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RV COLLEGE OF ENGINEERING®

(An Autonomous Institution affiliated to VTU)

I / II Semester B. E. Regular / Supplementary Examinations Aug-2024

FUNDAMENTALS OF PROGRAMMING USING C (ELECTIVE)

Time: 03 Hours

Maximum Marks: 100

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer FIVE full questions from Part B. In Part B question number 2 is compulsory. Answer any one full question from 3 and 4, 5 and 6, 7 and 8 & 9 and 10.

PART-A

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1	1.1	Draw a flowchart to calculate the area of circle?	02	3	1
	1.2	Write an algorithm to print first 10 natural numbers?	02	3	2
	1.3	Use conditional operator to find smallest number among , b & c ?	02	2	1
	1.4	Find the output of the following program? <pre>#include < stdio.h > int main () { int a, b = 3; char c = 'A'; a = b + c; printf("\n a = %d", a); return 0; }</pre>			
			02	2	2
	1.5	In a do-while, if the body of the loop is executed n times, the test condition is evaluated _____ times.	01	2	1
	1.6	When the _____ statement is encountered then the rest of the statements in the loop are skipped.	01	1	1
	1.7	Find the output of the following code: <pre>include < stdio.h > int main () { int a = 5, b = 6, c = 7; if (c != 50) a = 10; else b = 15; if (a + b > 15) c = 12; a = 20; b = ++ c; printf("\n a = %d \t b = %d \t c = %d", a, b, c); return 0; }</pre>			
			02	2	2
	1.8	Function that calls itself is known as _____ function.	01	1	1
	1.9	_____ is the default storage class for global variables.	01	1	1
	1.10	<code>strncat</code> is used to _____.	01	1	1
	1.11	<code>strcmp(str1, str2)</code> returns 1 if _____.	01	1	1

1.12	Find the output of the following code: <pre>#include <stdio.h> int main () { int a = 3, b = 5; int *pnum; pnum = &a; printf("\n a = %d", *pnum) pnum = &b; printf("\n b = %d", *pnum); return 0; }</pre>	02	2	2
1.13	Memory for a structure is allocated at the time of _____.	01	1	1
1.14	By default, the return type of a function is _____.	01	1	1

PART-B

2	a	Distinguish between the following: i) Hardware and software ii) System software and Application software Give an example for each.	06	2	1
	b	Write an algorithm and draw the flowchart to find the simple interest.	10	3	2
3	a	Discuss the process of compiling and running a C program with a neat diagram.	06	1	1
	b	Write a program to evaluate salary of an employee, given his basic pay (to be entered by the user), HRA = 10% of the basic pay, TA = 5% of the basic pay. Define HRA and TA as constants and use them to calculate the salary of the employee.	06	3	3
	c	What are C tokens? Explain the different classes.	04	1	1
		OR			
4	a	Explain the structure of a c program with an example.	06	1	1
	b	Write a program to prepare a grocery bill. For that enter the name of the items purchased, quantity in which it is purchased, and its price per unit. Then display the bill in the following format. ***** BILL ***** Item Quantity Price Amount	10	3	3
5	a	Write a program using decision control and looping statement to read a 5 – digit number and then display the number in the following format. For example, the user entered 12345, then result should be: 12345 2345 345 45 5	08	3	3
	b	How many methods a 2 – D array can be initialized during compile time and runtime. Explain with an example for each method.	08	1	1
		OR			
6	a	Differentiate between break and continue with suitable example and flow chart.	06	4	1
	b	Write a program to multiply two matrixes ($A \times B$) by accepting the array elements at runtime and display the result.	10	3	2

7	a	Write a program to sort names of students using Array of Strings.	08	3	3
	b	Distinguish between Library functions and User defined functions in C and explain with examples.	04	2	1
	c	Differentiate actual parameters and formal parameters.	04	2	1
OR					
8	a	Explain the various categories of user defined function in C with examples.	08	1	1
	b	Write a C program to concatenate two strings without using string function.	08	3	2
9	a	Differentiate between ' <i>call by value</i> ' and ' <i>call by reference</i> ' concept with an example.	08	2	1
	b	Write a program in C to reverse a string using recursion.	08	3	2
OR					
10	a	What is a pointer C programming? Explain in detail with example, what are its benefits?	08	1	1
	b	Write a C –program to collect five employee's details (Name, DOB, total experience) and display the information using structures.	08	3	3