(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1305 Roll No. | | | | | | | | | | |

B. Tech.

(SEM. I) ODD SEMESTER THEORY EXAMINATION 2010-11

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 : **(5×4=20)**

(a) Define Entropy. What is its significance in Information Technology ? Explain with a suitable example.

(b) Define the term information. Also discuss various characteristics of information.

(c) What do you mean by data compression ? Explain different types of data compression techniques. Also give their applications to Information Technology.

(d) Write short note on arithmetic coding with example.

(e) Describe the various steps of JPEG that are required to convert compress an image.

(f) What do you mean by extended Huffman Codes ? How it is different from Huffman coding ? Explain with example.

2. Attempt any **two** parts of the following : **(10×2=20)**

(a) What is the role of memory in a computer system ? Describe various kinds of memory used in a computer system together with its characteristics and example.

(b) Write short notes on the following :

(i) Central Processing Unit

(ii) Capability Maturity Model (CMM)

(iii) Fourth generation languages

(iv) Firmware and humanware.

(c) (i) Give the various symbols used in flowchart. Give a flow chart for calculating the average of the numbers from 20 to 50 (both inclusive).

(ii) What is the difference between programming language and natural language ? Also give the various generations of the programming languages with examples.

3. Attempt any **two** parts of the following : **(10×2=20)**

(a) (i) Explain the use of binary numbers and hexadecimal numbers in a computer system. Describe the steps of converting a floating point number to hexadecimal number with example.

(ii) Describe the operation of a full adder together with its block diagram.

(b) (i) What do you mean by modulation ? Discuss various type of modulation with diagrams.

(ii) Write a short note on mobile communication.

(c) (i) Write a short note on token based protocol.

(ii) Define Computer network. What are basic components of a computer network ? Also differentiate between LAN and WAN.

4. Attempt any **two** parts of the following : **(10×2=20)**

(a) (i) How markup languages are different from other conventional programming languages ? Discuss the features of any two markup languages that you know.

(ii) Write a short note on E-commerce.

(b) (i) What is meant by cryptography ? Discuss the concept of public key and private keys with example.

(ii) Define World Wide Web. Also write a short note on web technology.

(c) (i) Write a short note on electronic data interchange (EDI).

(ii) Discuss the FTP and Telnet protocols in brief.

Attempt any **two** parts of the following : **(10×2=20)**

(a) (i) Write a short note on Electronic Governance.

(ii) Differentiate between multiprogramming and multiprocessing with suitable example.

(b) (i) Discuss the role of an operating system in detail.

(ii) Write a short note on MS-Office.

(c) Create a student database (using either dBase or Foxpro) having fields Roll_no(numeric type), Name (alphanumeric type), Date_of_birth (date type), City (character type) having at least 10 records. Then give the command to perform the following :

(i) Making correction in the name of a student whose Rol_no is given.

(ii) Printing the list of students Roll_no wise.

(iii) Sorting the records based on name.

(iv) Delete permanently a student record for given name and date_of_birth.

(v) Print the age of all the students.