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TCS–101

B. TECH. (CSE) (FIRST SEMESTER)

MID SEMESTER

EXAMINATION, Nov.,2022

FUNDAMENTALS OF COMPUTERS AND INTRODUCTION TO PROGRAMMING

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any ***one*** of the sub-questions.

(ii) Each sub-question carries 10 marks.

1. (a) Explain Machine Language, Assembly Language and High-Level Language with suitable examples. Discuss the terms : Instruction, Command, Process, Task and Program in a computer.

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OR

(b) How algorithm and flowcharts can assist in problem solving phase ? Explain advantages of using Algorithm and flowcharts.

2. (a) (i) A recording studio generates a data of 72 TB of data in 8 hours per day. Calculate the rate of recording the data and express in GB/sec ? (Assume 1 kB = 1000 bytes for calculation).

(ii) What is type casting in C ? Illustrate the differences with an example for explicit and implicit type casting.

OR

(b) Design an algorithm and draw a flowchart to accept the number of days from the user and displays it as number of year, month Assume number of days in a year as 365 and 30 days in a month respectively.

Assume user inputs 1735, then Output must be Year = 4, Month = 9, Day = 5.

3. (a) List the functions of Operating System. Explain the role of Computer Network in our daily lives ? Categorize different types of computer networks with their significance.

OR

(b) Bogilal likes to buy N cartons of mangoes from a fruit seller. If the fruit seller had Q kg of mangoes and each carton can hold 50 kg of mangoes. Cost per kg is ₹ 60. Then find the total amount paid by Bogilal in Rupees to the fruit seller and also the cost of inventory (balance mangoes worth left) with the fruit seller. Draw a flowchart for the same.

4. (a) Depict the cycle of a C program with a neat diagram. List the differences between compiler and interpreter.

OR

(b) Differentiate the following :

(i) Static Ram *vs.* Dynamic Ram

(ii) Fourth Generation *vs.* Fifth Generation of Computers

5. (a) List the characteristics of a good algorithm. Write an algorithm to find and display whether the year accepted from the user is a leap year or not. Ensure a constraint : year > = 1900 and less than < = 9999.

OR

(b) Predict the output of following code :

```
1. #include <stdio.h>
int main ()
{
int a = 1;
int b = 1;
int c = a || b;
int d = a && b;
printf("a = %d, b = %d, c = %d, d = %d",
a++, b, c, --d);
return 0;
}
```

2. #include <stdio.h>

```
int main ()
{
    int x1, x2;
    x1 = 5 > 8 ? 10 : 1;
    x2 = x1 ! = 2 ? 20 : 30;
    printf ("Value of x: %d", x2);
    return 0;
}
```

3. #include <stdio.h>

```
int main ()
{
int a = 0, b = 0, x;
x = 0 && (a || b);
printf("%d%d %d\n", a, b, x);
x = 0 || (a = ++ b);
printf ("%d %d %d d\n", a, b, x);
return 0;
}
```

4. #include <stdio.h>

```
int main ()
{
unsigned char cl = 'A', R;
R = cl + 5;
      printf("%c= =>%d\n", R, R);
return 0;
}
```


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