

**SPECIAL SUPPLE B.TECH/AEIE/BT/CE/CHE/CSE/ECE/EE/IT/ME/2ND
SEM/CSEN 1201/2018**

**INTRODUCTION TO COMPUTING
(CSEN 1201)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

**Group - A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) A global variable
(a) can only be used in main()
(b) can only be used in selected functions
(c) can be used in all the functions
(d) can be used only in recursive functions.
- (ii) Which of the following functions is used for accepting input(s) in a C program?
(a) main() (b) printf()
(c) scanf() (d) none of these.
- (iii) Meaning of $x \neq 3$ is same as,
(a) $x = 2$ (b) $x = 3$ (c) $x = x/3$ (d) $x = 4$.
- (iv) In file handling, fclose() is used for
(a) opening a file (b) closing a file
(c) reading from a file (d) writing to a file.
- (v) Select the fastest memory unit
(a) Register (b) Cache (c) RAM (d) Hard disk.
- (vi) How can two strings be compared in C?
(a) using = operator (b) using strcmp()
(c) using == operator (d) none of the above.
- (vii) Which of the following is NOT a datatype in C?
(a) int (b) static (c) double (d) float.

(viii) What will be the value of y after these lines?

```
int y = 11, z = 2;
```

```
y = y/z;
```

(a) 0 (b) 1 (c) 5 (d) compilation error.

(ix) What will be the output?

```
#define SQUARE(X) X * X
```

```
int main ( )
```

```
{
```

```
    printf (“\n Square = %d” , SQUARE(8+2+1) );
```

```
    return 0;
```

```
}
```

(a) 121 (b) 32 (c) 110 (d) 21.

(x) What will be the output of the following loop

```
int x = 2, y = 6;
```

```
while(z > 0)
```

```
{
```

```
    z = (++y + z) % x;
```

```
    printf(“%d ”,z);
```

```
}
```

(a) 1 0 1 (b) 1 (c) 1 1 (d) 1 1 0.

Group – B

2. (a) Draw a flowchart diagram to check whether a number is odd or even.

(b) Convert from one number system to the other –

(i) $(48)_{10} = (?)_2$

(ii) $(2054)_8 = (?)_2$

(c) Simplify the expression – $A(A + \bar{B}C) + A(\bar{B} + C)$

$$5 + (2 \times 2) + 3 = 12$$

3. (a) Describe the functions of the different parts of the IEEE-754 32-bit full precision floating representation.

(b) State the differences between compiler and interpreter.

(c) What is a universal logic gate?

(d) Draw a logic circuit to simulate an OR gate and an AND gate by using only NOR gates.

$$5 + 2 + 1 + 4 = 12$$

Group – C

4. (a) Write a program to convert Celcius scale into Fahrenheit scale and vice-versa.
- (b) Write a program in C to express a sum of money into minimum number of notes/coins needed and their denominations. Example: 1252 will return 2 notes of 500, 2 notes of 100, one note of 50 and one coin of 2. (Assume denominations of Rs. 2000, 500, 100, 50, 20, 10, 5, 2, 1).

6 + 6 = 12

5. (a) Write a program in C to count the number of odd integers in an integer array. The values of the array should be provided by the user.
- (b) Write a program in C to print the following pattern when the row number is provided by the user (as n). Here, n is 5. Write the program such that it will work for any value of n.

```
*
* *
* * *
* * * *
* * * * *
```

6 + 6 = 12**Group – D**

6. (a) Write a program in C to calculate factorial of a number provided by the user, using loop.
- (b) Write the same program in (a) using recursion (do not use a loop).
- (c) How does a global variable behave differently from a local variable in a function?

6 + 4 + 2 = 12

7. (a) Write a program in C to compare whether two strings are same or not.
- (b) What is scope and longevity of a variable? Compare scope and longevity for local, extern and static variables.
- (c) What is the difference between opening a file in write mode and in append mode?

6 + (1 + 3) + 2 = 12

Group - E

8. (a) Write a program in C to copy contents of one file and put it into another file.
- (b) Write a program in C to dynamically allocate an integer array (size of the array is provided at run-time). Fill up the array with integers provided by user and print the mean of those numbers.

6 + 6 = 12

9. Write short notes on any two:
- (i) Structure
 - (ii) Dynamic memory allocation
 - (iii) File handling
 - (iv) Command line argument.

6 + 6 = 12