

TCS-101

1548

Odd Semester Examination 2018-19

B.TECH. (SEMESTER-I)

FUNDAMENTALS OF COMPUTER AND PROGRAMMING

Time: 03:00 Hours

Max Marks :100

Note: Attempt the following.

1. Answer **any four** questions:

(5X4=20)

- (a) What is Computer? Why is it also known as a data processor?
- (b) What is data processing? Differentiate between data and information. What is more useful to the people?
- (c) What is meant by Computer Generations? List out the various generation in Computer technologies along with their characteristics.
- (d) Represent (2720) into the BCD, ASCII and EBCDIC format.
- (e) Convert $(1100110100)_2$ Into (a) Decimal (b) Octal (c) Hexadecimal.

2. Answer **any four** questions:

(5X4=20)

- (a) What is an Operating System? Explain all the four types of operating systems.
- (b) Write four differences between each of the following:
 - (i) Router and Gateway
 - (ii) Ring topology and Star topology.
- (c) State any two library functions for string handling and their purpose.
- (d) How will you convert a binary number 110 to a gray code? What is the gray code equivalent of 11001 H ?
- (e) What do you mean by a pointers? Mention its uses.

(10X2=20)

3. Answer any two questions:

- (a) What are octal number? Write down the algorithm to convert a decimal number to an octal number and convert the decimal number 399 to its octal equivalent.
- (b) Explain guidelines for preparing flowcharts, benefits and limitation of flowcharts.
- (c) Write a c program that displays a pyramid structure using numbers.

4. Answer any two questions:

(10X2=20)

- (a) Write a program using pointers to add matrices and to return the resultant matrix to the calling function.
- (b) What is the difference between Call by value, Call by reference? Write any program to use concept of Call by value and Call by reference.
- (c) What is the algorithm? What are the different standards of library string functions? Write a function xstrsr() that will return the position where one string is present within another string. If the second string does not occur in the first string xstrsr() should return a 0.

5. Answer any two questions:

(10X2=20)

- (a) Define a structure in C having Name of Emp, Emp Code, Salary and address as elements. Input 10 records. Write a function in C that takes array of structure and return the record of Employee having maximum Salary. Make suitable assumption where required.
- (b) Explain all the arithmetic relation logical and bitwise operator used in c language with necessary expressions as example.
- (c) Write a c function to calculate the factorial of given number and use it in the main program to calculate the binomial coefficient of a given number. Given binomial coefficient :

$$\binom{n}{k} = \frac{n!}{k! \times (n - k)!}$$