

- (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 Roll\_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.

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TIT101

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

PAPER ID : 1305

Roll No.

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**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.

5. 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.