FURTHER DETAILS REGARDING MAIN TOPICS OF PROGRAMME NO. 12/2015/ONLINE (Item No. 3)

HEAD OF SECTION IN COMPUTER APPLICATION & BUSINESS MANAGEMENT (GOVT. POLYTECHNICS)

TECHNICAL EDUCATION

(CATEGORY Nos. 386/2013)

PART I

MODULE-1

Accounting Principles-Financial statements: Trading a/c, Profit & Loss a/c, Balance Sheet Classification of Cost-Cost Volume Profit Analysis-Financial Planning and control - Sources of Fund- Capital structure and Financial analysis.

MODULE-2

Production/Operation Management- Productivity and factors affecting productivity- Layout planning- Quality: concepts, Statistical Quality Control, Total quality management, ISO standards, six sigma- Inventory Management: Selective inventory contro1, Economic order quality, Material Requirement Planning, Just in Time inventory.

MODULE-3

Marketing: Selling and Marketing concepts, Controllable and Uncontrollable factors in marketing environment, Marketing mix, Market Segmentation - product decisions - product life cycle – customer relationship management - marketing research - Forecasting techniques -Quantitative Techniques in Management: Measures of Central tendency ,Correlation and Regression analysis.

MODULE-4

Project Management : Feasibility Studies, Investment Analysis Techniques, Time value of money, Project planning and control, CPM/PERT, Crashing of projects, Resource Management - Vendor Evaluation- Value Engineering.

MODULE-5

Human Resource Management - objectives and functions - Human resource planning- Job analysis - Job satisfaction - recruitment - selection - training & development -performance appraisal and evaluation - Leadership & theories- Motivation & techniques- Communication process & effectiveness .

MODULE-6

Digital systems - Algorithms for addition subtraction, multiplication and division of binary, BCD and floating point numbers. Minimization of logic functions - Design of combinatorial and clocked sequential logic circuits. Microprocessors - 8085 and 8086 microprocessor architecture, assembly language programming in 8085, interfacing with peripheral devices.
Computer organization - Operational concepts - instruction sequencing - addressing modes, Processing unit - I!O organization - OMA, Interrupts, Memory organization.

Operating systems - Operating system services - CPU scheduling - Concurrent processes synchronization. Dead Jocks. Memory management - Device management- File system.
Computer networks - Protocol hierarchies - Reference models. Data Link layer - MAC Sub layer - Bridges - Switches - Wireless LANs. Network layer - QoS. Network layer in internet. Transport Layer-Application layer-VoIP.

MODULE-7

Data Structures and Algorithm Analysis - Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs. Analysis of algorithms - space and time complexity - Internal and external sorting techniques - Searching. Design - Brute Force - Divide and conquer. Complexity classes - NP completeness -and NP Hardness. Programming in C - Data types and qualifiers - operators and expressions - data input and output   Control statements- Arrays and strings - structures and unions. Pointers- memory allocation functions - functions - recursive functions. Data files - C Programming

Object Oriented Programming - C++ Programming - Fundamentals of object-oriented Design - Programming in C++ - Data Abstraction, Encapsulation, Classes, Inheritance and Polymorphism, exception handling, file processing.
Java Programming - Programming in Java - GUI classes, Java I/O - sockets - Applets - Window fundamentals - graphics.
Database Management Systems - ER Diagram - Structure of Relational Database - Relational Algebra - Tuple relational Calculus & Domain Relational Calculus - Views - SQL- Triggers - Integrity Constraints - relational database design- Decomposition - Normalization. Storage and File Structure - Indexing & Hashing - Transactions - Concurrency Control - Recovery System- Security issues in database - database architecture - database recovery.

MODULE-8

Software Engineering - Software process models - cost estimation models, Risk management - Software configuration management - Design phase - Coding - verification, size measures, complexity analysis. Testing - Maintenance. Project Management concepts - Measures - Metrics and indicators. Software project planning - Software quality assurance - ISO 9000 quality standards.
Internet Technology - HTML, Java Script, XML, PHP. Web server, proxy Server - web application development - VPN, Electronic Mail - SMTP, POP, IMAP, MIME, Worldwide Web, HTTP. Video over IP.
Management Information Systems - Components of management information system - system life cycle - tools for system analysis and design and data collection. Survey & feasibility study - technical feasibility cost - benefit analysis. Different information system models - Transaction processing systems - Decision support systems - Design of integrated system. Computer Applications In Business - E-commerce - online electronic payment system - brand creation on
the web - Web Auction strategies - Legal environment of e-commerce.

Decision Support Systems - Managerial Decision Making and Information Systems - Types of DSS-Architecture - Decision Modelling and Analysis - Group Decision Support Systems - Negotiation Support

Systems. Intelligent Decision Support Systems - Knowledge-based Decision Support Systems - Neural Network Architecture - Genetic Algorithm - Fuzzy Logic.

Data Mining And Warehousing - Classification of Data mining systems - Data Warehouse & OLAP - Data Cube Computation Methods - Data mining query languages - Association Rules used in Data mining - Correlation Analysis - Constraint based association mining. Classification & prediction - Accuracy & Error Measures - Ensemble Methods. Cluster Analysis - Clustering Methods. Mining Data Streams - Mining Sequence Patterns in Transactional Databases- Web Mining.

PART II–GENERAL KNOWLEDGE, CURRENT AFFAIRS & 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

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.