

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-1/2 EXAMINATION – WINTER 2021****Subject Code:3110003****Date:24/03/2022****Subject Name:Programming for Problem Solving****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
<b>Q.1</b>	(a) Define following terms: 1) Application Software 2) System Software 3) Algorithm 4) Flowchart.	<b>04</b>
	(b) Draw the flow chart to find the largest of the given three numbers – A ,B and C	<b>03</b>
	(c) Explain different type of operators used in c language with their precedence and associativity.	<b>07</b>
<b>Q.2</b>	(a) Discuss use of break and continue statement in C with example.	<b>03</b>
	(b) Compare and contrast while and do while loop with example.	<b>04</b>
	(c) Write a C program to print following pattern. 1 2 2 3 3 3	<b>07</b>
	<b>OR</b>	
	(c) Write a C program to print following pattern. 1 2 3 4 5 6	<b>07</b>
<b>Q.3</b>	(a) Write a program to check whether entered character is vowel or not?	<b>03</b>
	(b) Explain getch(), getchar(), gets(), puts() .	<b>04</b>
	(c) Develop a menu-based program to perform addition, multiplication, subtraction and division using user-defined function.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Write an algorithm for finding odd and even number from given two numbers.	<b>03</b>
	(b) Write a program to check whether entered number is prime or not with the help of user-defined function check-prime().	<b>04</b>
	(c) Write a program to find out the largest of an array.	<b>07</b>
<b>Q.4</b>	(a) What is structure? Explain with example how to declare a structure and how to initialize it.	<b>03</b>
	(b) Explain following string manipulation function. strcat(), strcpy(), strcmp() and strlen()	<b>04</b>
	(c) Write a program in c for multiply two matrices A and B of dimensions pXq and qXr respectively and store the result in third matrix C.	<b>07</b>

**OR**

- Q.4** (a) Demonstrate declaration and initialization of two dimensional array with suitable example. **03**  
(b) Explain nested if else ladder with suitable example. **04**  
(c) Write a program in c using structure to enter rollno, marks of the three subject for 3 student and find total obtained by each student **07**
- Q.5** (a) What do you mean by recursive function? What care must be taken while writing a program with recursive function? **03**  
(b) Explain fopen() and its mode with example. **04**  
(c) Describe different categories of user-defined functions. **07**
- OR**
- Q.5** (a) What is pointer? Explain how pointers are declared and initialized. . **03**  
(b) Compare malloc() and calloc() functions for dynamic memory allocation. **04**  
(c) Develop a program in C to check the entered number is prime or not by creating a user-defined function named check\_prime(). **07**

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