

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-I (NEW) EXAMINATION – WINTER 2023****Subject Code:3110003****Date:17-01-2024****Subject Name:Programming for Problem Solving****Time:02:30 PM TO 05:00 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		
Q.1 (a) Write an algorithm to check whether the entered number is Even or Odd.	03		
(b) Draw the flowchart to find the factorial of a number given by user.	04		
(c) Briefly explain different components of Computer system.	07		
Q.2 (a) Give the output of following C code.	03		
<pre>int main(){ printf("%d", 15<2); printf("%d", 15&&2); printf("%d", 7%10); return 0; }</pre>			
(b) Demonstrate the use of bitwise operators with an example.	04		
(c) Explain C tokens in detail.	07		
OR			
(c) Briefly explain different storage classes used in C with appropriate example.	07		
Q.3 (a) Demonstrate the use of <i>ternary</i> operator with an example.	03		
(b) Give the output of following C codes.	04		
<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <pre>1. int main(){ int i=10; while(i<10){ printf("%d", i); i++; } return 0; }</pre> </td> <td style="width: 50%; vertical-align: top;"> <pre>2. int main(){ int i=10; do{ printf("%d", i); i++; }while(i<10); return 0; }</pre> </td> </tr> </table>		<pre>1. int main(){ int i=10; while(i<10){ printf("%d", i); i++; } return 0; }</pre>	<pre>2. int main(){ int i=10; do{ printf("%d", i); i++; }while(i<10); return 0; }</pre>
<pre>1. int main(){ int i=10; while(i<10){ printf("%d", i); i++; } return 0; }</pre>	<pre>2. int main(){ int i=10; do{ printf("%d", i); i++; }while(i<10); return 0; }</pre>		
(c) Write a C program to print following pattern using loop.	07		
<pre>5 4 4 3 3 3 2 2 2 2 1 1 1 1 1</pre>			
OR			
Q.3 (a) Differentiate between <i>break</i> and <i>continue</i> .	03		
(b) Demonstrate the use of forward jump and backward jump with an example.	04		
(c) Explain <i>else if</i> ladder with an example.	07		

- Q.4** (a) Give the significance of *puts()*, *getchar()*, *getch()*. **03**
 (b) Differentiate between *call by value* and *call by reference*. **04**
 (c) Write a C program to check whether two strings are same or not. **07**

OR

- Q.4** (a) Give the output of following C code. **03**

```
int main(){
    int val=20, *p;
    p = &val;
    printf(“%d %d %d”, val, *p, sizeof(p));
    return 0;
}
```

 (b) Demonstrate the use of recursion with an example. **04**
 (c) Write a C program to find sum of digits for a given number using the concept of User Defined Function (UDF). (Hint: For number 3278, sum of digits is $3+2+7+8 = 20$) **07**

- Q.5** (a) Differentiate between *structure* and *union*. **03**
 (b) Briefly explain any two file handling functions with an example. **04**
 (c) Write a C program to find maximum and minimum from an array of 10 elements. **07**

OR

- Q.5** (a) Give the output of following C code. **03**

```
int main(){
    int arr[3][2]={1,2,3,4,5,6};
    printf(“%d %d %d”, arr[0][1], arr[1][0], arr[2][1]);
    return 0;
}
```

 (b) Briefly explain memory management functions. **04**
 (c) Write a C program to copy one file to other. **07**
