



Roll No:

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**BTECH**  
**(SEM II) THEORY EXAMINATION 2023-24**  
**PROGRAMMING FOR PROBLEM SOLVING**

TIME: 3 HRS

M.MARKS: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

## SECTION A

1. Attempt all questions in brief.

2 x 7 = 14

Q no.	Question	Marks	C O
a.	1Nibble = .....Bytes.	2	1
b.	Find the value of variable max in the following code: - int a=10, b=20; int max= (a>b)? a: b;	2	2
c.	Define Explicit type conversion with suitable example.	2	2
d.	Write a C program to print all natural numbers from 10 to 100.	2	3
e.	Define Pointer to Pointer.	2	4
f.	Find the output of following code: - #include<stdio.h> #defien a 2*2+2 void main () { int b,c; b=2/a; c=b+4; printf("Value of variable b and c are %d%d respectively ", b,c); }	2	5
g.	Draw block diagram to represent doubly linked list.	2	5

## SECTION B

2. Attempt any three of the following:

7 x 3 = 21

a.	What is Flowchart what are the properties of Flowchart? Draw a flowchart to check number is a buzz number or not. (A number is said to be Buzz if it ends with 7 or divisible by 7).	7	1
b.	What is the importance of Precedence order and associativity? Explain Bitwise and Ternary operators in detail.	7	2
c.	Write a program in C language to multiply 2 matrices of order n*n each and print the resultant matrix along with the transpose of the resultant matrix.	7	3
d.	Write a program in C language to implement Selection sort method.	7	4
e.	Write a program to delete the end of the file using function feof(). Display the file pointer position for detecting end of file.	7	5

## SECTION C

3. Attempt any one part of the following:

7 x 1 = 7

a.	What is the different user defined data types in C language? Write range, Format specifier, memory size of primitive data types.	7	1
b.	How algorithm is different form flowchart. Write an algorithm to check number is a Prime number or not.	7	1



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**4. Attempt any one part of the following:****7 x 1 = 7**

a.	Why break statement is required? Write a C program in C language to check character is a vowel or consonant.	7	2										
b.	Write a program in C language to calculate energy bill. Read the starting and ending meter readings. The charges are as follows: - <table border="1" style="width: 100%; margin-top: 5px;"> <thead> <tr> <th>No. of Units</th> <th>Consumed rates in Rs.</th> </tr> </thead> <tbody> <tr> <td>0&lt;units&lt;=200</td> <td>Rs 5.50 per Unit</td> </tr> <tr> <td>200&lt;units&lt;=400</td> <td>Rs 700 + Rs 6.0 per unit excess of 200</td> </tr> <tr> <td>400&lt;units&lt;= 600</td> <td>Rs 1400 + Rs 7.50 per unit excess of 400</td> </tr> <tr> <td>600&lt;units</td> <td>Rs 1850+ Rs 9.0 per Unit excess of 600</td> </tr> </tbody> </table>	No. of Units	Consumed rates in Rs.	0<units<=200	Rs 5.50 per Unit	200<units<=400	Rs 700 + Rs 6.0 per unit excess of 200	400<units<= 600	Rs 1400 + Rs 7.50 per unit excess of 400	600<units	Rs 1850+ Rs 9.0 per Unit excess of 600	7	2
No. of Units	Consumed rates in Rs.												
0<units<=200	Rs 5.50 per Unit												
200<units<=400	Rs 700 + Rs 6.0 per unit excess of 200												
400<units<= 600	Rs 1400 + Rs 7.50 per unit excess of 400												
600<units	Rs 1850+ Rs 9.0 per Unit excess of 600												

**5. Attempt any one part of the following:****7 x 1 = 7**

a.	(i) Write a program in C language to print the following pattern: - <pre> 1 4 9 16 25 36 49 64 81 100 </pre> (ii) Write a program in C language to print the sum of following series: $S=1!/n! + 2!/n! + 3!/n! + \dots + x!/n!$	7	3
b.	Write a program in C language using union to store name, mobile number, year of birth, fees deposited, total marks in class 12 <sup>th</sup> and print only name and marks of class 12 <sup>th</sup> of those students who have deposited fees less than 5000 and how born after year 2005.	7	3

**6. Attempt any one part of the following:****7 x 1 = 7**

a.	Write a C program to find the presence of any particular element in an array of n number of elements using Binary search method.	7	4
b.	What are the different types of functions in C programming? Write a C program to print the multiplication of all the digits of a number using recursion.	7	4

**7. Attempt any one part of the following:****7 x 1 = 7**

a.	What are the advantages of Dynamic memory allocation over static memory allocation? Write a program to display two numbers with malloc () and reallocate memory for displaying three numbers.	7	5
b.	Define any 3 functions which are used for file handling in C language. Write a program in C language to count total number vowels in a text file.	7	5