



**DHARMSINH DESAI UNIVERSITY, NADIAD**  
**FACULTY OF TECHNOLOGY**  
**B.TECH. SEMESTER I [CE/EC/IT]**

**SUBJECT: (ES105) PROBLEM SOLVING PROGRAMMING I**

Examination : Regular

Date : 15/12/2023

Time : 2.30 to 5.30 pm

Seat No : 32

Day : Wednesday

Max. Marks : 60

**INSTRUCTIONS:**

1. Answer each section in separate answer book.
2. Figures to the right indicate maximum marks for that question.
3. The symbols used carry their usual meanings.
4. Assume suitable data, if required & mention them clearly.
5. Draw neat sketches wherever necessary.

**SECTION - I**

**Q.1 Do as directed.**

**[10]**

**CO1 U (a) Explain the process of Creating, Compiling and Executing a C program.**

**[2]**

**CO2 A (b) By applying concept of precedence & associativity find output of below code.**

**[2]**

```
#include<stdio.h>
void main()
{
    int p=7,q=8,h=15,s=14;
    int total=p+p*-q/h&&s-h*s;
    printf("%d",total);
}
```

**CO2 A (c) Interpret and mention incorrect statement(s) from following.**

**[2]**

```
1) #define M=2.5      3) #define EXP@ 50
2) #define N 5        4) #define _MAX 10
```

**CO1 R (d) List different categories of User Defined Functions.**

**[2]**

**CO2 A (e) By applying appropriate concept find value(character/string) of following expressions.**

**[2]**

```
char city[3][25] = {"Baroda", "Nadiad", "Anand"};
```

- 1) city[1]+3
- 2) \*(city+2)+2

**Q.2 Attempt Any TWO from the following questions.**

**[10]**

**CO4 C (a) Create a C Program which read one string S1 from the user. String S1 contains alphabets, special characters, and white spaces. Now convert all lower case characters of S1 into upper case and all upper case characters of a S1 into lower case. Also count the number of upper case characters, lower case characters, special characters and number of white spaces in input string S1.**

**[5]**

**CO4 C (b) Create a c program that will display Grade message of a student according to his/her marks using else if ladder.**

**[5]**

**Marks**

80 to 100  
60 to 79  
50 to 59  
40 to 49  
0 to 39

**Message to be display**

Honours  
First Division  
Second Division  
Third Division  
Fail

**CO4 C (c) Create a structure distance with two integer types of data members kms and metres. Write a program using functions Add\_dist() and Sub\_dist() to add and subtract two distances given as an argument to the functions.**

**[5]**

(Note: Distance cannot be negative.)

- Q3 Answer the following questions. [10]  
 CO3 N (a) Examine following statements and write answers in True/false. Also write a corrected statement [5]  
 if it is false.

1) `int b = 5* - *p2/*p1;` 2) `int *p = &a, a;` 3) `int c123=3;`

- CO5 E (b) Define a structure called Person. It contains gender, age, marriage status, weight and no. of [5]  
 children as members. Use bit field for all members. Write a program to Store the information of  
 10 persons and display the same.  
 Also write a function Find( ) that will search the details of a person whose age is greater than 30  
 and gender is female.

OR

- Q3 Answer the following questions. [10]  
 CO3 N (a) Analyze the concept of 2D array and write the following c program. [5]  
 In a small company there are 5 salesmen. Each salesman is supposed to sell four products. Write  
 a code to print 1) total sales by each salesman 2) total sales of each product.

- CO5 E (b) Create a single c program using switch case which includes the following cases. [5]  
 1) Read and display one string.  
 2) Compute the ratio of number of female and number of male.  
 3) Swap value of two variables.

## SECTION - II

- Q.4 Do as directed. [10]  
 CO1 U (a) Explain about "ragged arrays". [2]  
 CO2 A (b) Apply appropriate concept and find output of below code. [2]

```
#include <stdio.h>
int i;
void main()
{
    int j, at[5] = {0, 1, 2};
    for(j=0; j<5; j++)
        printf("%d", at[i]);
}
```

- CO1 U (c) "Use of Terminating null character is a better logical solution while dealing with character [2]  
 arrays". Explain the above statement.  
 CO2 A (d) Demonstrate working of strcmp() function. [2]  
 CO1 R (e) List different types of tokens in C. [2]

- Q.5 Attempt Any TWO from the following questions. [10]  
 CO5 E (a) Design a C Program to delete duplicate elements from an array of integers. [5]  
 (Write a single c program which gives correct output for the following two cases.)

Case 1:	Input:- N=6 10,3,5,5,2,5	Output:- 10,3,5,2
Case 2:	Input:- N=7 2,4,2,5,4,2,4	Output:- 2,4,5

- CO5 E (b) Find out the errors (if any) else predict the output by debugging the following code snippet(s): [5]  
 1)  

```
void main()
{
    enum month{a, b, v=-1, c, t=2, k, s};
    printf("%d-%d+%d*%d", a-b, c, b/t, k);
}
```

```

2)
int main()
{
    char d[]="amritmahotsav";
    char *ptr=&d[4];
    char *qtr=d;
    printf("%s\t",qtr+1+*(d+12)-ptr[-2]);
    printf("%d",sizeof(d));
    ,return 0;
}

```

CO5 E (c) Predict the output by debugging the following code.

[5]

```

1)
#include<stdio.h>
int fl(int n, int sum);
void main()
{
    int a=2048, sum=0;
    fl(a,sum);
    printf("%d ",sum);
}
int fl(int n, int sum)
{
    int k=0,j=0;
    if(n==0)
        return 0;
    k=n%10;
    j=n/10;
    sum=sum+k;
    fl(j,sum);
    printf("%d,",k);
}

```

```

2)
#include<stdio.h>
void main()
{
    int a=2023;
    printf("-%10d\n",a);
    printf("%10d",a);
}

```

Q6 Answer the following questions.

[10]

CO3 N (a) Compare Structure and union using the following program.

[5]

Read and display information of 5 products. Information includes name, price and quantity of a product. (Write a code using both approaches)

CO4 C (b) Create a c program to find out reverse of a given string using Pointer.

[5]

OR

Q6 Answer the following questions.

[10]

CO3 N (a) Distinguish the following with an example.

[5]

Counter controlled loops vs Sentinel controlled loops

CO4 C (b) Create a c program to find out multiplication of two 3X3 matrices using pointers.

[5]

Blooms Taxonomy levels : R-Remembering, U- Understanding, A-Applying, N-Analyzing, E- Evaluating, C-Creating