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Roll	NO.	 	 		

int k = 0:

TCS-101

B. TECH. (FIRST SEMESTER) MID SEMESTER EXAMINATION, Nov., 2022

FUNDAMENTAL OF COMPUTER AND INTRODUCTION TO C PROGRAMMING

Time: 11/2 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.

ith explanation: _ (CQL CQL CQ3, CQ4)

1. (a) Explain Von Neumann architecture of computer with a neat diagram.

(CO1)

OR

(b) Define the following:

(CO1)

- (i) Utility software
- (ii) Cache memory
- (iii) Tracks and sectors
- (iv) Mesh and ring topology

```
2. (a) Find the following output with explanation: (CO1, CO2, CO3, CO4)
       (i) #include<stdio.h>
              int main()
           If fassenger is male/female and age is > = 6, then dis [4] [ ______ ]
                int k = 0;
                B. TECH. (FIRST SEMESTER)(A)rof
           printf("Hello");
             MID SEMESTER EXAMINATION, N;0 muf9222
                              FUNDAMENTAL OF COMPUTER AND
       (ii) #include<stdio.h>
                int main()
                               Time: 1% Hours
                   int a = -5:
                   if(!(a*-1))
     Note: (i) Answer all the questions by choosin; "seessup-drining bequestions.
                                 (ii) Each sub-question carries 10 marks.
                printf("Failure");
       1. (a) Explain Von Neumann architecture of computer v; 0 muttent diagram.
      (iii) #include<stdio.h>
             int main()
    (CO1)
                int i=5; j=3, k=-2, z;
                z = !(i\&\&j||k);
                                                   (ii) Cache memory
           printf("%d",z);
                return 0;
             }
```

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```
(ii) #include <stdio.h>
    (iv) #include <stdio.h>
                                              int main()
        int main()
                                                int a=5:
           int z;
                                               switch(a)
           z = 4*6/3-12*5.2\%4-8;
        printf("%d", z);
           return 0;
                                             case 3:
                                                printif("3");
    (v) 6 GB = ..... bits.
                              OR
                                               printf("5");
(b) Find the following output with explanation:
                                             (CO1, CO2, CO3, CO4)
   (i) #include <stdio.h>
          int main()
                                         (iii) #include <stdio.h>
                                               int main()
         if(a=1) of their separes and separe of their difference. Print the
       printf("You won");
                                             while(i>0)
         else
                                             printf("%d",i);
      print("You loose");
      return 0;
        \begin{cases} 1 & 2^{3} + 3^{3} + 4^{3} + 6^{3} = 316 \end{cases}
```

```
Se < globbe > sbulence (ve)
             (ii) #include <stdio.h>
                 int main()
                                                           Amen in
                 {
                    int a=5;
                                                             rs in
                    switch(a)
                                            1 2 = 4 *6/3-12*5.2064-8
                                                       ( print) "(d) + z);
                        case 0:
                 printf("0");
                        case 3:
            printf("3");
            case 5:
              printf("5");
          (AO) (O) (O) default:
                  printf("RABBIT");
(iii) #include <stdio.h>
                    int main()
                      int i=5;
                      while(i>0)
                   printf("%d",i);
                  i=1;
                      return 0;
                      }
```

P. T. O.

- 3. (a) Explain different phases involved in compilation of a C program. (CO2)
 - (b) What do you mean by unary, binary and ternary operators? Explain operator precedence and associativity. Apply it in the following expression and calculate:

 (CO2)
 - (i) 8+3-6*7/4>7/3*5
 - (ii) 5 * 7 + 3 & & 9 < 10 8 * 4
- 4. (a) Draw a flowchart to input two positive integer numbers, calculate the difference of their squares and square of their difference. Print the largest of two results obtained. (CO3)

OR

(b) Draw a flowchart to input a positive integer number than print the sum of cubes of the factors of that number. For example: (CO3)

Sum =
$$1^3 + 2^3 + 3^3 + 4^3 + 6^3 = 316$$

101-201

- 5. (a) Write a C program to calculate final train fare after applying the following conditions: (CO4)
 - (i) If passenger is male/female and age is > = 6, then discount = 50%.
 - (ii) If passenger is female and age between 12 to 65, then discount = 20%.
 - (iii) If passenger age is between 5 to 12, then discount = 75%.
 - (iv) If passenger age is less than 5, then discount = 100%.

AO

Note that the second of th

(b) Write a C program to calculate the sum of the following series: (CO4)

(b) What do you man by un by
$$\frac{5}{x} + \frac{2}{x} + \frac{2}{x$$

expression and calculate:
(i) 8+3-6*7/4>7/3*5

(ii) 5*7+3&&9<10-8*4

4. (a) Draw a flowchart to input two positive integer numbers, calculate the

difference of their squares and square of their difference. Frint the largest of two results obtained.

Draw a flowchart to input a positive integer number than print the sum

of cubes of the factors of that number. For example: (CO3)

(v) 32 MB = nibble