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Roll No. :

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B. E. (Third Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(IT Branch)

PROBLEM SOLVING & LOGIC BUILDING USING C

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) from each question is compulsory and carry 2 marks. Attempt any two parts (b), (c) & (d) with carries 7 marks each.

Unit-I

1. (a) What is Cache Memory? 2
- (b) Explain memory hierarchy in details. 7

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- (c) Write a pseudo code to find the greatest number among 3 numbers and draw its flow chart. 7
- (d) (i) Write an algorithm to check a number is prime or not. 3.5
- (ii) Differentiate between Compiler & Interpreter. 3.5

Unit-II

2. (a) What is the output of following (code) 2
- ```
#include <stdio.h>
#include <conio.h>

void main ()
{
 int i = 15, j;
 i = ! i > 14;
 i = i ++ + ++ i;
 for (j = 0; j < i; j++);
 printf ("%d", j);
 getch ();
}
```

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- (b) Write a C program to print following pattern.

```
(i) * * * * *
 * * * *
 * * *
 *
 * * *
 * * *
 * * * * *
 * * * * * * *
```

3.5

- (ii) Pascal triangle 3.5

- (c) Write a program to check whether a number is strong number or not (if sum of factorial of each digit of a number is equal to that number then that number is called strong number). 7
- (d) Why switch ..... case is used in C program? Write a C program to perform different arithmetic operation depending on user input (which operation) using switch ..... case. 7

### Unit-III

3. (a) What is the use of static keyword in C program? 2

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- (b) Write a program to perform matrix multiplication. 7
- (c) What is Recursive Function? Write a recursive function to print fibonacci series. 7
- (d) Differentiate between call by value and call by reference. 7

#### Unit-IV

4. (a) What are the different arithmetic operation possible on pointer? 2
- (b) What is dynamic memory management, explain with different dynamic memory management function with suitable example. 7
- (c) What is command line arguments? Explain with suitable example. 7
- (d) Write short notes on : 7
- (i) Dangling pointer
  - (ii) Character pointer
  - (iii) Accessing 3-D array using pointer

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#### Unit-V

5. (a) Why bit-field is used in C programming? 2
- (b) Create a structure student to store name, roll number & mark of 3 subjects and calculate percentage for 3 students. Enter some sample values and print the details of student who having maximum percentage. 7
- (c) (i) Write a program to create a file to store some data inside the file and print the content of file.
- (ii) What is self referential structure? 7
- (d) Write short notes on : 7
- (i) fseek ( )
  - (ii) feof ( )
  - (iii) fgets ( )
  - (iv) fread ( )