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Code No. : 11047

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (CBCS) I-Semester Main & Backlog Examinations, July-2021.**Programming for Problem Solving**

(Common to CSE, AIML, EEE, ECE & IT)

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.	Convert the given floating point number into decimal number: 1101010.10	2	3	1	1,2
2.	What is the role of precedence and associativity of the operators in C language	2	1	1	1,2
3.	What is the difference between break and continue	2	2	2	1,2
4.	What is the output of the following program? #include <stdio.h> int main () { int n; for (n = 5; n > 0; n--) { printf("%d",n); if (n == 3) break; } return 0; }	2	3	2	1,2
5.	What is the relationship between nested function and recursion	2	2	3	1,3
	Write the steps involved in Bubble sort to the given array: 94,63,11,25,34,22,8	2	1	3	1,3
7.	Give the syntax for single pointer, double pointer with an example.	2	2	4	1,3
8.	What are memory allocation and deallocation functions	2	1	4	1,3
9.	Differentiate between structure and union	2	1	5	1,3
10.	What is the output for the following snippet? int main() { enum week { Mon, Tue=-1,Wed=3,Thur, Fri,Sat,Sun}; printf("%d\n %d\n %d\n %d\n", Mon,Tue,Wed,Thur); return 0; }	2	3	5	1,3

11.	Briefly explain about fixed and floating points numbers.	2	1	1	1,2
12.	What are File accessing Modes in C?	2	3	2	1,2
Part-B (3 × 14 = 42 Marks)					
13. a)	Convert the following numbers given in one number system to another number system	10	3	1	1,2
	i) $(35)_{10} = ()_2$				
	ii) $(CA3)_{16} = ()_{10}$				
	iii) $(6452)_8 = ()_{10}$				
b)	What are the different bitwise operators? Explain with an example	4	2	1	1,2
14. a)	Write a program to display at what age you have joined in Vasavi College. The input to your program is your date of birth as three integers. And your date of joining in the college also as three integers. Assume that all the 12 months contains 30 days each. Example: Input: Enter your date of birth : 25 9 2003 Enter date of joining in Vasavi College : 15 7 2020 Output: I have joined Vasavi College at the age of 16 years 9 months 20 days.	9	3	2	1,2
b)	Write a program to determine winner of the <i>Paper-Rock-Scissor</i> game. Two players, each chooses one of the three letters P, R, or S simultaneously. The program takes the two letters and determines the winner based on formation of one of the statements: (i) <i>Paper covers Rock</i> , (ii) <i>Rock breaks Scissors</i> , (iii) <i>Scissors cut Paper</i> , in all other cases, <i>nobody wins</i> . Your program should allow users to enter lower-case as well as uppercase letters	5	3	2	1,2
15. a)	Assume that there are 100 students written an entrance exam. You are given with the marks of all these students. Write a program to ask the user to tell the marks he/she has obtained, then you need to display the rank he/she has obtained out of these 100 ranks if the marks he/she is telling exists, otherwise display that marks are not correct . Ex: Let the marks of the six student are: {21, 22 19, 12, 20, 13}. If the user tells that he got 20 marks, then you need to display that he got 3rd rank. If he enters 24; then output is to be marks are not correct .	7	4	3	1,3
b)	Write about Two dimensional Arrays. Explain it with an example.	7	4	3	1,3
16. a)	Write a C program to count vowels and consonants in a string using pointer. Output: Enter a String: VASAVI Total number of Vowels: 3 Total number of Consonants: 3	7	4	4	1,3

b)	Write a program to read a string during run time and replace the every word of length 6, with the word VASAVI. Output: Enter a string: ABCDEF is abedef but not ABCDEFG VASAVI is VASAVI but not ABCDEFG	7	4	4	1,3
17. a)	Write a program to create a structure with structure tag as 'VASAVIStaff' with the member variables as StaffId, Name, Salary and Department. Read sixty staff details into respective structure variables. Then your program should display the details of the staff whose salary is more than Rs.40,000 with name 'Sridhar'.	7	3	5	1,3
b)	Write a program to read the names stored in three different files: <i>file1.txt</i> , <i>file2.txt</i> and <i>file3.txt</i> and sort all the names from all these files and store the sorted names in <i>file4.txt</i> <i>file1.txt</i> <i>file2.txt</i> <i>file3.txt</i> <i>file4.txt</i> Sridhar Sri Ramana Srikar Mahesh Mahesh Siva Sai Ram Raja Raja Siva Sai Ram Sri Ramana Sridhar Srikar	7	4	5	1,3
18. a)	Explain about high level, middle level and low level programming languages.	7	1	1	1,2
b)	What are the different storage classes? Explain with an example	7	1	2	1,2
19.	Answer any <i>two</i> of the following:				
a)	Consider an array of size $n \times n$, where n is odd and all the elements are filled with 1s. Now you need to create a shape at the center of this array with the user-entered <i>shape</i> , <i>size of shape</i> and the <i>number</i> to be used in this shape. The different shapes are <i>square</i> , <i>diamond</i> and <i>triangle</i> . The size for square is of length m , where m the distance from center. The diamond is of length m , where m is the distance from center. The triangle is of size $b \times h$, where $b=4*m+1$ and $h=2*m+1$, $m=1, 2, 3, \dots$ Example: Enter the size of the array : 9 Enter the size of the array: 9 Enter the size of the array : 9 Enter the shape you want :square Enter the shape you want :diamond Enter the shape you want :triangle Enter the value of m : 2 Enter the value of m : 3 Enter the value of m : 2 Enter the number to fill the shape: 6 Enter the number to fill the shape: 7 Enter the number to fill the shape: 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 6 6 6 6 6 1 1 1 1 1 7 7 7 1 1 1 1 1 1 9 1 1 1 1 1 1 1 6 6 6 6 6 1 1 1 1 7 7 7 7 1 1 1 1 1 9 9 9 1 1 1 1 1 1 6 6 6 6 6 1 1 1 7 7 7 7 7 7 1 1 1 9 9 9 9 9 1 1 1 1 6 6 6 6 6 1 1 1 7 7 7 7 7 7 1 1 1 9 9 9 9 9 9 1 1 1 6 6 6 6 6 1 1 1 1 7 7 7 7 1 1 1 9 9 9 9 9 9 9 9 1 1 1 1 1 1 1 1 1 1 1 1 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7	4	3	1,3

b)	What are the different string manipulation functions? Explain with examples	7	2	4	1,3
c)	You are given with three text files namely: file1.txt, file2.txt and file3.txt. Write a C program to copy the contents of file1 to file2, file2 to file3 and file3 to file1. Example: Before execution: <div style="display: flex; justify-content: space-around; margin: 10px 0;"> <div>file1.txt NITW Warangal</div> <div>file2.txt IITH Hyderabad</div> <div>file3.txt IITTP Tirupati</div> </div> After Execution: <div style="display: flex; justify-content: space-around; margin: 10px 0;"> <div>file1.txt IITTP Tirupati</div> <div>file2.txt NITW Warangal</div> <div>file3.txt IITH Hyderabad</div> </div>	7	4	5	1,3

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)	60
2	Knowledge on application and analysis (Level-3 & 4)	40
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	-
