FURTHER DETAILS REGARDING MAIN TOPICS OF PROGRAMME NO. 09/2016 (Item No. 1)

WORKSHOP INSTRUCTOR/INSTRUCTOR GRADE -III/ DEMONSTRATOR/DRAFTSMAN GRADE II

(INFORMATION TECHNOLOGY)

TECHNICAL EDUCATION

(CATEGORY No. *420/14)*

Part I: General Knowledge, Current Affairs and Renaissance in Kerala

Salient Features of Indian Constitution

Salient features of the Constitution - Preamble- Its significance and its place in the interpretation of the Constitution.

Fundamental Rights - Directive Principles of State Policy - Relation between Fundamental Rights and Directive Principles - Fundamental Duties.

Executive - Legislature - Judiciary - Both at Union and State Level. - Other Constitutional Authorities.

Centre-State Relations - Legislative - Administrative and Financial.

Services under the Union and the States.

Emergency Provisions.

Amendment Provisions of the Constitution.

Social Welfare Legislations and Programmes

Social Service Legislations like Right to Information Act, Prevention of atrocities against

Women & Children, Food Security Act, Environmental Acts etc. and Social Welfare Programmes like Employment Guarantee Programme, Organ and Blood Donation etc.

RENAISSANCE IN KERALA

Towards A New Society

Introduction to English education - various missionary organisations and their functioning- founding of educational institutions, factories.printing press etc.

Efforts To Reform The Society

(A) Socio-Religious reform Movements

SNDP Yogam, Nair Service Society, Yogakshema Sabha, Sadhu Jana Paripalana Sangham, Vaala Samudaya Parishkarani Sabha, Samathwa Samajam, Islam Dharma Paripalana Sangham, Prathyaksha Raksha Daiva Sabha, Sahodara Prasthanam etc.

(B) Struggles and Social Revolts

Upper cloth revolts.Channar agitation, Vaikom Sathyagraha, Guruvayoor Sathyagraha, Paliyam Sathyagraha. Kuttamkulam Sathyagraha, Temple Entry Proclamation, Temple Entry Act .Malyalee Memorial, Ezhava Memorial etc.

Malabar riots, Civil Disobedience Movement, Abstention movement etc.

Role Of Press In Renaissance
Malayalee, Swadeshabhimani, Vivekodayam, Mithavadi, Swaraj, Malayala Manorama, Bhashaposhini, Mathnubhoomi, Kerala Kaumudi, Samadarsi, Kesari, AI-Ameen, Prabhatham, Yukthivadi, etc

Awakening Through Literature
Novel, Drama, Poetry, *Purogamana Sahithya Prasthanam, Nataka Prashtanam,* Library movement etc

Women And Social Change
Parvathi Nenmenimangalam, Arya Pallam, A V Kuttimalu Amma, Lalitha Prabhu.Akkamma Cheriyan, Anna Chandi, Lalithambika Antharjanam and others

Leaders Of Renaissance
Thycaud Ayya Vaikundar, Sree Narayana Guru, Ayyan Kali.Chattampi Swamikal, Brahmananda Sivayogi, Vagbhadananda, Poikayil Yohannan(Kumara Guru) Dr Palpu, Palakkunnath Abraham Malpan, Mampuram Thangal, Sahodaran Ayyappan, Pandit K P Karuppan, Pampadi John Joseph, Mannathu Padmanabhan, V T Bhattathirippad, Vakkom Abdul Khadar Maulavi, Makthi Thangal, Blessed Elias Kuriakose Chaavra, Barrister G P Pillai, TK Madhavan, Moorkoth Kumaran, C. Krishnan, K P Kesava Menon, Dr.Ayyathan Gopalan, C V Kunjuraman, Kuroor Neelakantan Namboothiripad,
Velukkutty Arayan, K P Vellon, P K Chathan Master, K Kelappan, P. Krishna Pillai, A K Gopalan, T R Krishnaswami Iyer, C Kesavan. Swami Ananda Theerthan , M C Joseph, Kuttippuzha Krishnapillai and others

Literary Figures
Kodungallur Kunhikkuttan Thampuran, KeralaVarma Valiyakoyi Thampuran, Kandathil Varghese Mappila. Kumaran Asan, Vallathol Narayana Menon, Ulloor S Parameswara Iyer, G Sankara Kurup, Changampuzha Krishna Pillai, Chandu Menon, Vaikom Muhammad Basheer. Kesav Dev, Thakazhi Sivasankara Pillai, Ponkunnam Varky, S K Pottakkad and others

GENERAL KNOWLEDGE AND CURRENT AFFAIRS
General Knowledge and Current Affairs

Part II a: Technical Mathematics

   I.   Matrices – Identification of Matrices, matrix operations, adjoint and inverse.

  II.   Determinants – Evaluation of second and third order, minors and cofactors, solutions of simultaneous linear equation in three unknown using Cramer's rule.

 III.   Binomial Series – Expansions using Binomial theorem.

IV. Trigonometric functions – Signs of functions in each quadrant. Trigonometric values of angles, properties of trigonometric functions, applications of the identities sin (A ± B), cos (A ± B) and tan (A ± B).

V. Coordinate geometry – Equations to a straight line – slope-intercept form, intercept form, Angle between two lines, condition for two lines to be perpendicular, parallel.

VI. Differentiation – Limits and continuity, derivatives of functions, equation to tangents and normals. Maxima and minima of functions of one variable.

VII. Integration of functions – Integration of different types of functions.

VIII. Applications of integration – Area bounded by a curve and X or Y axis, solutions of differential equations using the method of variable separable, solutions of linear differential equations of first order.

Part II b: Basic Civil Engineering

Materials: Brick – varieties and strength, characteristics of good brick. Cement – varieties and grade of cement and its uses. Steel – types of steel for reinforcement bars, steel structural sections. Aggregates – types & requirements of good aggregates. Concrete – grades of concrete as per IS code, water cement ratio. Workability, mixing, batching, compaction and curing.

Construction: Parts of building – foundation – types of foundations – spread footing, isolated footing, combined footing, Raft, pile and well foundations. Masonry – types rubble masonry, brick masonry, English bond and Flemish bond. (One brick wall).

Surveying: Chain surveying – principles, instruments, ranging, and chaining survey lines, field work and field book, selection of survey stations, units of land area.

Levelling: Levelling instruments, different types, bench mark, reduced level of points, booking of field notes, reduction of levels by height of collimation method (simple problem). Modern survey – instruments – Total station, Electronics theodolite, Distomat.

Part II c: Basic Mechanical Engineering

The importance of IC Engines: Definition, classification – two stroke engines, four stroke engines, working of two stroke engines and four stroke engines with the help of line sketches, comparison between two stroke and four stroke engines, comparison between petrol and diesel engines, function of fly wheel, clutch, gearbox, propeller shaft and differential in power transmission, explain with sketch the working of differential, briefly explain power transmission of 4 wheel vehicle with line diagram.

The importance of Power Plants: Introduction, classification of power plants – working of hydroelectric power plant with schematic sketches – working of thermal

(Steam and Diesel) power plant with schematic sketches – working of nuclear power plant with schematic sketches.

Part II d: Basic Electrical Engineering

Review with discussion of electric current, potential difference, power, EMF, resistance and its laws, Ohms law and series parallel circuit, electromagnetism, generation of AC and DC supply.

Idea of Basic electrical circuit: Electrical supply and load and its functioning, division of voltage and current in a parallel and series circuit – simple problems, units of power and energy, solution of DC circuit with calculation of energy consumption in an installation.

Circuit parameters: Resistance, Capacitance and inductance. AC circuit with R, L, C. Simple solution of typical AC circuit with resistance, impedance, power and power factor.

Electrical circuit of an installation: Earthing, lightning protection.

Part II e: Basic Electronics Engineering

Active and passive devices – review only. LED – working, applications, comparison of LED lighting and CFL lighting. Full wave rectifier – diagram and explanation, 5 V power supply – with bridge rectifier and 7805. SMPS – block diagram and advantages. Integrated circuits. SMDs – advantages. Static electricity – precautions in handling electronic circuits.

Switches: ON / OFF, push to ON, push to OFF, push to ON / OFF, SPST, SPDT, DPDT. Working and application of limit switches, proximity switches, relays.

Microcontrollers: Simple block diagram of 8 bit microcontrollers – application.

Mobile technology: CDMA and GSM. Compare – 2G and 3G technologies.

Inverter & UPS: Block diagram. Compare – inverter and UPS. Online and off line UPS – differentiate. Battery selection for UPS and inverter.

E-waste: Health hazards of e-waste.

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SANSKRIT

PART A

Module I : Renaissance and freedom movement

Module II: General Knowledge and current affairs

Module III: Methodology of teaching the subject

IX. History/conceptual development. Need and Significance, Meaning Nature and Scope of the Subject.
X. Correlation with other subjects and life situations.
XI. Aims, Objectives, and Values of Teaching - Taxonomy of Educational Objectives - Old and revised
XII. Pedagogic analysis- Need, Significance and Principles.
XIII. Planning of instruction at Secondary level- Need and importance. Psychological bases of Teaching the subject - Implications of Piaget, Bruner, Gagne, Vygotsky, Ausubel and Gardener - Individual difference, Motivation, Maxims of teaching.
XIV. Methods and Strategies of teaching the subject- Models of Teaching, Techniques of individualising instruction.
XV. Curriculum - Definition, Principles, Modern trends and organizational approaches, Curriculum reforms - NCF/KCF.
XVI. Instructional resources- Laboratory, Library, Club, Museum- Visual and Audio-Visual aids - Community based resources - e-resources - Text book, Work book and Hand book.
XVII. Assessment; Evaluation- Concepts, Purpose, Types, Principles, Modern techniques - CCE and Grading- Tools and techniques - Qualities of a good test - Types of test items- Evaluation of projects, Seminars and Assignments - Achievement test, Diagnostic test – Construction, Characteristics, interpretation and remediation.
XVIII. Teacher - Qualities and Competencies - different roles - Personal Qualities - Essential teaching skills - Microteaching - Action research.

PART B

Module I. Jyotisa:

Text -Brhajjataka of Varahamihira – Chapter I & II

Module II. Nyaya:

Texts - 1. Tarkasamgraha (Without Dipika)
2. Nyayasidhantamuktavali upto Sabdakhanda (Without Dinakari)

Module III. Sahitya: Kavya and Nataka

Texts - 1. Kumarasambhava of Kalidasa – Chapter V.
2. Balaramayana of Ananthanarayana Sastri

(Balakanda and Ayodhyakanda)
3. Abhijnanasakuntala of Kalidasa

Module IV. Sahitya: Vrtta, Alankara and Poetics

Vrttas

Anustup, Indravajra, Upendravajra, Vamsastha,
Vasantatilaka, Malini, Mandakranta,
Sardulavikridita, Sragdhara & Arya.
Text- Vrttaratnakara

Alankaras

Upama, Rupaka, Utpreksha, Atisayokti, Samasokti,
Dipika, Aprastutaprasamsa, Arthantaranyasa,
Pradipa, Ananvaya, Anuprasa & Yamaka.
Text- Kuvalayananda

Poetics

Text-   Kavyaprakasa of Mammata Bhatta :Chapter I& II

Dramaturgy

Natakalakshana,   Arthopakshepakas, Pancasandhi,
Bhava and Rasa.
Text-   Dasarupaka of Dhananjaya and
Natyasastra Chapter VI&VII

Module V: General (Sanskrit) –

Text-   A Short History of Sanskrit Literature
by T.K.Ramachandra Iyer

Module VI: Vedanta

Texts   - 1. Vedantasara of Sadananda
2. Bhagavadgita   - Chapter I & II

Module VII: Vyakarana   - Samjna and Sandhi
Text   - Laghusidhantakaumudi

Module VIII: Vyakarana   - Karaka and Samasa
Text   - Laghusidhantakaumudi

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ARABIC
PART A

Module I : Renaissance and freedom movement

Module II: General Knowledge and current affairs

Module III: Methodology of teaching the subject

♦ History/conceptual development. Need and Significance, Meaning Nature and Scope of the Subject.

♦ Correlation with other subjects and life situations.

♦ Aims, Objectives, and Values of Teaching - Taxonomy of Educational Objectives - Old and revised

♦ Pedagogic analysis- Need, Significance and Principles.

♦ Planning of instruction at Secondary level- Need and importance. Psychological bases of Teaching the subject - Implications of Piaget, Bruner, Gagne, Vygotsky, Ausubel and Gardener - Individual difference, Motivation, Maxims of teaching.

♦ Methods and Strategies of teaching the subject- Models of Teaching, Techniques of individualising instruction.

♦ Curriculum - Definition, Principles, Modern trends and organizational approaches, Curriculum reforms - NCF/KCF.

♦ Instructional resources- Laboratory, Library, Club, Museum- Visual and Audio-Visual aids - Community based resources - e-resources - Text book, Work book and Hand book.

♦ Assessment; Evaluation- Concepts, Purpose, Types, Principles, Modern techniques - CCE and Grading- Tools and techniques - Qualities of a good test - Types of test items- Evaluation of projects, Seminars and Assignments - Achievement test, Diagnostic test – Construction, Characteristics, interpretation and remediation.

♦ Teacher - Qualities and Competencies - different roles - Personal Qualities - Essential teaching skills - Microteaching - Action research.

PART B

I - النحو والصرف

الكلمة وأنواعها (اسم - فعل - حرف)

الجملة الإسمية : المبتدأ والخبر وأحكامهما

الجملة الفعلية

النواسخ

الفاعل ونائب الفاعل

المفاعيل

اللازم والمتعدي

الإعراب والبناء (الأسماء والأفعال والحروف)

شبه الجملة- الإضافة- الصفة

النكرة والمعرفة

الحال- التمييز- العدد والمعدود

صيغتا التعجب

الأسماء الخمسة- الأفعال الخمسة- النواصب والجوازم

أسماء الإشارة- أسماء الموصولة- أدوات الإستفهام -

الضمائر

المجرد والمزيد (الثلاثي والرباعي)

الصحيح والمعتل

اسم الفاعل والمفعول

المصادر

الجموع (جمع السالم ووجمع التكسير)

فعل الأمر

تصريف الأفعال (الثلاثي والرباعي والمزيد فيهما)

المقصور والممدود والمنقوص

II - النقد والبلاغة والعروض

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17</td><td>البلاغة : التشبيه والإستعارة والمجاز.</td></tr>
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17</td><td>البديع السجع - الجناس– الإقتباس– الطباق والمقابلة.</td></tr>
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17</td><td>العروض : البحور الشعرية</td></tr>
</table>

III– تاريخ الأدب

XIX.   العصر الجاهلي: الحياة الإجتماعية والأدبية – خصائص الشعر الجاهلي– المعلقات السبع وأصحابها.

XX.   العصر الإسلامي و العصر الأموي: محمد رسول الله صلعم – الخلفاء الراشدون - الشعراء: الخنساء – كعب بن زهير– حسان بن ثابت - جرير– الفرزدق– الأخطل.

XXI.   القرآن وجمعه وتدوينه– الحديث وجمعه وتدوينه – النقائض– مدح الرسول– الخطبة (نهج البلاغة)

XXII.   تأثير القرآن والأحاديث في اللغة العربية وآدابها.

XXIII.   العصر العباسي: الحياة الإجتماعية والسياسية.

XXIV.   الشعر العربي العباسي: خصائصه وأغراضه.

XXV.   أبو نواس– البحتري– المتنبي– أبو العتاهية – المعري.

XXVI.   أنواع النثر الأدبي العباسي: المقامات والتوقيعات والترجمة.

XXVII.   المؤلفات والأدباء: كتاب الأغاني– البيان والتبيين – العقد الفريد– مقدمة ابن خلدون– الجاحظ – ابن المقفع– الحريري– الهمداني.

XXVIII. العلوم: النحو– العروض– الفقه والأئمة الأربعة– الصحاح الستة– الفلسفة (ابن الرشد – ابن سينا– ابن خلدون– الغزالي)

XXIX. العصر الحديث الحركات الأدبية (الديوان – أبّولو– الرابطة القلمية– العصبة الأندلسية)

XXX. الشعر: البارودي– أحمد شوقي– حافظ بك إبراهيم– الرصافي– ابو القاسم الشابي– إيليا أبو ماضي– خليل مطران– عمر ابو ريشة– نازك الملئكة– بدر شاكر السياب– أدونيس (علي أحمد سعيد) – محمود درويش– فدوى طوقان.

XXXI. النثر الرواية– القصة– المسرحية – المقالات- المنفلوطي– مارون النقاش - الرافعي– طه حسين– أحمد أمين– توفيق الحكيم– محمود تيمور - نجيب محفوظ– محمد حسين هيكل– نجيب الكيلاني– جبران خليل جبران – ميخائيل نعيمة– الطيب صالح.

IV - الأدب العربي الهندي

الشعر والنثر– أدب المقاومة- غلام علي آزاد البلجرامي ³⁵₁₇ – شاه ولي الله الدهلوي– عبد الحي الحسني – أبو الحسن علي الندوي.

أنور شاه الكاشميري– عبد الحق محدث الدهلوي – ³⁵₁₇ زين الدين   المخدوم الكبير والصغير– القاضي عمر البلنكوتي- القاضي محمد رمضان الشالياتي- محي الدين الآلوائي

V- **تدريس اللغة العربية**

VI- **الترجمة والمواصلات.**

المفردات والمصطلحات والتراكيب (الصحافة –
التقنية الإعلامية– السفريات والسياحة– المرور
– إدارة– محكمة– اقتصاد)

VII– تحليل كتب الدارس وكتب المدرس

المتداولة في اللغة العربية في المدارس الرسمية

في كيرالا من الصف الخامس إلى الصف العاشر.

VIII– استيعاب النصوص العربية الغير المألوفة

من النثر والشعر.

³⁵₁₇ هذا لاختبار قابلية استيعاب اللغة وقابلية التخمين (inference)

وقابلية التطبيق وقابلية الألفاظ في اللغة العربية.

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TAMIL

PART A

Module I : Renaissance and freedom movement

Module II: General Knowledge and current affairs

Module III: Methodology of teaching the subject

History/conceptual development. Need and Significance, Meaning Nature and Scope of the Subject.

Correlation with other subjects and life situations.

Aims, Objectives, and Values of Teaching - Taxonomy of Educational Objectives - Old and revised

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PART B

Module I. Grammar:
(Traditional grammar, Comparative Grammar, Linquistics& Lexicography)

(Sub Units)
(i) Traditional grammar
Ezhuthu (Nannool-Ezhuthu Full)
Col (Nannool - Col Full)

Prosody & Poetics- Yaparunkalam(Except Ozhipiyal)

Thandiyalankaram (Except Collani)

Akam, Puram- Nambiyakapporul (Kalaviyal&Karpiyal)

Purapporulvenpamalai(12 Thinais)

(ii) Comparative Grammar

Introduction of Dravidian languages and their features

(iii) Lexicography

Different kinds of Nighandus, Dictionaries, Encyclopaedia and Lexicon

Module II. Ancient Literature & Epics

Sub Units

(i) Sangham Literature

Ettuthokai- Nattinai-First 20

Kurunthokai- First 20

Kalithokai- First 5

Akananooru- First 10

Purananooru- 50-100

(ii) Pathupattu- Mullaipattu

Chirupanattupatai

(iii) Pathinen kizhkanakku-Thirukkural(Arathupal)

Naladiyar(First 10 Chapters)

Pazhamozhi (11-20 Chapters)

(iv) Epics

Chilappathikaram-Madurai kandam

Manimeghalai-Manipallavathu

Thuyararuthakhathai,

Aputhiran thiramuraitha kathai

Kamba Ramayanam (Ayodhya kandam, Sundara kandam)

Module III. Medieval Literature

Sub Units

(i) Minor Epics

Kalingathubharani

Mukkoodalpallu

Tamizhviduthoothu

(ii) Bhakthi Literature

Thevaram- Gnanasambanthar

Nalayiradivyaprabantham-Perumal Thirumozhi

Cheera Puranam
(iii) Sidhar Padalkal
Pattinathar, Siva Vakyar, Ramalingar

Module IV. Modern Literature
Sub Units

(i) Modern Poetry (Traditional)
Bharathiyar- Desabhakthi padalkal
Bharathidasan(Sanjeevi Parvathathin Charal)
Kavimani(Asia jyothi)
Kannadasan (Yesukavyam)
Sundaram Pillai (Manonmaniyam)
Namakkal Ramalinkam Pillai Kavithaikal

(ii) Free Verses
Picha Moorthy
Abdul Rahman
Vaira Muthu
Mu.Mehtha
Sirpi
Meera
Gnanakoothan
Thamizhanpan
Kutty Revathy
Salma
Kanimozhi

(iii) Short Stories
Puthumaipithan
Mauni
Jayakanthan
Sundara Ramaswami
Azhagiri Sami
Ashokamithran
Nakulan
XXXII. Madhavan

Bhama
Lakshmi
Thilakavathy
Melanmai Ponnuswami
Su.Samudiram

(iv) Novels
Kalki
Parthasarathi

Akhilan
Rajamkrishnan
Thoppil Muhammed Meeran
Neela Padmnabhan
Ponneelan
Jaya Mohan
Prabhanjan
D. Selvaraj
Ambai

(v) Essays
Thiru.Vi.Ka
M.Varadharajan
R.P Sethupillai
Maraimalai Adikal
T.P Meenakshi Sundaram

Module V: Journalism & Mass Media (Tamil)
Sub Units
Journalism- Introduction
History of Journalism
Ethics & Laws of Journalism
Pioneers of Journalism
Mass Communication
Electronics media-Social influences

Module VI: South Indian History & Culture
Sub Units:-
(i) History
Pre-History of South India
Sangham Age
Pallavas
Cheras
Chozhas
Pandyas
Kalappirar
Nayaks of Madurai
Arrival of Europeans
Post-Independent History of South India

(ii) Culture
The Origin of Dravidians and their civilization
Culture of Sangham Period
Society, Religion, Education, Art & Literature of Pallava Period
Chera Culture, Religion, Art, Temples of Chera Period

Social Life, Village Adminiastration, Architecture, Temple works of Chozha Period
Trade, Religion and Culture of Pandya Period
The Influence of Europeans in South India
The Social Reforms after independence

Module VII: Folklore (Tamil)
    Sub Units:-
    Definition of Folklore- Kinds of Folklore-Classification-Characteristics
    Theories of Folklore (First 5)
    Folk Songs (Tharattu, Thozhil, Oppari etc..)
    Ballads, Folk Stories, Riddles, Proverbs
    Folk Believes
    Folk Arts, Sports & Games, Medicines

Module VIII: Literary Criticism
    Sub Units:-
    Nature and Elements of Literature
    Type of criticism
    Literature and Life
    Criticism of Poetry
        Elements, Functions, Feelings, Imagination, Simile, Symbolic
Prose and Fiction
    Inductive and Descriptive criticism- Comparative criticism

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SENIOR SUPERINTENDANT/ ASSISTANT DISTRICT LOTTERY OFFICER

(Special Recruitment for SC/ST only)

STATE LOTTERIES DEPARTMENT
(CATEGORY NO. 544/15)

&

ASSISTANT JAILOR Gr.I/SUPERINTENDENT, SUB JAIL etc

(By Direct Recruitment from qualified Executive Staff working in the Jails Department)

JAIL DEPARTMENT

CATEGORY NO. 170/15

&
LOWER DIVISION CLERK
(Special Recruitment for SC/ST only)

(VARIOUS GOVERNMENT OWNED COMPANIES/BOARD/CORPORATION)

CATEGORY No.203/15

Part 1. Quantitative Aptitude
Numbers-Test of Divisibility- H.C.F& L.C.M- Simplification - Ratio & Proportions-Percentage-Interest-Time& Work- Time& Distance- Area- Volume- Calendar – Clocks – Trains - Problems on Age - Etc.

Part II. Mental Ability and Test of Reasoning
Calculation & Logic -Coding & Decoding- Classification-Synonym-Antonym-Letter & Number Series- Odd Man Out-Analogy- Common Sense Test- Alphabetical Arrangement of Words- Date and Calendar- Sense of Direction-Etc.

Part III. General Science
Common Scientific Facts- Important Scientific Phenomena- Other basic facts in the field of Science.- Etc

Part IV. Current Affairs

Important World, National and Regional Events related to the Political and Scientific fields, Sports, Cinema and Literature etc.

Part V. Facts about India

Geography of India- Physical Features- Climate-Soils- Rivers- Famous Sites – Etc
Demography- Economic and Social Development-Poverty Alleviation-Economy and Planning-Etc
History of India- Period from 1857 to 1947- National Movement- Etc.

Part VI. Facts about Kerala

Geographical Facts- Physical Features- Climate-Soils- Rivers- Famous Sites – Etc

Renaissance of Kerala

Important Events/ Movements/Leaders
Brahmananda Swami Sivayogi, Chattampi Swami, Sree Narayana Guru, Vagbhatananda, Thycaud Ayya, Ayya Vaikundar, Poikayil Yohannan (Kumara Guru), Ayyankali, Pandit Karuppan, Mannathu Padmanabhan, V.T.Bhattathirippad, Dr. Palpu, Kumaranasan, Vakkom Moulavi, Blessed Kuriakose Elias Chavara, Etc

Part VII. Constitution of India and Civil Rights

Basic Facts-Features-Citizenship- Fundamental Rights & Duties- Directive Principle- Union Government- Legislature- State Executive - Union Territories- Apex Courts- Comptroller and Auditor General- Public Service Commissions and Other Important Offices- Important Amendments- Etc.
Rights- Right to Education- Human Rights- Human Rights Commission- Right to Information- Information Commission- Social Audit- Lokayukta- Ombudsman- Women Empowerment- Women's Commission- Legislation against Child Labour and Atrocities against women and Scheduled Castes and Scheduled Tribes- Etc.

Part VIII. General English

Grammar- Agreement of Subject and Verb- Confusing Adjectives and Adverbs- Comparison of Adjectives- Correct usage of Articles- Prepositions- Direct and Indirect Speech- Active and Passive Voice- Correction in Sentences-Etc
Vocabulary- Gender- Singular and Plural- Synonyms- Antonyms- One word Substitutes- Problem concerning words- Idioms and their meanings-Etc

Part IX : Social Welfare Schemes & Measures

Andyodaya Anna Yojana, Balika Samridhi Yojana, Bharat Nirman, Indira Awaas Yojana, Integrated Child Development Scheme, Jawahar Rozgar Yojana, Kudumbasree, Mahila Samridhi Yojana, National Food for Work Programme, NRDP, NREGP, Prime Minister's Rozgar Yojana, Rural Development Pradhan Mantri

Adharsh Gram Yojana, Samagra Awaas Yojana, Sampoorna Grameen Rozgar Yojana, Valmiki Ambedkar Awaas Yojana, Rural Landless Employment Guarantee Programme etc;

Part X. Information Technology and Cyber Laws

Fundamentals of Computers- Internet Etc
Cyber Laws

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Assistant Professor
MECHANICAL ENGINEERING

Module I : General Knowledge and Current Affairs

Salient Features of Indian Constitution
Salient features of the Constitution - Preamble- Its significance and its place in the interpretation of the Constitution.
Fundamental Rights - Directive Principles of State Policy - Relation between Fundamental Rights and Directive Principles - Fundamental Duties.
Executive - Legislature - Judiciary - Both at Union and State Level. - Other Constitutional Authorities.
Centre-State Relations - Legislative - Administrative and Financial.
Services under the Union and the States.
Emergency Provisions.
Amendment Provisions of the Constitution.

Social Welfare Legislations and Programmes
Social Service Legislations like Right to Information Act, Prevention of atrocities against
Women & Children, Food Security Act, Environmental Acts etc. and Social Welfare Programmes like Employment Guarantee Programme, Organ and Blood Donation etc.

RENAISSANCE IN KERALA

Towards A New Society
Introduction to English education - various missionary organisations and their functioning- founding of educational institutions, factories.printing press etc.

Efforts To Reform The Society

(A) Socio-Religious reform Movements
SNDP Yogam, Nair Service Society, Yogakshema Sabha, Sadhu Jana Paripalana Sangham, Vaala Samudaya Parishkarani Sabha, Samathwa Samajam, Islam Dharma Paripalana Sangham, Prathyaksha Raksha Daiva Sabha, Sahodara Prasthanam etc.

(B) Struggles and Social Revolts
Upper cloth revolts.Channar agitation, Vaikom Sathyagraha, Guruvayoor Sathyagraha, Paliyam Sathyagraha. Kuttamkulam Sathyagraha, Temple Entry Proclamation, Temple Entry Act .Malyalee Memorial, Ezhava Memorial etc.
Malabar riots, Civil Disobedience Movement, Abstention movement etc.

Role Of Press In Renaissance
Malayalee, Swadeshabhimani, Vivekodayam, Mithavadi, Swaraj, Malayala Manorama, Bhashaposhini, Mathnubhoomi, Kerala Kaumudi, Samadarsi, Kesari, AI-Ameen, Prabhatham, Yukthivadi, etc

Awakening Through Literature
Novel, Drama, Poetry, *Purogamana Sahithya Prasthanam, Nataka Prashtanam,* Library movement etc

Women And Social Change

Parvathi Nenmenimangalam, Arya Pallam, A V Kuttimalu Amma, Lalitha Prabhu.Akkamma Cheriyan, Anna Chandi, Lalithambika Antharjanam and others

Leaders Of Renaissance

Thycaud Ayya Vaikundar, Sree Narayana Guru, Ayyan Kali.Chattampi Swamikal, Brahmananda Sivayogi, Vagbhadananda, Poikayil Yohannan(Kumara Guru) Dr Palpu, Palakkunnath Abraham Malpan, Mampuram Thangal, Sahodaran Ayyappan, Pandit K P Karuppan, Pampadi John Joseph, Mannathu Padmanabhan, V T Bhattathirippad, Vakkom Abdul Khadar Maulavi, Makthi Thangal, Blessed Elias Kuriakose Chaavra, Barrister G P Pillai, TK Madhavan, Moorkoth Kumaran, C. Krishnan, K P Kesava Menon, Dr.Ayyathan Gopalan, C V Kunjuraman, Kuroor Neelakantan Namboothiripad,
Velukkutty Arayan, K P Vellon, P K Chathan Master, K Kelappan, P. Krishna Pillai, A K Gopalan, T R Krishnaswami Iyer, C Kesavan. Swami Ananda Theerthan , M C Joseph, Kuttippuzha Krishnapillai and others

Literary Figures

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GENERAL KNOWLEDGE AND CURRENT AFFAIRS

General Knowledge and Current Affairs

Module II :

a) MATHEMATICS (ENGINEERING)

Matrices: Rank, systems of linear equations, consistency, eigen values, eigen vectors, Cayley Hamilton Theorem, diagonalisation, linear dependence and independence of vectors.

Partial Differentiation: Partial derivatives, Euler's theorem on homogeneous functions, total derivatives, Jacobians, Taylor's series (one and two variables) – Maxima and minima of functions of two variables – Lagrange' s method.

Vector Differentiation: Scalar and vector functions, differentiation of vector functions – velocity and acceleration – scalar and vector fields – operator ✖ – Gradient – Directional derivative – Divergence – Curl – irrotational and solenoidal fields – scalar potential.

Laplace Transforms: Transforms of elementary functions, shifting property – inverse transforms – transforms of derivatives and integrals – transform of functions multiplied by t and divided by t – convolution theorem, solution of ordinary differential equations with constant coefficients using Laplace transforms.

Ordinary Differential Equations: First Order ordinary differential equations, systems of linear first order ordinary differential equations, linear ordinary differential equations of higher order with constant coefficients, linear second order ordinary differential equations with variable coefficients (Cauchy and Legendre equations), Method of Laplace transforms for solving ordinary differential equations.

Complex Analysis: Analytic functions, conformal mappings, bilinear transformations, complex integration, Cauchy's integral theorem and formula, Taylor and Laurent's series, residue theorem.

Fourier Series: Fourier series of periodic functions of period 2π and 2ℓ, odd and even functions, Half range expansions.

b) BASIC CIVIL ENGINEEERING

Mechanics – statistics – Coplanar forces – conditions of equilibrium. Support reactions – Simply supported and overhanging beams. Friction – Laws of friction – applications. Centre of gravity and moment of inertia of plane areas. Dynamics – rectilinear motion – Newton's laws of motion – curvilinear motion.
Building materials – common building materials – stone, brick, cement, steel, aggregate, concrete, timber – properties, IS specification. Building construction – types and functions of the following structural components of buildings – foundations and superstructure.
Surveying – principle of surveying – linear measurements using chain – levelling work – reduction of levels.

c) BASIC MECHANICAL ENGINEERING

Zeroth, first and second laws of thermodynamics, CI and SI Engines, properties of steam. Centrifugal and reciprocating pumps, hydraulic turbines, refrigeration and air conditioning, hydro-electric, thermal and nuclear power plants, mechanical power transmission systems such as belt, rope, chain and gear, manufacturing process – casting, forging, rolling, brazing, soldering, and welding, machining process – turning, shaping, drilling, grinding and milling. Conic sections and miscellaneous curves, orthographic, isometric and perspective projections.

Module III :

a) BASIC ELECTRICAL ENGINEERING

Ohm's law, Kirchoff's laws – solution of series and parallel circuits with dc excitation.
Magnetic circuits: MMF, field strength, flux density, reluctance, electromagnetic induction, Faraday's laws, Lenz's law, statically and dynamically induced emfs, self and mutual induction, co-efficient of coupling.
Principle of generation of alternating current – waveforms – frequency, period, average and rms values, form factor.
Generation of 3 phase ac voltage, star and delta connections, voltage & current relationships in star and delta (balanced system only).

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Types of lamps, necessity of earthing.

b) BASIC ELECTRONICS ENGINEERING

Devices – working principle of PN junction, Zener diode and BJT.

Systems – Rectifiers : Half wave, Full wave and Bridge. Filters: Capacitors and Inductors.

Amplifiers & Oscillators – Common Emitter RC coupled amplifier and its frequency response. Principles of Wein-bridge oscillator. Op-amps: Basics, inverting and non-inverting amplifier.

Communication – Need for modulation, principles of AM and FM.

Measurements – Working principles of CRO and Multimeter.

c) BASIC COMPUTER SCIENCE

Functional units of a computer.

Programming in C – control structures, functions.

Module IV : Thermodynamics and Fluid Mechanics

Thermodynamic processes, entropy, irreversibility and availability, basic thermodynamic cycles, behaviour of ideal and real gases, properties of pure substances, computation of work and heat, ideal processes, analysis of thermodynamic cycles related to energy conversion.

Fluid mechanics: Fluid properties, fluid statics, manometry, buoyancy, control volume analysis of mass, momentum and energy, fluid acceleration, differential equations of continuity and momentum. Euler's equation, Bernoulli's equation, laminar flow through pipes, boundary layer displacement, momentum and energy thickness, flow through pipes, minor and major losses, dimensional analysis.

Heat transfer: Modes of heat transfer, one dimensional heat conduction, thermal resistance, fins, free and forced convective heat transfer, dimensionless parameters, problems in convective heat transfer with the help of correlation, thermal boundary layer, radiation, black and grey surfaces, shape factors, network analysis.

Mechanics of Solids: Stress-strain relationship and elastic constant, principal stress and strains, Mohr's circle for plane stresses and plane strains, shear force and bending moment diagrams, bending of beams, torsion of circular shafts, Euler's theory of columns, strain energy, thermal stresses.

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Communication – Need for modulation, principles of AM and FM.
Measurements – Working principles of CRO and Multimeter.

c) BASIC COMPUTER SCIENCE

Functional units of a computer.
Programming in C – control structures, functions.

Module IV : Computer Organization & Architecture

Digital Logic: Logic functions, minimization, design and synthesis of combinational and sequential circuits, number representation and computer arithmetic (fixed and floating point).

Computer Organization: Machine instructions and addressing modes, ALU, CPU control design, memory interface, I/O interface, DMA, interrupts, pipelining, memory hierarchy, parallel computer models.

Microprocessors: Internal architecture of 8085 and 8086, interfacing with peripheral devices, microcontrollers.

Module V : Programming Languages & Information Systems

Object Oriented Programming: Object oriented design concepts, programming in C++, Java.

Databases: ER model, relational algebra, tuple calculus, database design, integrity constraints, normalization, SQL, B-trees, B+ - trees, transactions and concurrency control.

Software Engineering: Software process models, planning and managing a software project, design, implementation, software testing, quality models and maintenance.

Programming Language Concepts: Parameter passing, binding, scope, recursion, functional and logic languages.

Module VI : Data Structures & Algorithms

Data Structures: Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.

Algorithms: Analysis, space and time complexity. Design – greedy approach, dynamic programming, divide-and-conquer, sorting and searching, complexity classes – P, NP, NP-hard, NP-complete.

Graph Theory: Connectivity, covering, colouring, planarity, isomorphism.

Computer Graphics: Line drawing, circle drawing, filling, hatching, 2D/3D transformations, projections, hidden surface removal.

Module VII : Computing and System Software

Set Theory: Sets, relations, functions, groups, partial orders, lattice, algebraic structures.

Theory of Computation: Regular languages and finite automata, context-free languages & pushdown automata, recursively enumerable sets & Turing machines, undecidability.

System Software: Compiler design, lexical analysis, parsing, syntax directed translation, code generation and optimization, Assemblers, linkers and loaders, macroprocessors, operating systems – processes, threads, inter-process communication, synchronization, deadlocks, CPU scheduling, memory management and virtual memory, file systems, I/O systems, protection & security.

Module VIII : Networking & Web Technology

Computer Networks: Layered architecture, LAN technologies, wireless LAN, flow and error control, routing algorithms, congestion control, TCP/UDP and sockets, IPv4, IPv6, ICMP, DNS, SMTP, POP, FTP, HTTP, MIME, Hubs, switches, routers and gateways, public key and private key cryptography, digital signature, firewalls, wireless networks, 2G and 3G networks, Bluetooth.

Web Technologies: HTML, XML, client-server computing, web server, proxy server, web application development, MVC architecture, e-commerce, web services.

Distributed Systems: Characteristics, inter-process communication, distributed file systems.