



- 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. Assume suitable data whenever necessary.
  9. Use of non programmable calculator is permitted.

1. a) Explain any four library function in "String.h" with example. **8**
- b) Write a program to find whether a given 3 x 3 matrix is upper triangular or not. **6**

**OR**

2. a) Write a.c. program to accept name and salary of 30 employee. Find highest salary, lowest salary and average salary. **8**
- b) Differentiate between structure and union. **3**
- c) Explain : **3**
- i) Enumerations                      ii) Size of                      iii) Type def
3. a) Given a text file xyz.txt. Create another file pqr.txt containing all the content of xyz.txt except deleting vowels. **7**
- b) Explain following function, using example. **6**
- i) fseek                      ii) ftell                      iii) feof

**OR**

4. a) A file input.txt contains number. Read this file and separate the even and odd numbers into two different files named as even.txt and odd.txt. **7**
- b) Explain with suitable example the concept of command line argument. **6**
5. a) Write a function large( ) to find largest element from an array of size n using pointer. **6**
- b) Write a user defined function to reverse a string using pointer. **7**

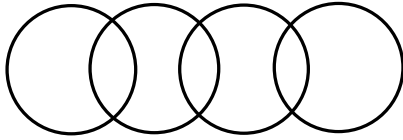
**OR**

6. a) Write short notes on : **5**
- i) Dynamic memory allocation.

ii) Pointer to array and array of pointers. 4

iii) Pointer within structure. 4

7. a) Write a program using C graphics to draw the following AUDI symbol. 7



b) Write a menu driven program to draw arc, sector, polygon & ellipse. 7

**OR**

8. a) Explain `initgraph()` in detail. 4

b) Explain following graphics functions. 10

i) `closegraph()` ii) `settextstyle()`

iii) `lineto()` iv) `linereel()`

v) `fillpoly()`

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 & calculate it for selection sort. 6

**OR**

10. Write short notes on :

i) Computational model. 5

ii) Properties of algorithm. 4

iii) Notion of algorithm. 4

11. a) What is object oriented programming? How it differs from procedure oriented programming? Explain various features of OOP. 8

b) Explain Assertion and loop Invariants. 5

**OR**

12. a) Explain imperative procedural and declarative programming with example. 7

b) Write a program to create a structure student with field roll no, name, marks in 3 subjects, percentage. Input these value for 3 students and display it. 6

\*\*\*\*\*