

**5 Year Integrated M. Sc. (Computer Science)**  
**Semester-II**  
**Advanced Programming**  
**Theory Assignment - I**  
**2022**

Note : (1) Write clear and to the point answers  
(2) Explain with the help of diagram and suitable examples wherever required

---

1. What do you understand by scope and life time of a variable ? What is the scope and life time of the variables of the various storage classes available in C ? Explain.
2. Character strings in C are automatically terminated by null character. Explain how this feature helps in string manipulations.
3. What is recursion? Explain giving suitable examples.
4. What do you understand by Context switching.
5. What is bit field ? Explain giving suitable example. What are the advantages of using bitfield?
6. What is function prototype? Why and when it is required ?
7. What does header file contain? Explain.
8. What are pointers? What are the advantages of using pointers?
9. Differentiate between the call by value and call by reference parameter passing mechanism. How can pointers help in achieving the effect of call by reference parameter passing mechanism? Explain clearly giving suitable examples.
10. Why do we have to put ampersand (&) sign before variable names, when passed as arguments in scanf function? Why & is not needed before variable names, when passed as arguments in printf function?
11. Demonstrate the storage of two dimensional arrays in the memory with the help of a diagram.
12. When do we use the following? Give examples of their applications.
  - (a) Enumerated data types
  - (b) Unions
  - (c) Static variables
  - (d) Bitfields

13. Which arithmetic operations are possible with

- (a) Structures
- (b) Unions
- (c) Enumerated data type
- (d) Pointers
- (e) Bitfields

14. Differentiate between the following

- (a) A , 'a' and "a"
- (b) \*p++ and p++.
- (c) malloc() and realloc()
- (d) int \*a[10] and int (\*a)[10]
- (e) Structure and Union
- (f) Static & Dynamic memory allocation