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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

First Semester, B.E. - Semester End Examination; May - 2022

Problem Solving Through C

(Common to All Branches)

Time: 3 hrs *Max. Marks: 100*

Course Outcomes

The Students will be able to:

CO1: Compose step by step procedure /flow diagram to solve a given problem.

CO2: Identify the right data types based on the requirements of the problem.

CO3: Apply suitable programming constructs of C language and/or suitable data structures to solve the given problem.

CO4: Analyse and Identify the errors in given code snippet and determine the output.

CO5: Design and develop solutions to problems using structured or modular programming concept.

***Note**: I) **PART - A** is compulsory. **Two** marks for each question.*

*II) **PART - B**: Answer any **Two** sub questions (from a, b, c) for a Maximum of **18 marks** from each unit.*

Q. No.	Questions	Marks	BLs	COs	POs
	I : PART - A	**10**			
I a.	Write any four symbols used in flowcharts and mention its purpose.	2	L1	CO1	PO1, PO2
b.	What is the output of the following program? #include <stdio.h> void main ( ) { int *ch*; printf ("Enter a value between 1 to 2") ; scanf ("% d", &*ch*); switch (*ch*) { case 1: printf ("1\n"); default: printf ("2\n"); }}	2	L2	CO4	PO1, PO2

c.	What is the output of the following program?
	int main ( )
	{
	float *marks*[3] = { 90.5, 92.5, 96.5};
	int *a* = 0;
	while (*a* < 3)
	{
	printf ("%.2f, " , *marks*[*a*]); *a*++;
	}}
		2	L2	CO4	PO1, PO2

d.	What is the output of the following C code?
	int main ( )
	{
	struct ship
	{ int size;
	char color[10];
	} boat1, boat2;
	boat1.size = 10; boat2 = boat1;
	printf ("boat2=%d" , boat2.size); return 0;
	}
		2	L2	CO4	PO1, PO2

Contd… 2

e. What is the output of following C code?

```
#include<stdio.h>
void  fun (int *x)
{
  *x = 30;
}
int main ( )
{  int y = 20;
   fun(&y);
   printf ("%d", y);
   return 0;
}
```

	2	L3	CO4	PO1, PO2,PO3

II : PART - B	**90**			
UNIT - I	**18**			
1 a. Define algorithm. Write an algorithm, flow chart to check whether a number is prime or not.	12	L2	CO1	PO1, PO2
b. Define algorithm. Write an algorithm and flow chart to find first '*n*' Fibonacci numbers.	12	L2	CO1	PO1, PO2
c. Explain the basic structure of a C program.	6	L1	CO3	PO1, PO2
UNIT - II	**18**			
2 a. Explain switch statement with syntax. Write a program to print the grades obtained based on the marks scored.	9	L3	CO2, CO3	PO1, PO2
b. Explain while loop with syntax. Write a C program to find *gcd* and *lcm* of given two numbers using while loop.	9	L3	CO2, CO3	PO1, PO2
c. Explain for loop with syntax. Write a C program to print the first *n* even numbers using for loop.	9	L3	CO2, CO3	PO1, PO2
UNIT - III	**18**			
3 a. Define Array. Write a C program to find the sum of array elements.	9	L3	CO2, CO3	PO1, PO2
b. Write a C program to find the transpose of a matrix.	9	L3	CO2, CO3	PO1, PO2
c. Write a C program to compare two strings using string handling functions.	9	L3	CO2, CO3	PO1, PO2

Marks	Grades
$m \geq 90$	*S*
$80 \geq m \leq 89$	*A*
$70 \geq m \leq 79$	*B*
$50 \geq m \leq 69$	*C*
$40 \geq m \leq 49$	*D*
$m < 40$	*F*

Contd… 3

	UNIT - IV	**18**			
4 a.	Define user defined functions. With example, write a C program using function to search an element in array using linear search method.	9	L3	CO2, CO3, CO5	PO1, PO2, PO3
b.	List any five differences between structure and union. Write a C program to read and display the details of a student using structure.	9	L3	CO2, CO3, CO5	PO1, PO2,PO3
c.	Write a C program to display the average age of *N* employees of a company using structure.	9	L3	CO2, CO3, CO5	PO1, PO2
	UNIT - V	**18**			
5 a.	Define pointer variable. Write a C program to access the array elements and display using pointers.	9	L3	CO2, CO3	PO1, PO2
b.	Illustrate with Syntax: i) Creation of new file ii) Reading from the file iii) Writing to the file iv) Opening an existing file	9	L3	CO2, CO3	PO1, PO2,PO3
c.	Write a C program to copy the content of a file to another file.	9	L3	CO2, CO3	PO1, PO2,PO3

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