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GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS

FARMAGUDI, PONDA- GOA

B.C.A UGC-CCFUP (SEMESTER-I) REGULAR EXAMINATION, NOVEMBER/OCTOBER 2024

CSA-100 PROBLEM SOLVING AND PROGRAMMING

Duration: 2 hours **Total Marks: 60**

Instructions:

i) All questions are compulsory
ii) Figures to the right indicate full marks.
iii) Draw diagrams wherever necessary.

Q.1)	Answer **each of** the following	**(Marks) (CO) (BL)**
i.	Define the term Algorithm.	(2) (CO 2) (BL 1)
ii.	List any two components of flowchart.	(2) (CO 2) (BL 1)
iii.	What is stepwise refinement.	(2) (CO 1) (BL 1)
iv.	Define Pseudocode.	(2) (CO 2) (BL 1)
v.	Name any two building blocks of algorithm.	(2) (CO 2) (BL 1)
vi.	Define Modular Programming.	(2) (CO 1) (BL 1)
Q.2 A) i)	Discuss the differences between top-down design and bottom-up design in modular programming	(3) (CO 1) (BL 2)
ii)	Illustrate how a simple problem can be solved using an algorithm.	(2) (CO 2) (BL2)
	OR	
Q.2A) iii)	Discuss any 3 steps involved in creating an effective computer solution to a given problem.	(3) (CO 1) (BL 2)
iv)	Describe any 2 types of errors that can occur in programming.	(2) (CO 2) (BL 2)
Q.2 B) i)	Explain various stages in the problem-solving life cycle.	(5) (CO 1) (BL 2)
ii)	Draw a flowchart to find the sum of two numbers.	(2) (CO 2) (BL 2)

P.T.O.

Q.3 A) i) Construct an algorithm to swap two numbers using a temporary variable. (3) (CO 3) (BL 3)

ii) Solve the expression using operator precedence. (2) (CO 3) (BL 3)

$$Z = (2 + 4) > 3 \&\& 2 < 4$$

OR

Q.3 A) iii) Demonstrate a flowchart to check if a number is positive or negative. (3) (CO 3) (BL 3)

iv) Solve the expression using operator precedence. (2) (CO 3) (BL 3)

$$Y = 7 * (5 + 15) / (2 * 5) - 3$$

Q.3 B) i) Illustrate the switch case logic structure with an example. (5) (CO 3) (BL 3)

ii) Determine any two styles of naming convention standard. (2) (CO 3) (BL 3)

Q.4 A) i) Analyse the three essential elements of a function with an example. (3) (CO 4) (BL 4)

ii) Find the output of the below given code: (2) (CO 4) (BL 5)

```
#include<stdio.h>
void main ()
{
int check = 2;
 switch(check)
 {
   case 1:  printf("Sports\n");
   case 2: printf("Music\n");
   case 3: printf("Arts\n");
   default: printf("Cooking\n");
  }
}
```

OR

Q.4 A) iii) Explain the structure of a C program with an example. (3) (CO 4) (BL 4)

iv) Find the output of the below given code: (2) (CO 4) (BL 5)

```
#include <stdio.h>
void main()
{
    int i;
    for (i = 0; i < 4; i++)
   {
        if (i = = 2)
         break ;
        printf("%d ",i);
    }
}
```

Q.4 B)	i)	Compare while loop and do-while loop with an example	(5) (CO 4) (BL 4)
	ii)	Examine how a break statement changes the flow of a loop.	(2) (CO 4) (BL 4)
Q.5 A)	i)	Analyse the logic required to determine whether a given integer is even or odd with the help of a C program.	(3) (CO 4) (BL 4)
	ii)	Explain the significance of index of an array with an example	(3) (CO 4) (BL 4)
		OR	
Q.5 A)	iii)	Analyse the working of call by value mechanism with the help of a C program.	(3) (CO 4) (BL 4)
	iv)	Explain the benefits of using arrays in programming	(3) (CO 4) (BL 4)
Q.5 B)	i)	Write a C program to print numbers from 1 to 10 using a for loop.	(3) (CO 4) (BL 3)
	ii)	Illustrate the benefit of user defined functions.	(3) (CO 4) (BL 3)

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