



Printed Pages : 4

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 2009-10
INFORMATION TECHNOLOGY**

Time : 3 Hours]

[Total Marks : 100

- Note :** (i) Attempt all questions.
(ii) All questions carry equal marks.

1 Attempt any four parts of the following : $5 \times 4 = 20$

(a) Let p denote the probability of some event. Plot the amount of information gained by the occurrence of this event for $0 \leq p \leq 1$.

(b) The probability of occurrence of event

p_1, p_2, p_3 are $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}$. Calculate entropy. If

all are equally likely to occur, then also calculate entropy.

(c) Explain the different phases of JPEG that converted a blocked image to compressed image.

(d) Define information. Why do we need information theory ?



- (e) Differentiate between data compression and data encryption.
- (f) Write the properties of Shannon's information entropy.

2 Attempt any **four** parts of the following : **5×4=20**

- (a) Define Hardware, software and firmware giving suitable examples. Differentiate between system software and application software.
- (b) Draw a flowchart of an algorithm to find the sum of an Arithmetic Progression Series.
- (c) Differentiate between static RAM and dynamic RAM.
- (d) Explain the CMM standards for IT industry.
- (e) Differentiate between Compiler, Assembler, Interpreter.
- (f) Differentiate between optical storage and magnetic storage. Also explain the significance of the terms TRACK and SECTOR in these media.

3 Attempt any **four** parts of the following : **5×4=20**

- (a) (i) Differentiate unshielded and shielded twisted pair cable.
- (ii) Explain Guided media. How are these different from unguided media ?
- (b) Differentiate between circuit switching, packet switching and cell switching. Give examples of networks using these.

- (c) Convert the following :
- (i) Decimal 64356 to Hexadecimal format
 - (ii) Decimal 24.25 to Octal format
 - (iii) Binary 1.001 to Decimal format
 - (iv) Decimal -27 to Binary format (2's complement)
 - (v) FE71 Hexadecimal to Octal format.
- (d) Define Gray code format. Give real life examples of using Gray codes. Write Gray codes for decimal numbers 10, 15.
- (e) Explain ISDN technology concepts. How is it better than other technologies ?
- (f) Draw the OSI protocol stack of computer networks. Explain the role of each layer in this stack, naming the protocol for each layer.

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

- (a) What is the difference between static and dynamic web pages ? Which language is available to make these ?
- (b) Explain File transfer protocol and steps involved in transferring a file to/from a remote machine.
- (c) What is significance of IP-address ? Can two computers on the Internet have same IP-address ? In how many types we can allocate IP-addresses to computers ?
- (d) Explain the role of digital signatures in implement security.



