8. Outer space : Exploration and use of Outer Space.
9. Individuals, nationality, statelessness, Human rights and procedures available for their enforcement.
10. Jurisdiction of State : basis of jurisdiction, immunity from jurisdiction.
11. Extradition and Asylum.
12. Diplomatic Missions and Consular Posts.
13. Treaties : Formation, application and termination.
14. State responsibility.
15. United Nations : Its principal organs, powers and functions.
16. Peaceful settlement of disputes.
17. Lawful resource to force, aggression, self-defence, intervention.
18. Legality of the use of nuclear weapons : ban on testing of nuclear weapons, Nuclear Non-Proliferation Treaty.

PAPER - II

I LAW OF CRIMES AND TORTS :

Law of Crimes

1. Concepts of Crimes; actus reus mens rea in statutory offences, punishments, mandatory sentences, preparation and attempt.
2. Indian Penal Code :
 - a) Application of the Code
 - b) General exceptions
 - c) Joint and constructive liability
 - d) Abetment
 - e) Criminal conspiracy
 - f) Offences against the State
 - g) Offences against Public tranquility
 - h) Offences by or relating to public servants.
 - i) Offences against human body
 - j) Offences against property
 - k) Offences relating to marriage : Cruelty by husband or his relatives to wife
 - l) Defamation
3. Protection of Civil Rights Act, 1955.
4. Dowry Prohibition Act, 1961.
5. Prevention of food Adulteration Act, 1954.

Law of Torts

1. Nature of tortious liability.
2. Liability based upon fault and strict liability.
3. Statutory liability.

4. Vicarious liability
5. Joint Tort - feasons.
6. Remedies.
7. Negligence.
8. Occupier's liability and liability in respect of structures.
9. Detenue and conversion.
10. Defamation.
11. Nuisance.
12. Conspiracy.
13. False imprisonment and malicious prosecution.

II. LAW OF CONTRACTS AND MERCANTILE LAW

1. Formation of contract.
2. Factors vitiating consent.
3. Void, voidable, illegal and unenforceable agreements.
4. Performance of contracts.
5. Dissolution of contractual obligations, frustration of contracts.
6. Quasi - Contract.
7. Remedies for breach of contract.
8. Sale of goods and hire purchase.
9. Agency.
10. Formation and dissolution of Partnership.
11. Negotiable Instruments.
12. The Banker - Customer relationship.
13. Government control over private Companies.
14. The Monopolies and Restrictive Trade Practices Act, 1969.
15. The Consumer Protection Act, 1986.

MIZO ELECTIVE PAPER - I

1. Mizo Elective Paper - I Part - A - Poetry carries 60 marks. This will be a brief introduction to the critical study of Mizo poetry from Pre - British period to the present day.
2. The Second part of this paper will be Part B - Drama and carries 40 marks. There are two dramas one of which is Mizo origin and the other one is translation. This part of the paper requires the students to learn characteristics of drama with special reference to the two dramas.

MIZO ELECTIVE PAPER - II

The second paper namely, A - Prose and B - Fiction will be critic Prose and Fiction of Mizo origin.

MIZO ELECTIVE PAPER - I

Paper - 1	100 marks
A - Poetry	60 marks
B - Drama	40 marks

POETRY

- (a) Kum 1900 hma lam hlate -
- 1) Salulam Zai - chang 5
 - 2) Chawngchen Zai - chang 5
 - 3) Chai Hla - chang 5
 - 4) Laltheri Zai - chang 5
 - 5) Saikuti Zai - chang 5
 - 6) Hrangchhawni Zai - chang 5
 - 7) Awithangpa Zai - chang 5
- (b) Kum 1900 - 1920 chhung hlate -
- 1) Tlangthim chhak lam kei ka en ang - Zosaphluia (D.E. Jones)
 - 2) Thlalerka ka vahvaih chhung hian - Liangkhaia
 - 3) Ka lungchhia hi man pek kha hria in - Zosaphara (E. Rowlands)
- (c) Kum 1920 - 1940 chhung hlate -
- 1) Pialral ka ngai - chang 5
 - 2) Lei lal puan ropui - C.Z. Huala
 - 3) Tlang a dang lung a leng - Saihnuna
- (d) Kum 1940 - 1965 chhung hlate -
- 1) Ramthar Zai - chang 5
 - 2) Chunnu lungmawl ka di Parte - (Kaihlek hla)
 - 3) Hmangaihna - Vankhama
 - 4) Leng dun ila - Lalzuithanga
 - 5) Vanhnuai khuavel sakhming chhiarin - Rokunga
- (e) Kum 1965 hnu lam hlate -
- 1) Kan hun tawng zingah - Suakliana
 - 2) Ka pianna Zawikhawpui - Rokunga
 - 3) Ram ngaih hla - F. Rokima
 - 4) Tho la, ding ta che - V. Thangzama

DRAMA/LEMCHAN

- 1) Liandova te Unau - Lalthangfala Sailo
- 2) Doctor Faustus - Christopher Marlowe

TEXT/BOOK

- | | | |
|---|---|----------------------|
| 1) Rimawi Ram (Compiled & Edited by Lalthangfala Sailo for {CTBEB}) | - | |
| 2) Doctor Faustus | - | Lettu C. Laltlankima |
| 3) Liandova te Unau | - | Lalthangfala Sailo |

MIZO ELECTIVE PAPER - II

Paper - II	100 marks
A - Prose	60 marks
B - Fiction	40 marks

PROSE/THU

- | | | |
|------------------------------------|---|--------------------|
| 1) Thlirtu | - | Kaphleia |
| 2) Zofaten kawng kan bo ve | - | Zikpuii Pa |
| 3) Harsatna | - | J. Malsawma |
| 4) Rihdil leh Mizoram | - | Siamkima Khawlhing |
| 5) Huaisen | - | Darchhawna |
| 6) Khuai lui ral | - | Lalzuia Colney |
| 7) Mizo tlawmngaihna a sir leh lam | - | Sangzuala Pa |

FICTION/THAWNTHU PHUAH

- | | | |
|---------------------------|---|---------------|
| 1) Sialton Official | - | C. Thuamluaia |
| 2) Phira leh Ngurthanpari | - | Lalzuithanga |
| 3) Pangpar bawm (lehlín) | - | Rokhuma, Rev. |

PHILOSOPHY**PAPER - I*****Metaphysics and Epistemology***

Candidates will be expected to be familiar with theories and types of epistemology and Metaphysics - Indian and Western - with special reference to the following :-

- (a) Western-Idealism, Realism, Absolutism, Empiricism, Rationalism, Logical Positivism; Analysis; Phenomenology; Existentialism and Pragmatism.
- (b) Indian-Paramans and Paramanys; Theories of truth and error; Philosophy of language of meaning; Theories of reality with reference to main system (Orthodox and Heterodox) of Philosophy.

PAPER - II

Socio - Political Philosophy and Philosophy and Religion

1. Nature of Philosophy - its relation to life, thought and culture.
2. The following topics with special reference to the Indian context including Indian Constitution - Political Ideologies : Democracy, Socialism, Facism, Theocracy, Communism and Sarvodaya. Methods of Political Action : Constitutionalism, Revolution, Terrorism and Satyagraha.
3. Tradition, change and Modernity with special reference to Indian Social Institution.
4. Philosophy of Religious language and meaning.
5. Nature and scope of Philosophy of Religion, Philosophy of Religion, with special reference to Buddhism, Jainism, Hinduism, Islam, Christianity and Sikhism.
 - (a) Theology and Philosophy of Religion.
 - (b) Foundation of religious belief, reason, revelation, faith and mysticism.
 - (c) God, Immorality of Soul, Liberation and Problem of Evil and Sin.
6. Moksha - Paths leading to Moksha.

POLITICAL SCIENCE AND INTERNATIONAL RELATIONS

PAPER - I

SECTION - A

Political Theory

1. Main features of ancient Indian Political thought : Manu and Kautilya; Ancient Greek thought, Plato, Aristotle; General characteristics of European Medieval political thought; St. Thomas Aquinas, Marsiglio of Padua; Machiavelli; Hobbes, Locke, Montesquieu, Rousseau, Bentham, J.S. Mill, T.H. Green, Hegel, Marx, Lenin and Mao-tse-Tung.
2. Nature and scope of Political Science, Growth of Political Science as a discipline, Traditional vs Contemporary approaches; Behaviourism and post behavioural developments; Systems theory and other recent approaches to political analysis, Marxist approach to political analysis.
3. The emergence and nature of the modern State : Sovereignty; Monistic and Pluralistic analysis of sovereignty; Power, Authority and Legitimacy.
4. Political Obligation : Resistance and Revolution; Rights, Liberty, Equality, Justice.
5. Theory of Democracy.
6. Liberalism, Evolutionary Socialism (Democratic and Fabian): Marxian Socialism; Fascism.

SECTION - B

Government and Politics with special reference to India

1. Approaches to the study of Comparative Politics: Traditional, Structural, Functional approach.
2. Political Institution : The Legislature, Executive and Judiciary; Parties and Pressure Groups; Theories of Party System; Lenin, Michels and Duverger; Electoral system, Bureaucracy - Weber's view and modern critique of Weber.
3. Political Process : Political Socialization, modernization and communication; the nature of the non - western political process; A general study of the constitutional and political problems affecting Afro - Asian societies.
4. Indian Political System :

(a) The Roots : Colonialism and nationalism in India; A general study of modern Indian social and political thought; Raja Ram Mohan Roy, Dadabhai Nauroji, Gokhale, Tilak, Sri Aurobindo, Iqbal, Jinnah, Gandhi, B.R. Ambedkar, M.N. Roy and Nehru.

(b) The Structure : Indian Constitution, Fundamental Rights and Directive Principles, Union Government, Parliament, Cabinet, Supreme Court and Judicial Review, Indian Federalism, Centre State relations, State Government, Role of the Governor, Panchayati Raj.

(c) The Functioning : Class and Caste in Indian Politics, politics of regionalism, linguism and communalism, Problems of secularization of the policy and national integration. Political elites, the changing composition; Political parties and political participation; Planning and Developmental Administration; Socio-economic changes and its impact on Indian democracy.

PAPER - II

PART - I

1. The nature and functioning of the sovereign nation state system.
2. Concepts of International Politics : Power, National Interest; Balance of Power, "Power Vacuum".
3. Theories of International Politics : The Realist theory; Systems theory; Decision making.
4. Determinants of foreign policy : National Interest, Ideology, elements of National Power (including nature of domestic socio - political institution).
5. Foreign Policy Choices : Imperialism, balance of Power; Allegiances; Isolationism; Nationalistic Universalism (Pax Britannica, Pax Americana, Pax Sovietica) : The "Middle Kingdom" Complex of China; Non - alignment.
6. The Cold War : Origin, evaluation and its impact on international relations : Defence and its impact; a new Cold War?
7. Non-alignment : Meaning, Bases (National and International) the non - aligned movement and its role in international relations.
8. De-colonization and expansion of the international community : Neo-colonialism and racialism their impact on international relations : Asian - African resurgence.
9. The present international economic order Aid, trade and economic development. The struggle for the New International Economic Order; Sovereignty over natural resources; the crisis in energy resources.
10. The Role and international law in international relations : The International Court of Justice.
11. Origin and Development of International Organizations : The United Nations and Specialized Agencies, their roles in international relations.
12. Regional Organization : OAS, OAU, the Arab League, the ASEAN, the EEC, their role in international relations.
13. Arms race disarmament and arms control : Conventional and nuclear arms, the Arms Trade, its impact on Third World role in international relations.
14. Diplomatic theory and practice.
15. External intervention : ideological, political and economic, "Culture imperialism" covert intervention by the major powers.

PART - II

1. The uses and misuses of nuclear energy; the impact of nuclear weapons in international relations, the Partial Test - ban Treaty; the Nuclear Non-Proliferations.
2. The problems and prospects of the Indian Ocean being made a peace zone.
3. The conflict situation in West Asia.
4. The (Post War) foreign policies of the major powers : United States, Soviet Union, China.
5. The Third World in international relations : the North - South "Dialogue" in the United Nations and Outside.
6. The India's foreign policies and relations; India and the Super Powers : India and its neighbour, India and South - East - Asia; India and African problems; India's economic diplomacy, India and the question of nuclear weapons.

PSYCHOLOGY

PAPER - I

FOUNDATION OF PSYCHOLOGY

1. *The scope of Psychology :*
Place of Psychology in the family of social and behavioural sciences.
2. *Methods of Psychology :*
Methodological problems of psychology, General design of psychological research. Types of psychological research. The characteristic of psychological measurement.
3. *The nature, origin and development of human behaviour :*
Heredity and environment, Cultural factors and behaviour the process of Socialization. Concept of National Character.
4. *Cognitive Process :*
Perception, Theories of perception, perceptual organization, Person perception, perceptual defence. Transactional approach to perception, Perception and personality, Figural alter - effect, Perception styles, Perceptual abnormalities. Vigilance.
5. *Learning :*
Cognitive, Operant and Classical conditioning approaches. Learning phenomena : Extinction, Discrimination and Generalization. Discrimination learning, Probability learning, Programmed learning.
6. *Remembering :*
Theories of remembering. Short term memory, long term memory. Measurement of memory. Forgetting Reminiscence.
7. *Thinking :*
Problem solving concept formation. Strategies of concept formation, processing. Creative thinking, Convergent and Divergent thinking. Development of thinking of children theories.
8. *Intelligence :*
Nature of Intelligence. Theories of intelligence. Measurement of intelligence. Measurement of creativity, Aptitude Measurement of aptitudes. The concept of Social intelligence.
9. *Motivation :*
Characteristic of motivated behaviour. Approach to motivation. Psycho-analytic theory. Drive theory,

- Need Hierarchy theory. Vector valence approach. Concept of level aspiration. Measurement of Motivation. The apathetic and the alienated individual. Incentives.
10. *Personality :*
The concept of personality. Trait and type approaches. Factorial and dimensional approaches. Theories of personality : Freud, Allport, Murray, Cattell, Social learning theories and Field theory. The Indian approach to personality, the concept of Gunas. Measurement of personality; Questionnaires; Rating Scales; Psychometric Tests; Protective Tests; Observation Method.
 11. *Language and Communication :*
Psychological basis of language. Theories of language Development. Skinner and Chomsky. Non - verbal communication; Body language, Effective communication. Source and receiver characteristics. Persuasive Communications.
 12. *Attitude and Values :*
Structure of attitudes. Formation of attitudes. Theories of attitudes. Attitudes Measurement. Types of attitude scale. Theories of attitude change values. Types of values. Motivational properties of values. Measurement of values.
 13. *Recent trends :*
Psychology and the computer. Cybernetic model of behaviour. Stimulation studies in psychology. Study of consciousness. Altered states of consciousness. Sleep, dream, meditation and hypnotic trance : drug induced changes. Sensory human problems in aviation and spare flight.
 14. *Models of Man :*
The mechanical Man. The organic man. The Organisational man. The Humanistic Man. Implications of the different models for behaviour changes. An integrated model.

PART - II

PSYCHOLOGY : ISSUES AND APPLICATIONS

1. *Individual Differences*
Measurement of individual differences. Types of psychological tests. Construction of psychological tests. Characteristic of a good psychological test. Limitations of psychological tests.
2. *Psychological Disorders*
Classification of disorders and nosological systems. Neurotic, Psychotic and psychophysiologic disorders; Psychopathic personality. Theories of psychological disorders. The problems of anxiety, depression and stress.
3. *Therapeutic Approaches*
Psychodynamic approach. Behaviour therapy. Client-centred therapy. Cognitive therapy, Group therapy.
4. *Application of psychology to Organisational industrial problems*
Personal selection, Training, Work motivation. Theories of work motivation. Job designing. Leadership training. Participatory management.
5. *Small Group*
The concept of small group. Properties of groups, Group at work, theories of group behaviour, Measurement of group behaviour. Interaction process analysis. Interpersonal relations.

6. *Social Change*
Characteristic of social change, Psychological basis of change. Steps in the change process. Resistance to change. Factors contributing to resistance. Planning for change. The concept of change proneness.
7. *Psychology and the Learning processes*
The learner. School as an agent of socialization. Problems relating to adolescents learning situation. Gifted and retarded children and problems related to their training.
8. *Disadvantaged Groups*
Types : Social, cultural and economic, psychological consequences of disadvantage. Concept of deprivation. Educating the disadvantaged groups. Problems of motivating the disadvantaged groups.
9. *Psychology and Economic Development*
The problems of ethnic of prejudice. Nature and prejudice. Manifestation of prejudice. Development of prejudice. Measurement of prejudice. Amelioration of prejudice. Prejudice and personality. Step to achieve social integration.
10. *Psychology and Economic Development*
The nature of achievement motivation. Motivating people for achievement. Promotion of entrepreneurship. The entrepreneurship Syndrome. Technological change and its impact on human behaviour.
11. *Management of Information and Communication*, psychological factors in Information Management. Information overload. Psychological basis of effective Communication. Mass Media and their role in Social change. Impact of Television. Psychological basis of effective advertising.
12. *Problems of Contemporary Society*. Stress, Management Stress, Alcoholism and drug addiction. The Socially deviant. Juvenile Delinquency. Crime Rehabilitation of the deviant. The problem of the aged.

PUBLIC ADMINISTRATION

PAPER - I

ADMINISTRATIVE THEORY

- I. Basic Premises : Meaning, scope and significance of Public Administration; Private and Public Administration; its role in developed and developing societies; Ecology of administration, social, economic, cultural, political and legal; Evolution of Public Administration as an art and a science; New Public Administration.
- II. Theories of Organisation : Scientific management (Taylor and his Associates); The Bureaucratic theory of Organisation (Weber); Classical theory of organisation (Henri Fayol, Luther Gulic and others); The Human Relations Theory of Organisations (Elton Mayo and his Colleagues); Behaviour Approach, Systems Approach; Organisational Effectiveness.
- III. Principles of Organization - Hierarchy, Unity of Command : Authority and Responsibility. Co-ordination, span of Control, supervision, Centralization and Decentralization; Delegation.
- IV. Administrative Behaviour : Decision making with special reference to the contribution of Herbert Simon, theories of Leadership; Communication; Morale; Motivation (Maslow and Herzberg).
- V. Structure of Organization : Chief Executive, type of Chief Executives and their functions; line, staff and auxiliary agencies; Department; Corporations, Companies. Boards and Commissions. Headquarters and Field relationship.

- VI. Personnel Administration : Bureaucracy and Civil Services; position Classification; Recruitment; Training; Career Development; Performance Appraisal; Promotion, Pay and Service Conditions; Retirement Benefits; Discipline; Employer-Employee Relations, Integrity in Administration, Generalists and Specialists, Neutrality and Anonymity.
- VII. Financial Administration : Concept of Budget, Preparation and Execution of the Budget; Performance Budget; Legislative Control, Accounts and Audit.
- VIII. Accountability and Control : The concept of Accountability and Control; Legislative, Executive and Judicial Control over Administration, Citizen and Administration.
- IX. Administrative Reforms : O & M work study; Work Measurement, Administrative Reforms; Process and Obstacles.
- X. Administrative Law : Importance of Administrative Law; Delegated Legislation; Meaning, Types , Advantages. Limitations, Safeguards. Administrative Tribunals.
- XI. Comparative and Development Administration : Meaning, Nature and Scope, Comparative Public Administration, Contribution of Fred Riggs with particular reference to the Prismatic - Sale model. The concept, scope and significance of Development Administration. Political, Economic and Social Culture context of development Administration. The Concept of Administrative Development. XII. Public Policy : Relevance of Policy Making in Public Administration. The process of Policy formulation and implementation.

PAPER - II INDIAN ADMINISTRATION

- I. Evolution of Indian Administration - Kautilya; Mughal period; British period.
- II. Environmental Setting contribution, Parliamentary, Democracy, Federalism, Planning, Socialism.
- III. Political Executive at the Union Level - President, Prime Minister, Council of Ministers, Cabinet Committees.
- IV. Structure of Central Administration - Secretariat, Cabinet Secretariat, Ministries and Departments, Boards and Commission, Field Organisations.
- V. Centre - State Relations - Legislative, Administrative, Planning and Financial. VI. Public Services - All India Services, Central Services, State Services, Local Civil Services, Union and State Public Service Commission, Training of Civil services.
- VII. Machinery for Planning - Plan formulation at the National Level; National Development Council; Planning Commission; Planning Machinery at the State and Districts Levels.
- VIII. Public Undertakings - Forms, Management, Control and Problems.
- IX. Administration of Law and Order; role of Central and State agencies in maintenance of Law and Order.
- X. State Administration - Governor, Chief Ministers, Council of Ministers, Secretariat, Chief Secretary, Directorates.
- XI. District and Local Administration - Role and Importance, District Collector, Land Revenue, Law and Order and Development function, District Rural Development Agency, Special Development Programmes.
- XII. Local Administration - Panchayati Raj, Urban Local Government, Features, Forms, Problems, Autonomy of Local Bodies.
- XIII. Administration for Welfare - Administration for the welfare of Weaker Sections with particular

reference to Scheduled Castes, Scheduled Tribes and Programmes for the Welfare of Women.

- XIV. Issues of Areas in Indian Administration - Relationship between Political and Permanent Executives, Generalists and Specialists in Administration, Integrity in Administration, People's participation in Administration, Redressal of Citizens Grievances; Lok Pal and Lok Ayuktas, Administrative Reforms in India.

SOCIOLOGY
PAPER - I
GENERAL SOCIOLOGY

Scientific study of Social phenomena : The emergence of Sociology and its relationship with other disciplines, science and social behaviour, the problems of objectivity, the scientific method and design of sociological research, techniques of data collection and measurement including participant and non - participant observation, interview schedule and questionnaires and measurement of attitudes.

Pioneering contribution of sociology : The seminal ideas of Durkheim, Weber, Radcliffe Brown, Malinowski, Parsons, Merton and Marx - historical materialism, alienation, class and class struggle, Durkheim - division of labour, social fact, religion and society, Weber - social action, types of authority, bureaucracy, rationality, Protestant ethics and the spirit of capitalism, ideal types.

The individual society : Individual behaviour, social interaction, society and social group, social system, status and role, culture, personality and socialization, conformity, deviance and social control, role conflict.

Social Stratification and mobility : Inequality and Stratification, different conceptions at class, theories of Stratification, caste and class, class and society, types of mobility, intergenerational mobility, open and closed models of mobility.

Family, Marriage and Kinship : Structures and functions of family, structural principles of kinship, family, descent and kinship, change in society, change in age and sex rates and change in marriage and family, marriage and divorce.

Formal organizations : Elements of formal and informal structures, bureaucracy, modes of participation - democratic and authoritarian forms, voluntary associations.

Economic System : Property concepts, social dimensions of division of Labour and types of exchange, social aspects of pre - industrial and industrial economic system, industrialization and changes in the political, educational, religious, familiar and stratificational spheres, social determinants and consequences of economic development.

Political system : The nature of social power-community power structure, power of the elite, class power, organization power, power of unorganized masses; power, authority and legitimacy; power in democracy and in totalitarian society; political parties and voting.

Educational system : Social origins and orientation of students and teachers, equality of educational opportunity, education as a medium of cultural reproduction, indiscriminate, social stratification and mobility, education and modernization.

Social change and development : Social structure and social change, continuity and change as fact and as value; process of change, theories of change; social disorganization and social movements; types of social movements, direct and social change, social polity and social development.

PART - II
SOCIETY OF INDIA

Historical meanings of the Indian Society : Traditional Hindu social organization, socio cultural dynamics through the ages, especially the impact of Buddhism, Islam and the modern West, factors in continuity and change.

Social Stratification : Caste system and its transformation aspects of ritual, economic and caste status, cultural and structural views about caste, mobility in caste, issue of equality and social justice and caste among the Hindus and the non - Hindus, casteism, the Backward Classes and the Scheduled Caste, untouchability and its eradication, agrarian and industrial class structure.

Family marriage and kinship, regional variation in kinship systems and its socio-cultural correlates, changing aspects of kinship, the joint family - its structural and functional aspects and its changing form and disorganization, marriage among different ethnic groups and economic categories, its changing trend and its future; impact of legislation and socioeconomic change upon family and marriage, inter-generation gap and youth unrest, changing status of women.

Economic system : The jajmani system and its bearing on the traditional society, market economy and its social consequences, occupational diversification and social structure profession trade unions, social determinants and consequences of economic development, economic inequalities, exploitation, corruption.

Political system : The functioning of the democratic political system in a traditional society, political parties and their social composition, social structure origins of political elites and their social orientations, decentralization of power and political participation.

Educational system : Education and the society in the traditional and the modern context, educational inequality and change, education and social mobility, educational problems of women, the backward classes and scheduled castes.

Religion : Demographic dimensions, geographical distribution and neighbourhood living patterns of major religious categories, inter - religious interaction and its manifestation in the problems of conversion, minority status and communalism, secularism.

Tribal, Society and their integrations : Distinctive features of tribal communities, tribes and caste, acculturation and integration.

Rural Social system and community development : Socio-cultural dimensions of the village community, traditional power structure, democratization and leadership, poverty, indebtedness and bonded labour, social-consequences of land reforms, community development programme and other planned development projects and Green Revolution, New strategies of rural development.

Urban social organisation : Continuity and change in the traditional cases of social organization, namely, kinship, caste and religion in the urban context, stratification and mobility in urban communities, ethnic diversity and community integration, urban neighbourhood, rural - urban differences in demographic and socio-cultural characteristics and their social consequences.

Population dynamics : Socio-cultural aspects of sex and age structure, marital status, fertility and morality, the problem of population explosion, social, psychological, cultural and economic factors in the adoption of family planning practices.

Social change and modernization : Problems of Role conflict - Youth unrest - intergenerational gap,

changing Status of Women, Major sources of social changes and resistance to change, impact of West, reform movement, social movements, industrialization and urbanization, pressure groups. Factors of planned change - Five Year Plans legislative and executive measures, process of change - sanskritization, westernization and modernization. Means of modernization - mass media and education, problem of change and modernization - structural contradictions and breakdowns.

Current social Evils : Corruption and nepotism - Smuggling - Black Money.

CIVIL ENGINEERING

PAPER - I

PART - A

ENGINEERING MECHANICS, STRENGTH OF MATERIAL AND STRUCTURAL ANALYSIS

ENGINEERING MECHANICS

Units and Dimensions. SI Units, Vectors, Concepts of Force, Concepts of particle and rigid body. Concurrent, non-concurrent and parallel forces in a plane, moment of force and Varignon's theorem, free body diagram, conditions of equilibrium, principle of virtual work, equivalent force system. First and second moment of area, mass moment of Inertia, Static friction, Inclined Plane and bearings, Kinematics and Kinetics, Kinematics in Cartesian and Polar co-ordinates, motion under uniform and non-uniform acceleration, motion under gravity, Kinetics of particle : Momentum and energy principles, 'D' Alembert's Principle, Collision of elastic bodies, rotation of rigid bodies, simple harmonic motion, Flywheel.

STRENGTH OF MATERIALS

Simple Stress and Strain, Elastic constants, axially loaded compression members, Shear force and bending moment, theory of simple bending, Shear Stress distribution across cross sections, Beams of uniform strength, leaf spring. Strain energy in direct stress, bending & shear. Deflection of beams : Macaulay's method, Mohr's moment area method. Conjugate beam method, unit load method. Torsion of Shafts. Transmission of power, close coiled helical springs, Elastic stability of columns, Euler's, Rankine's and Secant formulae. Principal Stresses and Strains in two dimensions, Mohr's Circle, Theories of Elastic Failure, Thin and Thick cylinder : Stresses due to internal and external pressure - Lamé's equations.

STRUCTURAL ANALYSIS

Castigliano's theorem I and II, unit load method of consistent deformation applied to beams and pin joined trusses. Slope - deflection, moment distribution, Kani's method of analysis and column Analogy method applied to indeterminate beams and rigid frames. Rolling loads and influences lines, influences lines for Shear Force and Bending moment at a section of beam. Criteria for maximum shear force and bending moment in beams traversed by a system of moving loads. Influences lines for simply supported plane pin joined trusses.

Arches : Three hinged, two hinged and fixed arches, rib shortening and temperature effects, influence lines in arches.

Matrix method of analysis : Force method and displacement method of analysis of indeterminate beams and rigid frames. Plastic Analysis of beams and frames. Theory of plastic bending, plastic analysis, statical method, mechanism method.

Unsymmetrical bending : Moment of inertia, product of inertia, position of Neutral Axis and Principal axes, calculation of bending stresses.

PART - B : DESIGN OF STRUCTURES : STEEL, CONCRETE AND MASONRY STRUCTURES, STRUCTURAL STEEL DESIGN

Structural Steel : Factor of safety and load factors. Rivetted, bolted and welded joints and connections. Design of tension and compression member, beams of build up section, rivetted and welded plate girders, gantry girders, stanchions with battens and lacings, slab and gusseted column bases. Design of highway and railway bridges : Through and deck type plate girder, Warren girder, Pratt truss.

DESIGN OF CONCRETE AND MASONRY STRUCTURES

Concept of mix design : Reinforced Concrete Working Stress and Limit State method of design - Recommendations of IS codes of one way and two way slabs, stair case slabs, simple and continuous beams of rectangular T and L sections. Compression members under direct load with or without eccentricity, isolated and combined footings.

Cantilever and Counterfort type retaining walls.

Water tank : Design requirement for Rectangular and circular tanks resting on ground.

Prestressed concrete : Method and system of prestressing, anchorages, Analysis and design of sections for flexure based on working stress, loss of prestress. Design of brick masonry as per I.S. Codes. Design of masonry retaining walls.

PART - C : FLUID MECHANICS, OPEN CHANNEL FLOW AND HYDRAULIC MACHINES

Fluid Mechanics : Fluid properties and their role in fluid motion, fluid statics including forces acting on plane and curve surfaces.

Kinematics and Dynamics of Fluid Flow : Velocity and accelerations, stream lines, equation of continuity, irrotational and rotational flow, velocity potential and stream functions, flownet methods of drawing flownet, sources and sinks, flow separation, free and forced vortices. Control volume equation, continuity, momentum, energy and moment of momentum equations from control volume equation, Navier - Stokes equation, Euler's equation of motion, application to fluid flow problems, pipe flow, plane, curved, stationary and moving vanes, sluice gates, weirs, orifice meters and venturi meters.

Dimensional Analysis and Similitude : Buckingham's Pi-theorem, dimensionless parameters, similitude theory; model laws, undistorted and distorted models.

Laminar Flow : Laminar flow between parallel, stationary and moving plates, flow through tube.

Boundary layer : Laminar and turbulent boundary layer on a flat plate, laminar sub-layer, smooth and rough boundaries, drag and lift.

Turbulent flow through pipes : Characteristics of turbulent flow, velocity distribution and variation of pipe friction factor, hydraulic grade line and total energy line, siphons, expansions and contractions in pipes, pipe networks, water hammer in pipes and surge tanks.

Open channel flow : Uniform and non-uniform flows, momentum and energy correction factors flows, momentum and energy correction factors, specific energy and specific force, critical depth, resistance equations and variations of roughness coefficient, rapidly varied flow, flow in contractions, flow at sudden drop, hydraulic jump and its application surges and waves, gradually varied flow, classification of surface

profiles, control section, step method of integration of varied flow equation, moving surges and hydraulic bore.

HYDRAULIC MACHINES AND HYDRO POWER

Centrifugal pumps - Types, characteristics, Net Positive Suction Height (NPSH), specific speed, Pumps in parallel, Reciprocating pumps, air vessels, hydraulic ram, efficiency parameters, rotary and positive displacement pumps, diaphragm and jet pumps. Hydraulic turbines, types classification, choice of turbines, performance parameters, controls, characteristics, specific speed, Principles of hydropower development. Type, layouts and component works, Surge tanks, types and choice. Flow duration curves and dependable flow. Storage and pondage. Pumped storage plants. Special features of mini, micro-hydel plants.

PART - D : GEO - TECHNICAL ENGINEERING

Types of soil, phase relationships, consistency limits particles size distribution, classifications of soil, structure and clay mineralogy. Capillary water and structural water, effective stress and pore water pressure. Darcy's law, factors affecting permeability, determination of permeability, permeability of stratified soil deposits. Seepage pressure, quick sand condition, compressibility and consolidation, Terzaghi's theory of one dimensional consolidation, consolidation test. Compaction of soil, field control of compaction. Total stress and effective stress parameters, pore pressure coefficients. Shear strength of soils, Mohr Coulomb failure theory, Shear tests. Earth pressure at rest, active and passive pressures.

Rankine's theory, Coulomb's wedge theory, earth pressure on retaining wall, sheet pile walls, braced excavation. Flooring capacity, Terzaghi and other important theories, net and gross bearing pressure. Immediate and consolidation settlement. Stability of slope, Total Stress and Effective Stress methods, Conventional methods of stress, stability number. Subsurface exploration, methods of boring, sampling, penetration tests, pressure meter tests. Essential features of foundation, types of foundation, design criteria, choice of type of foundation, stress distribution in soils, Boussinesq's theory,

Newmark's chart, pressure bulb, contact pressure, applicability of different bearing capacity theories, evaluation of bearing capacity from field tests, allowable bearing capacity. Settlement analysis, allowable settlement. Proportioning of footing, isolated and combined footings, rafts, buoyancy rafts, pile foundation, types of piles, pile capacity, static and dynamic analysis, design of pile groups, pile load test, settlement of piles, lateral capacity, Foundation for Bridges, Ground improvement techniques - preloading, sand drains, stone column, grouting, soil stabilisation.

PAPER - II

PART - A : CONSTRUCTION TECHNOLOGY, EQUIPMENT, PLANNING: LAND MANAGEMENT CONSTRUCTION TECHNOLOGY

Engineering Materials : Physical properties of construction materials : Stones, Bricks and Tiles; Lime, Cement and Surkhi Mortars; Lime concrete and Cement Concrete, properties of freshly mixed and hardened concrete, flooring tiles, use of ferro - cement, fibre - reinforced and polymer concrete, high strength concrete and light weight concrete. Timber : Properties and uses : defects in timber, seasoning and preservation of timber, Plastic, rubber and damp - proofing materials, termite proofing, materials for low cost housing.

CONSTRUCTION

Building components and their functions, Brick masonry : Bonds, jointing, Stone Masonry, Design of brick masonry walls as per I.S. codes, factors of safety, serviceability and strength requirements; plastering, pointing. Types of Floors & Roofs, Ventilators, Repair in buildings.

Functional planning of building : Building orientation, circulation, grouping of areas, privacy concept and design of energy efficient building; provisions of National Building Code. Building estimates and specifications; cost of works; valuation.

CONSTRUCTION EQUIPMENT

Standard and special types of equipment, preventive maintenance and repair, factors affecting the selection of equipment, economical life, time and motion study, capital and maintenance cost.

Concreting equipments : Weight batcher, mixer, vibration, batching plant concrete pump.

Earth work equipment : Power shovel, hoe, bulldozer, dumper, trailers and tractors, rollers, sheep foot roller.

Construction Planning and Management : Construction activity, schedules, job layout, bar charts, organization of contracting firms, project control and supervision. Cost reduction measures.

New work analysis : CPM and PERT analysis, Float Times, cashing of activities, contraction of network for cost optimization, updating, cost analysis and resources allocation.

Elements of Engineering Economics, methods appraisal, present worth, annual cost, benefit cost, incremental analysis. Economy of scale and size. Choosing between alternatives including levels of investments. Project profitability.

PART - B : SURVEY AND TRANSPORTATION ENGINEERING

Survey : Common methods of distance and angle measurements, plane table survey, levelling traverse survey, triangulation survey, corrections and adjustments, contouring, topographical map. Surveying instruments for above purposes, Techeometry. Circular and transition curves. Principle of photogrammetry.

Railways : Permanent way, sleepers, rail fastenings, ballast, points and crossings, design of turn outs, stations and yards, turn tables, signals and interlocking, level crossing construction and maintenance of permanent ways, super elevation, creep of rail, ruling gradient, tract resistance, tractive effort, relaying of track.

Highway Engineering : Principles of highway planning, highway alignments; Geometrical design : Cross section, camber, super elevation, horizontal and vertical curves. Classification of roads : low cost roads, flexible pavements, rigid pavements, design of pavements and their construction, evaluation of pavement failure and strengthening. Drainage of roads : Surface and sub-surface drainage. Traffic Engineering : Forecasting techniques, origin and destination survey, highway capacity. Channelised and unchannelised intersections, rotary design elements, markings, sign, signals, street lighting : Traffic surveys, Principle of highway financing.

PART - C : HYDROLOGY, WATER RESOURCES AND ENGINEERING

Hydrology : Hydrological cycle, precipitation, evaporation, transpiration, depression storage, infiltration, overland flow, hydrograph, flood frequency analysis, flood estimation, flood routing through a reservoir, channel flow routing - Muskingam method.

Ground water flow : Specific yield, storage coefficient, coefficient of permeability, confined and unconfined aquifers, aquitards, radial flow into a well under confined and unconfined conditions, tube wells, pumping land recuperation tests, ground water potential.

Water Resources Engineering : Ground and surface water resources, single and multipurpose projects storage capacity of reservoirs, reservoir losses, reservoir sedimentation, economics of water resources projects.

IRRIGATION ENGINEERING : Water requirements of crops : consumptive use, quality of water for irrigation, duty and delta, irrigation methods and their efficiencies.

Canals : Distribution systems for canal irrigation, canal capacity, canal losses, alignment of main and distributory canals, most efficient section, lined canals, their design, regime theory, critical shear stress, bed load, local and suspended load transport, cost analysis of lined and unlined canals, drainage behind lining.

Water logging : Causes and control, drainage system design, salinity.

Canal structures : Design of cross regulators, head regulators, canal falls, aqueducts, metering flumes and canal outlets.

Diversion head work : Principles and design of weirs of permeable and impermeable foundation, Khosla's theory, energy dissipation, stilling basin, sediment excluders.

Storage works : Types of dams, design, principles of rigid gravity and earth dams, stability analysis, foundation treatment, joints and galleries, control of seepage.

Spillways : Spillway types, crest gates, energy dissipation.

River training : Objectives of river training, methods of river training.

PART - D : ENVIRONMENTAL ENGINEERING

Water supply : Estimation of surface and subsurface water resources, predicting demand for water, impurities of water and their significance, physical, chemical and bacteriological analysis, waterborne diseases, standard for potable water.

Intake of water : Pumping and gravity schemes. Water treatment, principles of coagulation, flocculation and sedimentation, slow, rapid, pressure, filters, chlorination, softening, removal of taste, odour and salinity.

Water storage and distribution : Storage and balancing reservoirs, types, location and capacity. Distribution system, layout, hydraulics of pipe lines, pipe fittings, valves including check and pressure reducing valves, meters, analysis of distribution systems, leak detection, maintenance of distribution systems, pumping stations and their operations.

Sewage systems : Domestic and industrial wastes, storm sewage - separate and combined systems, flow through sewers, design of sewers, sewer appurtenances manholes, inlets, junctions, siphon. Plumbing in public buildings.

Sewage characterisation : BOD, COD, solids, dissolved oxygen, nitrogen and TOC. Standards of disposal in normal water course and on land.

Sewage treatment : Working principles, units, chambers, sedimentation tanks, trickling filters, oxidation ponds, activated sludge, recycling of waste water.

Solid waste : Collection and disposal in rural and urban contexts, management of long - term ill - effects.

Environmental pollution : Sustainable development. Radioactive wastes and disposal. Environmental impact assessment for thermal power plants, mines, river valley projects; air pollution, pollution control acts.