

P. Pages : 2

Time : Three Hours

**KNT/KW/16/7238**

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness and adequate dimensions.

1. a) Write a program to find transpose of a matrix. 6
- b) What is array? What are the different types of the array. Draw memory map for 1-D and 2-D array. 7

OR

2. a) Write a program to check whether entered string is palindrome or not. 7
- b) Explain following with example. 6
 - i) Enumerations
 - ii) Typedef
3. a) Write a program to count number of words, vowels, consonants and other characters from a file. 8
- b) Explain what are command line arguments with example. 5

OR

4. a) Write a program to create abc. txt and xyz. txt and merge content of abc.txt & xyz.txt into a file pqr.txt. 8
- b) Explain syntax of fopen ()? What are different file opening modes. 5
5. a) Write a user defined function to copy one string into another string using pointer. 7
- b) Write a program to find largest element from an array using pointers. 6

OR

6. a) Write short note on.
 - i) Dynamic memory allocation. 5
 - ii) Static memory allocation. 4
 - iii) Pointer to array and array of pointers. 4

7. a) Write a program to draw the pentagon and fill it with different colors. every time a key is pressed. Program should terminate when escape key is pressed. 8
- b) Explain initgraph() with syntax & example in detail. 6

OR

8. a) Write a menu driven program to draw line, circle, rectangle, ellipse & arc on the screen. 8
- b) What is the difference between graphics mode & text mode. 3
- c) Explain syntax of "Putimage" with example. 3
9. a) Using mathematical induction prove that 7
- $$1^3 + 2^3 + 3^3 + \dots + n^3 = \left[\frac{n(n+1)}{2} \right]^2$$
- b) On what parameters algorithms are evaluated? Explain those parameters. 6

OR

10. Write short note on.
- i) Computational model. 5
- ii) Properties of algorithm. 4
- iii) Notion of algorithm. 4
11. a) Explain basics of imperative style programming. 7
- b) Explain Assertions and loop invariants with example. 7

OR

12. a) Declare a structure of an employee and accept 10 elements from user having fields emp-id, emp-name, emp-dept, emp-basic, emp-gross. Find gross salary of an individual employee using formula. 8
- Gross salary = HRA + DA where
HRA = 20% of Basic salary
DA = 90% of Basic salary
- b) What is OOP? How it differs from Procedure oriented programming. 6
