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Paper Id: 

110103
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Sub Code: ECS101

Roll No. 

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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.

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