Roll No. ☐☐☐☐☐☐

H

TCS–101

B. Tech. (First Semester)
Mid Semester EXAMINATION, 2016

(All Branches)

FUNDAMENTAL OF COMPUTERS AND
INTRODUCTION TO C PROGRAMMING

Time : Two Hours]   [Maximum Marks : 60

Note : (i) This question paper contains *three* questions with alternative choice.

(ii) All questions are compulsory.

(iii) Each question carries four Parts (a), (b), (c) and (d). Attempt either Parts (a) and (b) or (c) and (d) of each question.

(iv) Each Part carries **ten** marks. Total marks assigned to each question are **twenty**.

1. (a) (i) What is the difference between Data and Information ? Explain with an example.

5

(ii) Explain all the characteristics of Monitors.

5

(b) Uttarakhand states electricity board bill is generated on the following basis : **10**

If units are less than or equal to 1000, rate is ₹ 5/unit

If units are greater than 1000 and less than or equal to 2000, rate is ₹ 6/unit

If units are greater than 2000, rate is ₹ 7/unit

Draw a neat and clean flowchart to calculate electricity bill.

Or

(c) Write short notes on the following : $2\frac{1}{2}$ each

   (i) Control Unit and Arithmetic Logic Unit
   (ii) Impact and Non-impact printers
   (iii) Mass storage device and Main memory
   (iv) Touch Screen

(d) Draw a flowchart and write an algorithm to find roots of a quadratic equation. **10**

2. (a) (i) Convert the following mathematical equation into C expressions : **5**

   (1) $\dfrac{a^2+b^2}{2}$

   (2) $x=\dfrac{-b+\sqrt{b^2-4ac}}{2a}$

   (3) $\sqrt{s(s-a)(s-b)(s-c)}$

   (ii) Explain typecasting in C. Also explain implicit and explicit typecasting. **5**

(b) Write a C program to calculate total salary based upon the following : **10**

HRA = 3% of Basic salary, TA = 5% of Basic salary, DA = 3% of Basic salary.

Total salary = Basic Salary + HRA + TA + DA.

Or

(c) Write short notes on the following : $2\frac{1}{2}$ each

   (i) Operator precedence and operator associativity
   (ii) Symbolic constant
   (iii) Increment and decrement operator
   (iv) Type modifier

(d) Write a C program to perform division of two integers. Using explicit type casting print correct answer upto two places of decimal. Perform division only if denominator is not zero using conditional operator. **10**

3. (a) A shopkeeper sell mangoes. Draw a flowchart and write an algorithm to generate bill. Also write a C program for this.

   $3\frac{1}{2}, 3\frac{1}{2}, 3$

(b) Define tokens in C. List the various tokens in C, also explain each token in brief. What are the rules for a valid identifier ? **10**

Or

(c) Explain all relational and logical operators each with an example. **10**

(d) Predict the output : $3\frac{1}{2}, 3\frac{1}{2}, 3$

(1)

```c
#include<stdio.h>
    int main( )
        {
                int x, y = 5, z = 5;
                x = y = = z;
                printf("%d", x);
                return 0;
        }
```

(2)

```c
#include<stdio.h>
int main( )
        {
                printf("\"GRAPHIC  %%  ERA
                %%  HILL  %%  UNIVERSITY\"
                ");
                return 0;
        }
```

(3)

```c
#include<stdio.h>
int main( )
        {
                int a, b = 10;
                a = – b – –;
                printf("a = % d, b = %d", a, b);
                return 0;
        }
```