COLLEGE OF ENGINEERING AND TECHNOLOGY, SRMIST
DEPARTMENT OF COMPUTING TECHNOLOGY

CYCLE TEST – I
Academic Year: 2022-2023 (ODD Semester)

Program offered: B.Tech (All Branches) **Year / Sem: I / I**
Max. Marks: 25 **Duration: 50 minutes**

Course Code and Title: 21CSS101J: Programming for Problem Solving
ANSWER KEY

Course Learning Rationale (CLR):

CLR-1: Think and evolve with a logic to construct an algorithm and pseudocode that can be converted into a program.

Course Learning Outcomes (CLO):

CLO-1: To solve problems through computer programming. Express the basic data types and variables in C

Part A (10* 1 = 10 Marks)

Sl.No	Question	CO	PO	BL	Marks	PI CODE
1	---------- means the set of instructions that make up the solution after they have been coded into a programming language. A. Solution B. Result C. Program D. Error **Answer: C**	1	1	1	1	2.5.2
2	Identify the one of the following is true for variable name in C? A. Variable names cannot start with a digit B. Variable can be of any length C. They can contain alphanumeric characters as well as special characters. D. Reserved word can be used as a variable name **Answer: A**	1	2	1	1	2.5.2

3	The_____operator is true only when both the operands are true. a) && b) || c) ! d) ?: **Answer: A**	1	2	1	1	2.5.2

4	Find the output of the following code snippet.
	void main()
	{
	float a=654.1239;
	printf("%0.3f",a);
	}
	A. Compiler error
	B. 654.123900
	C. 654.123
	D. 654.124
	Answer: D
		1	2	1	1	1.6.1

5	The Operator '&' is used as A. Logical AND B. Bitwise AND C. Logical OR D. Bitwise OR **Answer: B**	1	2	1	1	2.5.2
6	Find the output of the following code snippet. 1. #include <stdio.h> 2. int main() 3. { 4. j = 10; 5. printf("%d\n", j++); 6. return 0; 7. }	1	2	1	1	1.6.1

	A.10 B.11 C. Compile time error D.0 **Answer: C**					

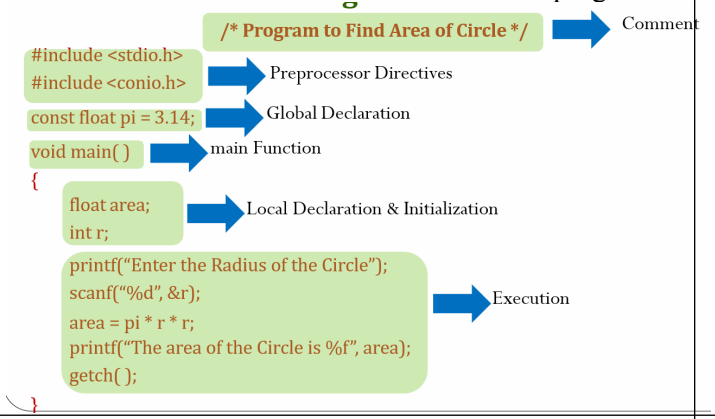
7.	Find the value of x in this C code
	`#include <stdio.h>`
	`void main()`
	`{`
	`int x = 5 * 9 / 3 + 9;`
	`}`
	A. 3.75
	B. Depends on compiler
	C. 24
	D. 3
	Answer: C
		1	2	1	1	1.61

8.	Find the output of the following code snippet
	`int a=10;`
	`printf("%x ",a);`
	`printf("%d",a<<2);`
	A. 10 40
	B. a 40
	C. 10 46
	D. a 46
	Answer: B
		1	2	1	1	2.5.2

9.	Identify the correct order of evaluation for the expressionD = 50 + 12 * 4 / 32 % 4 - 10 a. * / % + - = b. = * / % + - c. / * % - + = d. % / - + =* **Answer. A**	1	2	1	1	2.5.2

10.	**Find the output of the following code**
	
	#include<stdio.h>
	int main ()
	{
	static int i=5;
	if (--i)
	{
	printf("%d ",i);
	main();
	}
	return (0);
	}
	
	A. 5 4 3 2 1
	B. 0 0 0 0
	C. 4 3 2 1
	D. 0 0 0 0 0
	
	Answer. C
		1	2	1	1	1.61

Part B (5* 2 = 10 Marks) Answer all questions

Sl.No	Question	CO	PO	BL	Marks	PI Code
11	Give an overview of the basic structure of a C program. 	1	2	2	2	2.6.3
12	Write a note on Algorithm, Flow chart and Pseudocode. • Algorithm is a step-by-step solution in solving a problem. • A Flow chart diagram defines the inputs and how each input will be manipulated all throughout the program to give an output. • A Pseudocode is a low-level language that represents a problem solution using a combination of English & Math operators to define each step in the above algorithm.	1	2	2	2	2.6.3
13	How do you solve some arithmetic expressions based on	1	2	2	2	2.6.3

	precedence and associativity? • Precedence is the priority for grouping different types of operators with their operands. Associativity is the left-to-right or right-to-left order for grouping operands to operators that have the same precedence. • So, let's say we have an expression with us which is 6 * 3 / 20. The evaluation of this expression would be (6 * 3) / 20 because the associativity will be left to right for both the operators – multiplication and division.					
14	Differentiate between the static and extern storage class in the C language. • Static local variable is a local variable that retains and stores its value between function calls or block and remains visible only to the function or block in which it is defined. • Static global variables are global variables visible only to the file in which it is declared. • Extern stands for external storage class. Extern storage class is used when we have global functions or variables which are shared between two or more files.	1	2	2	2	2.6.3

15	John is playing with a rectangular box (cuboid). He knows the length, width and height of the box. Help him to find the surface area of the box using a C program.
	Hint: Surface area of a cuboid is 2lw + 2lh + 2wh
	
	#include<stdio.h>
	
	int main()
	
	{
	
	float l,b,h,s,v;
	
	printf("\n Enter length of cuboid :");
	
	scanf("%f",&l);
	
	printf("\n Enter breadth of cuboid :");
	
	scanf("%f",&b);
	
	printf("\n Enter height of cuboid :");
	
	scanf("%f",&h);
	
	s=2*(l*b+b*h+b*h);
	
	v=l*b*h;
		1	2	2	2	2.6.3

	printf("\n The surface area of cuboid is '%f'",s); printf("\n \n The volumer of cuboid is '%f' \n \n",v); return 0; }					

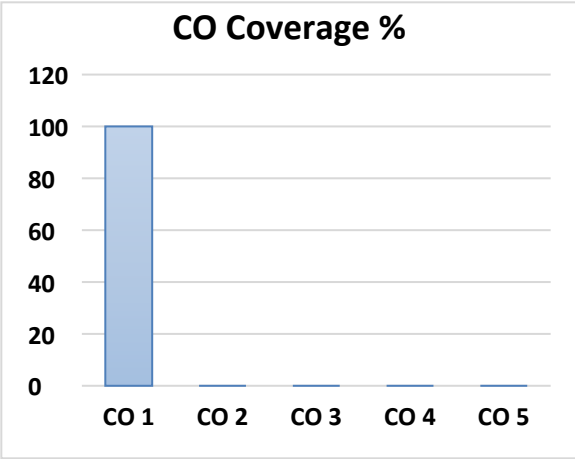
Part C (1 * 5 = 5 Marks)

Sl.No	Question	CO	PO	BL	Marks	PI Code

16	Write an algorithm, C program and draw flowchart to convert temperature given in Celsius to Fahrenheit.
	F=C * 9/5 + 32
	• Algorithm 1mark
	• Flow chart 1mark
	• Program 3 Marks
	
	#include <stdio.h>
	
	int main ()
	
	{
	
	float celsius, fahrenheit;
	
	printf("Please Enter temperature in Celsius: \n");
	
	scanf("%f", &celsius);
	
	// Convert the temperature
	
	fahrenheit = ((celsius * 9)/5) + 32;
	
	// fahrenheit = ((9/5) * celsius) + 32;
	
	// fahrenheit = ((1.8 * celsius) + 32;
	
	printf("\n %.2f Celsius = %.2f Fahrenheit", celsius, fahrenheit);
	
	return 0;
	
	}
		1	2	3	5	2.6.3

	(OR)					
17	Draw flowchart to compute the salary of an employee in a company and write an algorithm for generating the pay slip of anemployee working in XYZ Company. Input for the process will be the basic pay for the employee. Gross salary is calculated as Basic Pay + HRA + DA. HRA is fixed as 30% of basic pay and DA as 80% of basic pay. Calculate the gross salary • Algorithm 1mark • Flow chart 1mark • Program 3 Marks 1. #include < stdio.h > 2. 3. int main () 4. { 5. float bs, hra, da, gs; 6. 7. printf("Enter basic salary\n"); 8. scanf("%f", &bs); 9. 10. hra = bs * (30/100.00); 11. da = bs * (80/100.00); 12. 13. gs = bs + hra + da; 14. 15. printf("Gross Salary = %f\n", gs); 16. 17. return 0; 18. }	1	2	3	5	2.6.3

Course Outcome (CO) and Bloom's level (BL) Coverage in Questions


CO Coverage %
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40
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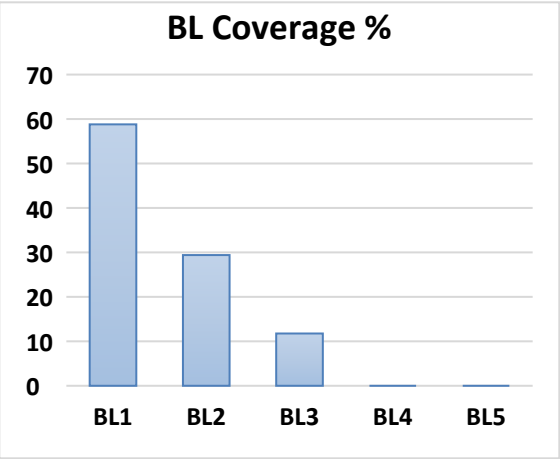
CO 1
CO 2
CO 3
CO 4
CO 5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BL1
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