

**ANNEXURE I**  
**COMPUTER SCIENCE AND ENGINEERING**

- 1. Digital Electronics:** Logic Families: TTL, ECL, MOS – Logic gates AND, OR, NOT, NOR, NAND and XOR – Boolean Expressions – K-map – Combinational Circuits – Flip-flops – registers – Counters – decoders, multiplexers and semiconductor memories.
- 2. Microprocessors:** 8086 microprocessor – architecture, segmentation concepts – register organization – addressing modes – instruction set – preliminary features of 80286, 80386 and 80486
- 3. Computer Organization:** Functional blocks of CPU – Fixed point, floating point number representations – instructions – addressing modes – stored program concept – instruction execution – memory hierarchy – virtual memory, associative memory – cache memory – I/O organization – methods of data transfer – programmed I/O, DMA, Interrupts – IOP
- 4. C and Data Structures:** Data types, storage classes, operators and expressions – control statements – functions, parameter passing, Call by value, Call by reference – arrays, strings, pointers, structures, unions – type definitions – pre processor statements – files – Data Structures – Linked Lists – queues and stacks – trees, binary trees – sorting : bubble, selection, insertion, quick and merge sorts -Searching : linear and binary search techniques
- 5. Computer Networks:** OSI reference model, TCP/IP reference model- Classification of networks – Network topologies : Bus, Ring, Star, Mesh, Hybrid – LAN components – Coaxial, twisted pair, optical fiber cables and connectors – repeaters, hubs, switches, NIC – Ethernet, token bus, token ring, inter network packet exchange/sequenced packet exchange – HTTP, FTP, SMTP, Telnet – TCP/IP addressing scheme – IP address classes - sub netting
- 6. Operating Systems:** Windows : advantages, features, hardware requirements, various menus and tool bars – operating system services – process management – CPU scheduling algorithms – deadlocks – memory management – overlays, paging, segmentation, virtual memory, page replacement algorithms – disk scheduling – free space management – disk scheduling algorithms
- 7. RDBMS:** Need of database systems, data independence, Data models, E-R model – structure of relational database – normal Forms : 1st, 2<sup>nd</sup> and 3rd – SQL – data types, operators, DDL, DML and DCL commands – views, sequences, synonyms, indexes and clusters – PL/SQL – data types, control structures, cursor management, exceptions, functions, triggers, procedures and packages
- 8. Object Oriented Programming Through C++:** Concept of OOPs – classes and objects – Constructors and destructors – arrays, pointers, references, inline functions – function overloading and operator overloading – inheritance – virtual functions – friend functions – this pointer – i/o manipulators – file and i/o functions
- 9. Java Programming:** Java – data types, variables, operators, arrays – Classes and objects – methods – constructors – overloading – inheritance - Visibility mode – packages – interfaces – multithreading – exception handling – applets
- 10. Internet Programming & ADO.net :** Internet fundamentals – HTML, tags, attributes, formatting text – PHP- Loops, Strings, Statements, Arrays, Functions, Databases, Cookies, Sessions, Debugging. ADO.net-Data adapters, Data sets, Connection objects and Command objects.

**ANNEXURE II**  
**Number of questions to be set unit wise (Total 100)**  
**COMPUTER SCIENCE AND ENGINEERING**

Unit No	Topic	Weightage_Marks
1	Digital Electronics	08
2	Microprocessors	10
3	Computer Organization	10
4	C and Data Structures	10
5	Computer Networks	10
6	Operating Systems	12
7	RDBMS	10
8	Object Oriented Programming through C++	10
9	Java Programming	10
10	Internet Programming & ADO.net	10

**ANNEXURE III**  
**MODEL QUESTIONS FOR COMPUTER SCIENCE AND ENGINEERING**

- In a circular linked list, the insertion of a record involves modification of
  - 3 pointers
  - 4 pointers
  - 2 pointers
  - No pointers
- Which of the following layer of OSI reference model deals with end to end communication
  - Presentation layer
  - Session layer
  - Network layer
  - Transport layer
- Which of the following statements are true regarding java applet

**Statement I** : An applet can be trusted always

**Statement II**: An applet must be executed using browser

**Statement III**: An applet is not able to access the files of the computer in which it runs.

  - Statement I & II
  - Statement I & III
  - Statement II & III
  - All of the above