B. Tech.

(SEM. II) EXAMINATION, 2006-07

INFORMATION TECHNOLOGY

Time : 3 Hours] [Total Marks : 100

Note : (1) Attempt all questions.
       (2) All questions carry equal marks.

1 Attempt any four parts of the following : 5x4=20

(a) Define Entropy. Explain its significance.

(b) Explain the compression process used by MPEG.

(c) Let X represent the outcome of a single roll of a fair die. What is entropy of X?

(d) Explain LZW coding algorithm. What are its advantages and disadvantages?

(e) Why do we need data compaction? Explain the Huffman Coding Algorithm.

(f) Explain various file formats used for multimedia data.
2 Attempt any four parts of the following: 5x4=20

(a) Describe the software development methodology.

(b) (i) Differentiate between sequential access and random access devices.
(ii) Explain different types of ROM devices.

(c) Explain the role of hard disk in a computer system. Draw the internal design of a hard disk.

(d) What is cache memory? Compare various parameters of cache memory, main memory, auxiliary storage devices.

(e) (i) Describe the major developments in different generation of computer evolution.
(ii) How do fourth generation languages differ from third generation languages?

(f) Explain CMM standards for IT industry.

3 Attempt any four parts of the following: 5x4=20

(a) Differentiate between frequency-division multiplexing and time-division multiplexing.

(b) Explain the phase modulation concept. Compare it with Amplitude modulation and frequency modulation.

(c) Convert the following:
(i) FFFF hexadecimal to Decimal format.
(ii) Decimal 31.54 to Binary format.
(iii) Binary 11.0001 to Decimal format
(iv) Decimal 15 to Gray code format
(v) Hexadecimal 7F2 to Octal format.

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(d) Define BCD code. What is the disadvantage of using BCD code? How do we remove this problem? Is BCD code weighted code? If yes, show else explain.

(e) Explain the role of various network elements in a mobile communication network. Which cell shape is used in it and why?

(f) (i) Explain the concepts of CSMA/CD.

(ii) What is client-Server architecture.

(iii) Draw star, BUS, Ring network topologies.

4 Attempt any four parts of the following : 5x4=20

(a) What do you understand by mark up language? How they differ from conventional programming language? Discuss clearly.

(b) What is cryptography ? Why do we use it in Internet ? Differentiate between public key and private key cryptography techniques.

(c) What is a domain name? How does computer resolves IP address corresponding to a domain name?

(d) What is the role of firewalls in the Internet ? Explain various types of firewalls.

(e) Explain the various requirements of E-commerce system. What is the role of security in E-commerce? How do we implement security in E-commerce?

(f) Discuss Gopher, FTP, Telnet, HTTP, Email.
5 Attempt any four parts of the following: 5x4=20

(a) What is an operating system? Write its major functions. List the name of some popular operating systems.

(b) What is word processing? Name some features of word processors. What are advantages of word processing package MS-word?

(c) Define SQL. What are advantages of using it? Give the classification of SQL statements.

(d) Explain the concept of e-governance? What are its advantages and disadvantages? Briefly explain the possible threats to such system.

(e) What is database management system. Write the advantages and disadvantages of DBMS. Explain different components of DBMS.

(f) Explain the role of I.T. in weather forecasting. What is the impact of I.T. use in this on common people in India?