

B.E. Information Technology Sem-III
IT302 - Advanced C Programming & Logic Design

P. Pages : 2

Time : Three Hours



GUG/S/19/1504

Max. Marks : 80

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- Notes :
1. Same answer book must be used for all questions.
 2. All questions carry marks as indicated.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.
 5. Retain the construction lines.
 6. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What is algorithm? Write an algorithm for calculating factorial of a number also draw a flowchart? **6**
- b) Explain what is pseudocode? Explain properties of procedure oriented language? **4**
- c) Write a C code to check three points are collinear or not? Explain mathematical requirement? **6**

OR

2. a) Write a C program to solve the roots of quadratic equation? **6**
- b) Explain how pseudocode serves as a problem solving tool? **4**
- c) Explain with suitable line of code what are ternary and relational operators? **6**
3. a) What are loops? Explain for loop? Use for loop to decide number is prime or not? **6**
- b) Explain the keyword continue with suitable code? **4**
- c) Write a menu driven program for the following menu reappearance logic? **6**
- | | |
|---------------|------------------|
| i) Addition | ii) Substraction |
| iii) Division | iv) Exit |

OR

4. a) Write a C code to get the following output? **4**
- ```
1
2 4
3 6 9
4 8 12 16
```
- b) Write a C program to calculate sum of the series **6**
- $$\frac{1}{1!} + \frac{2}{2!} + \dots \text{ upto seven terms?}$$
- c) What is Palindrome number? Write a C code to check number entered is Palindrome or not? **6**

5. a) Write a C program to calculate value of a raised to b by using function? 6
- b) If a length of a side of a triangle are denoted by a, b, c and area is given by  $area = \sqrt{s(s-a)(s-b)(s-c)}$  where  $s = (a + b + c) / 2$  Write a C code to find area? 6
- c) Explain different types of function calling mechanism? 4

**OR**

6. a) What is recursive function? Write a program in C to generate fibo series by recursive function? 6
- b) Explain program logical analysis to find G. C. D. of two numbers? 4
- c) What are pointers? Calculate area and perimeter of a circle using pointers? 6
7. a) Define array? Explain memory map of one dimensional array? 4
- b) Write a user defined function to compare two strings? 6
- c) What is binary search? Write a C program to search an element using binary search? 6

**OR**

8. a) Write a C code to find biggest element in two dimensional array? 5
- b) Write a C program to add two one dimensional array? 5
- c) Write a C program to remove all the vowels from the given string? 6
9. a) Define structure? Display information of 30 employees by array of structure using pointer? 6
- b) Write a C program to count chars, spaces, tabs and newline in a file? 6
- c) Explain union? Provide any sample example? 4

**OR**

10. a) Write a program that will concatenates two files and write the result in third file, use command line argument? 5
- b) Explain the following functions? 6
- i) `fopen()` ii) `fclose()`
- iii) `fgetc()`
- c) Write a C program to accept salary of 100 employee and print total and average salary by using structure? 5

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