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Paper Id:

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B.TECH.
(SEM I) THEORY EXAMINATION 2018-19
COMPUTER CONCEPTS AND PROGRAMMING IN C

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data, then choose suitably.

SECTION A

1. Attempt all questions in brief.

2x10 = 20

- a. Find the 1's and 2's complement of 101101 using formula.
- b. Who, When, Where and Why 'C' language developed.
- c. Write the syntax for exit control loop and entry control loop.
- d. What will be output of following code?

```
main ()
{
    int a ;
    for ( a = 1 ; a <= 32767 ; a++ )
        printf ( "%d", a ) ;
}
```

- e. What do you mean by prototype of a function?
- f. Convert the octal no 2687 to hexadecimal no if possible, if not justify your answer.
- g. What is algorithm? Discuss its characteristics.
- h. What is the output of following program?

```
#define SQUARE (n) n*n

main ()
{
    int j;
    j= 64/ SQUARE(4);
    printf("%d",j);
}
```

- i. Write five basic commands of Linux operating system.
- j. What is the difference between 'A' and "A".

SECTION B

2. Attempt any three of the following:

10x3 = 30

- a. Describe about various storage classes in C and give one example of each.

- b. What are pointers? Why they are required? How do you declare and initialize them? Write a program to read two integers X and Y and swap the contents of the two variables X & Y using pointers.
- c. Convert the following.
- (i) $(CC)_{16} = (?)_8$
 - (ii) $(54)_6 = (?)_3$
 - (iii) $(10101)_{10} = (?)_2$
 - (iv) $(11011.011)_2 = (?)_{16}$
 - (v) $(756)_{10} = (?)_{16}$
- d. What do you mean by function? Discuss its advantages. And explain the concept of actual argument and formal argument with example.
- e. How to initialize 2-D array? Write a program that accepts a string and displays it. It converts all lower case to upper case and then display the resultant string.

SECTION C

3. Attempt any *one* part of the following: 10x1=10

- a. (i) Write a program to print following pattern.

```

11111
2222
333
44
5
```

- (ii) Write a program to check whether a given year is leap year or not using conditional operator.
- b. (i) What do you mean by operator precedence and operator associativity?
(ii) What is operating system? What are its types? Explain its different functions in brief.

4. Attempt any *one* part of the following: 10x1=10

- a. (i) Explain the role of break and continue using example.
(ii) Explain type casting with example.
- b. Explain the following:
- (i) Compiler (ii) Interpreter
 - (iii) Linker (iv) Loader

5. Attempt any *one* part of the following: 10x1=10

- a. Write a program to print Fibonacci series up to n number using recursion.
b. Write a program in C to find min and max element of a given array.

6. Attempt any *one* part of the following:

10x1=10

- a. What is the role of preprocessor? Define Macro, and explain conditional compilation with example.
- b. List the various modes in file, and write a C program to count the no of character in a file.

7. Attempt any *one* part of the following:

10x1=10

- a. Explain the role of switch keyword in C program.
- b. Write a program to multiply two matrices of order mxn.