

Vidya Vikas Mandal's
Shree Damodar College of Commerce & Economics, Margao-Goa
FY BCA, Semester-I, Semester End Assessment, November 2023
Problem Solving & Programming (CSA 100) (MAJOR) (OA-38, NEP-2020)

Duration: 2 hours

Max. Marks: 60

Instructions:

- i) All questions are compulsory and figures to the right indicate full marks.
- ii) Questions of 2 marks to be answered in not more than 40 words.
- iii) Questions of 3 marks to be answered in not more than 60 words.
- iv) Questions of 4 marks to be answered in not more than 80 words.
- v) Questions of 5 marks to be answered in not more than 100 words.

Q. 1) Answer the following :**(6X2=12)**

- 1) Define a flowchart.
- 2) List two attributes of an algorithm.
- 3) Define a Datatype.
- 4) List any two logic structures.
- 5) What is a Nested Loop?
- 6) What is documentation in programming?

Q. 2) Answer the following :**Q.2 A) i) Explain three steps of problem-solving life cycle.****(3)****ii) Show the syntax of declaring a variable to store an integer number.****(2)****OR****Q.2 A) iii) Describe the use of modules and logic structures in structured programming.****(3)****iv) Distinguish between variable and a constant with an example.(1 point).****(2)****Q.2 B) i) Draw a flowchart to find the largest of 3 numbers.****(5)****ii) Show the working of a sequential instruction with an example.****(2)****Q.3) Answer the following :**

- Q.3 A) i) Construct an algorithm for swapping(exchanging) of two numbers. (3)
- ii) Interpret an appropriate datatype to store the player name and score of a cricket match. (2)

OR

- Q.3 A) iii) Design a flowchart to find if the entered number is a positive or a negative number. (3)
- iv) Interpret an appropriate datatype to store the name and height of a student. (2)

- Q.3 B) i) Illustrate the logic behind the switch - case logic structure with the help of a syntax. (5)
- ii) Explain logical AND(&&) operator with an example. (2)

Q.4) Answer the following :

- Q.4 A) i) Generate the output of the below given sequential Code: (3)

```
#include<stdio.h>
int main() {
int num;
printf("Enter a number : ");
scanf("%d", &num);
answer=num*num;
printf("\n The calculated value with num as %d is %d", num,
answer);
}
```

- ii) Illustrate the significance of the index of an array with an example. (2)

OR

- Q.4 A) iii) Elaborate on the working of the below given sequential Code : (3)

```
#include<stdio.h>
int main() {
int num, result;
printf("Enter a number : ");
scanf("%d", &num);
```

```

result=num * 5;
printf("\n The calculated value with num as %d is %d",
num,result);
}

```

iv) Analyse and find the values printed at Index 2 and 4 in the given Array. (2)

24	65	77	2	11	9
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Q.4 B) i) Differentiate between while and do-while looping construct with an example of your own. (5)

ii) Calculate the size of the array to store the string *Hello World* (2)

Q. 5) Answer the following :

Q.5 A) i) Explain recursive function with the help of your own example. (3)

ii) Debug the given code, mention the errors and find its output : (3)

```

#include <stdio.h>
int main() {
    int rows;
    rows=5

    for (int i = 0  i < rows; i=i+1 ) {
        printf( * );
    }
    return 0;
}

```

OR

Q.5 A) iii) Analyse the given code and explain the method used in the increment function. (3)

```

#include <stdio.h>

void increment(int num) {

    num = num + 1;

}

int main() {

int number = 5;

```

```

printf("Before function call: number = %d\n", number);

increment(number);

printf("After function call: number = %d\n", number);

return 0;

}

```

iv) Debug the given code, mention the errors and find its output : (3)

```

#include <stdio.h>
int main() {
    int i,p;
    p=25;
    while (i<5) {
        printf(" p ");
        i+1=i;
    }
    return 0;
}

```

Q.5 B) i) Illustrate the benefit of user defined function with an example of your own. (3)

ii) Analyse the given scenario and Draw a flowchart: (3)

Decision for Travel Days :

Receive an owner's Car number, compare it to find if it is even or odd and display the message about Days of Travel allowed.

(RULE : Odd Car Numbers can travel on Monday to Wednesday and Even Car numbers can travel on Thursday to Sunday)