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.

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, 2nd 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
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

<table>
<thead>
<tr>
<th>Unit No</th>
<th>Topic</th>
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<tr>
<td>2</td>
<td>Microprocessors</td>
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<td>3</td>
<td>Computer Organization</td>
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<tr>
<td>4</td>
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<td>RDBMS</td>
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<td>8</td>
<td>Object Oriented Programming through C++</td>
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<td>9</td>
<td>Java Programming</td>
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<tr>
<td>10</td>
<td>Internet Programming &amp; ADO.net</td>
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ANNEXURE III
MODEL QUESTIONS FOR COMPUTER SCIENCE AND ENGINEERING

1. In a circular linked list, the insertion of a record involves modification of
   1. 3 pointers
   2. 4 pointers
   3. 2 pointers
   4. No pointers

2. Which of the following layer of OSI reference model deals with end to end communication?
   1. Presentation layer
   2. Session layer
   3. Network layer
   4. Transport layer