TIT—201

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

PAPER ID : 1 3 0 6 Roll No.

B.Tech.

SECOND SEMESTER EXAMINATION, 2005-2006

INFORMATION TECHNOLOGY

Time : 3 Hours *Total Marks : 100*

Note : (i) *Attempt ALL questions.*

(ii) *All questions carry equal marks.*

(iii) *In case of numerical problems assume data wherever not provided.*

(iv) *Be precise in your answer.*

1. Attempt *any four* parts of the following : **(5x4=20)**

(a) What do you mean by Information ? Explain Quality of Information. What is Self-Information of the statement :

"The sun rises in the East"

(b) Do Entropy and Information signify the same thing ? Calculate the Entropy and Self-Information associated with A, B, C and D for the following message :

AABACDACDBABCAB

(c) Differentiate between the following :

(i) Data Compression and Encoding

(ii) Static coding and Dynamic coding

(iii) Loss - less and Lossy Data Compression

(iv) JPEG and MPEG

TIT—201 **1** *[Turn Over*

(d) The following is the probability distribution of symbols :

A	B	E	G	I	L	S	T	*
.1	.1	.1	.1	.1	.2	.1	.1	.1

Code the word "BILLGATES*" using Arithmetic coding.

(e) Compress the text "/WED/WE/WEE/WEB" using LZW algorithm. Show the output code generated after compression with all the steps involved.

(f) Write all the steps of Shannon-Fano Algorithm. How the Huffman Algorithm is better than Shannon-Fano Algorithm ? Explain.

2. Attempt *any four* parts of the following :   (5x4=20)

(a) Write short notes on the following :

   (i) Analog Computer and Digital Computer

   (ii) Interpreter

(b) What are the peripherals ? Explain the different types of printers.

(c) Draw the Block diagram of a digital computer. Explain the function of each block in details.

(d) Explain Software development methodology. Explain the waterfall model.

(e) Differentiate in between Assembly level language, High level language and 4GL languages.

(f) What do you mean by Software quality assurance ? Explain the SEI - CMM.

3. Attempt *any four* parts of the following :   (5x4=20)

    (a) Convert the following :

         (i) $(5214)_{10} = ( )_{16}$

         (ii) $(1011)_{10} = ( )_2$

         (iii) $(5A8)_{16} = ( )_8$

         (iv) $(1011)_{Gray} = ( )_{binary}$

         (v) $(13)_{10} = ( )_{BCD}$

    (b) Draw the circuit diagram, characteristic table and excitation table of JK flip - flop.

    (c) What do you mean by modulation ? Give the types of modulation. Differentiate in between ASK and FSK.

    (d) What are access control protocols ? Explain CSMA/CD with suitable example.

    (e) Differentiate in between the following :

         (i) Circuit switching and packet switching

         (ii) FDM and TDM

    (f) Explain the various types of transmission modes.

4. Attempt *any two* parts of the following :   (10x2=20)

    (a) (i) Discuss any three types of Internet connections.

         (ii) Explain the Gopher, FTP and Telnet services.

    (b) (i) What do you understand by HTML ? How it is differ from other conventional programming language ? Explain.

         (ii) Write notes on the following :

            (1) www

            (2) http

(c) (i) What is E-Commerce ? Explain B2B and B2C e-commerce with suitable example.

(ii) Write down the full forms and the purpose of the followings :

TCP/IP, SMTP, PPP, SLIP, WAP, DHTML, ISDN, XML, URL, WML

5. Attempt *any two* parts of the following : **(10x2=20)**

(a) (i) Define operating system. Explain the different functions performed by an operating system.

(ii) Differentiate in between the following :

(1) Multiprogramming and Multiprocessing operating system

(2) GUI and CLI

(b) (i) Define the following terms with respect to DBMS :

Field, Record, File, Database, primary key

(ii) Write short notes on the following :

(1) MS Word

(2) MS power point

(c) (i) Explain the use of Information Technology in Multimedia applications.

(ii) Write short notes on ERNET.

- o O o -

TIT – 201   4