ACADEMIC CALENDAR
Session: 2018-2019

	Part-II Paper – III (Theoretical) : 100 MARKS		
	Group A1 : System Analysis and Design (20 Periods) Introduction : System definition, characteristics; real-time and distributed systems. System Life Cycle : Waterfall model, description of different phases. Planning : Data gathering techniques; feasibility study. Cost-benefit analysis	**DG**	**July-August**
	Design and Modelling : Logical and physical design; flowcharts and structured charts; DFD and ERD. Form design, User interface design Modularity : Module specification concepts; coupling and cohesion Maintenance : Evaluation, testing and validation. Maintenance issues Case Study : Accounting and Finance System, Personnel system	**DG**	**August- September**
	Group A2 : Database Management (40 Periods) Overview : Files and database. Data independence. 3-level DBMS architecture, Data Dictionary, Database Languages Traditional Models : Network, Hierarchical and Relational. Comparison Relational Model : Definition and properties, Keys of different types Relational Algebra : Operations – select, project, cross product, join, set. Relational Calculus : Concept of tuple and Domain Calculus. Query Language : SQL – basic concepts, Transaction Processing Design : ER diagram to relational scheme; Normalization (upto 3NF) File Organizations : Hashed, Sequential, heap, indexed sequential B-Tree. Related topics : Concurrency and recovery; security and integrity. Current trends in databases : Distributed, Client-Server, Object oriented	**DG**	**September- October**
	Group B (Practical) : Full Marks 50 Groups B1 & B2 together constitute Group B		

	Database Design : Data types, creating databases, adding records, edit, browse, delete, save. Application Design : Menu and screen design; data validation; report design and generation; use of GUI facilities. SQL : Constructs; insert, delete, update, view, temporary tables; nested queries, API types of call, native API, ODBC. Trouble shooting : Validation , correctness, integrity, Performance tuning and documentation.		**July-August**
	Students should get appropriate ideas reg the following : assembling a PC, upgradation of a PC, installation of different softwares, running diagnostic software for performance tuning and related topics.		**August- September**
	Part – III Paper IV		**September- October**
		DG	**November-December**

Group A : Communication and Computer Networks (60 Periods) Communication Concepts : Analog and Digital communication – basic concept and comparison. Signal types frequency spectrum, strength, bandwidth, data rate, channel capacity. S/N ratio, modulation and demodulation FSK, ASK. Transmission media (brief idea, characteristics, comparison) : Guided (twisted pair, co-axial, optical fiber) and unguided (microwave, satellite-geo synchronous and low-orbit, VSAT). Audio and Video communication systems : Analog and digital telephone, AM & FM radio, cable TV network, IDGN, paging, cordless and cellular phones, ATM. Computer Networks : Distributed processing and resource sharing concepts. Classes – LAN, MAN, WAN Architecture – OSI , TCP/IP and http protocol – brief study. Basic idea of protocols, routing, congestion control. LAN : Ethernet and Token Ring topology (principle of operation, characteristics, comparison). High speed LANs Internetworking Modems, bridges and routers, connectivity concepts. Network security. The Internet : basic idea, DNS and URL, IP address, browsers E-mail : Architecture and services	**DG**	**November-December**

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Group B1 : Shell Programming (Minimum Laboratory Work 50 periods) Files & Directories : Copy, delete, rename, compare files, create, navigate, remove directories, access vi editor, status of users, background jobs; Pipes & filters; cutting, pastings and sorting of files, pattern searching in a string. Shell Programming : Concept and simple programming problems. Unix/Linux system administration-creation and maintenance of accounts, super user, disk management, backups, X-windows. Group B2 : Programming in GUI environment (Theoretical – 10 periods, minimum Lab. Work – 40 periods) Students should learn about programming on the following topics using one of the two languages, primarily through practical sessions, along with theoretical classes in between. Basic Features; building objects with classes, operations with objects, class libraries. Multitasking and multithreading applications; software design involving forms, objects, events, functions, procedure and methods (32 bit programming). ODBC driver; Front and development for database. Multimedia applications. Department of	**DG**	**December - MARCH**