



- 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. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Write a function which accepts two strings 'str' and 'pattern'. The function should check whether the string 'str' ends with the 'pattern' string. If yes, the function should return 1 else. return 0. Display an appropriate message in the calling function depending on the return value of function. **8**
- b) Write a short note on: **5**
 - i) Enumeration. **3**
 - ii) Size of **2**

OR
2. a) Differentiate between structure and union. **3**
- b) Explain a scenario where you will use. **4**
 - i) Structure within structure. **4**
 - ii) Union within structure. **4**
- c) Write a program to print a separate sum of each row of a 3 x 4 matrix. **6**
3. a) A file speech.txt contains some text information. Write a program which copies all consonants in speech.txt into another file new speech.txt. Use appropriate functions of file handling. **7**
- b) Illustrate following functions of file handling in C: **6**
 - i) feof () **2**
 - ii) perror () **2**
 - iii) ftell () **2**

OR
4. a) A file coder.txt. contains information of a few coders who participated in coding competition. The information consists of coder id, coder name, finishing time, lines of code and programming language. Write a program which performs following operations on the file. **13**
 - i) Add a new record into the file.
 - ii) Display information of coders who coded in "Python"
 - iii) Display information of the coder (s) who finished in least time with minimum lines of code.
5. a) Differentiate between static memory allocation and dynamic memory allocation. **5**
- b) Write a program to dynamically create an array of 10 integers and print all even numbers in that array. Also, write the code for resizing that array to accommodate 50 integers. Use appropriate functions of dynamic memory allocation. **8**

OR

6. a) Illustrate pointer arithmetic with suitable example of each. What would be the result of addition and multiplication of two pointers? **8**
- b) Write the meaning of each of the following declarations. **5**
- | | | |
|--------------------------|---------------------------|------------|
| i) Char * arg v [10] ; | ii) Char (* arg v) [10]; | 1+1 |
| iii) Int * p; | iv) Void (*p) (int); | 1+1 |
| v) Void * p (long*); | | +1 |
7. a) Write a program to display a moving fish on the graphics. Screen use appropriate functions of graphics in C for drawing and moving of objects. Illustrate your program with a neat sketch showing all x & y coordinates. **9**
- b) What is the use of initgraph () and closegraph () functions in graphics programming? Explain in brief. **5**

OR

8. a) Write a program to fill the graphics screen full of pixels of random colors. The pixels should be highlighted one by one and at random locations on the graphics screen. **6**
- b) Write a short note on following graphics functions. **8**
- | | | |
|---------------------|-------------------|------------|
| i) settextstyle () | ii) floodfill () | 2+2 |
| iii) drawpoly () | iv) linerel () | +2+ |
| | | 2 |
9. a) Differentiate between recursive and iterative style of programming. Also write their advantages and disadvantages illustrate a program using both recursive style and also iterative style of programming. Write separate program for each style. **10**
- b) Explain asymptotic notations in brief. **4**

OR

10. a) Explain how mathematical induction can be used to check correctness of a program. **6**
- b) What is the significance of models of computation in computer science? Elaborate on the different basic models of computation along with their uses. **8**
11. a) What are input and output assertions? What is their use? Explain in brief. Can assertions be used to check correctness of loop based algorithms? What is the role of loop invariants? **7**
- b) Differentiate between imperative programming and functional programming Which style of programming results into lesser code and why? **6**

OR

12. a) Explain the basic principles of object oriented programming in brief. **8**
- b) What is 'Top-down' design strategy? What are its advantages? Illustrate with suitable example. **5**
