VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD
B.E. (CBCS) II-Semester Main Examinations, January-2021
Programming for Engineers
(Common to Civil & Mech.)

Time: **2** hours   Max. Marks: **60**

Note: Answer any NINE questions from Part-A and any THREE from Part-B

Part-A (9 × 2 = 18 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	List any two unconditional control statements available in C.	2	1	1	1
2.	Convert the following for loop to its equivalent while loop. for(x = 1; x < 100; x++) printf("%d\n", x);	2	2	1	1,2
3.	What are the advantages of functions?	2	2	1	1
4.	Define Recursion.	2	1	1	1
5.	Describe how to declare and initialize a two dimensional array.	2	2	2	1
6.	List any two built in character handling functions.	2	1	2	1
7.	Define a Structure to store the details of an Institute.	2	2	4	1, 2
8.	Define a union to store student data (name, rno). How many bytes will be allocated to the union variable?	2	2	4	1, 2
9.	Explain how does write mode differ from append when an existing file is being written to?	2	2	4	1
10.	Write the syntax of fopen(), fread() functions.	2	1	4	1
11.	Differentiate between while and do-while statements.	2	2	1	1
12.	Give the syntax for declaration of a function.	2	1	1	1

Part-B (3 × 14 = 42 Marks)

13. a)	Explain the significance of switch statement along with its syntax.	7	2	1	1
b)	Write a program to accept the basic salary of an employee from the user and display the gross salary. Calculate the gross salary on the following basis. Gross salary is Basic + HRA + DA. HRA and DA are to be calculated as follows:	7	3	1	1,2,3

Basic	HRA(% of basic)	DA (% of basic)
1 – 4000	10%	50%
4001 – 8000	20%	60%
8001 – 12000	25%	70%
12000 and above	30%	80%

			M	L	CO	PO
14.	a)	Explain about the storage classes available in C language.	7	1	1	1
	b)	Write a C program to find the Sum of first n Natural Numbers using Recursion (recursive function).	7	3	1	1,2
15.	a)	Explain binary search technique with suitable example.	7	2	2	1
	b)	In a quiz competition there are five teams (T1, T2, T3, T4, T5). 5,12,8,9 and 7 are the points scored by the teams respectively. For announcing the scores of first and the second winners the scores need to be sorted. Apply any one of the sorting algorithms and display the first and the second winner scores.	7	4	2	1,2,3
16.	a)	Differentiate between call by value and call by reference giving suitable examples.	7	2	4	1
	b)	Define a structure to store the x and y coordinates of a 2-D point. Write a C program to find out the distance between 2 of the point objects.	7	3	4	1, 2
17.	a)	What are pre-processor commands? Explain any 3 pre-processor commands with example for each.	7	2	4	1
	b)	Write a program to read the data from the keyboard and write it to the file.	7	3	4	1,2
18.	a)	Write a C function that accepts a character as argument and check whether it is a vowel or not.	7	3	1	1,2
	b)	Write a C program to read a positive integer n and then calculate the sum of the integers between 1 and n which are divisible by either 3 or 6 but not by 12.	7	3	1	1,2
19.		Answer any *two* of the following:				
	a)	Construct a C function definition to check whether the given string is palindrome or not.	7	3	3	1,2
	b)	Explain how to pass structure to a function with proper example.	7	2	4	1
	c)	What is the significance of using files? Write about the operations that can be performed on files.	7	2	4	1

M: Marks;   L: Bloom's Taxonomy Level;   CO: Course Outcome;   PO: Programme Outcome

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	57
2	Knowledge on application and analysis (Level-3 & 4)	43
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	0

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