

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

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

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1. What do you understand by pointers? What are the advantages of using Pointers?
2. Which arithmetic operators are possible for pointers ? Explain their effect on the pointers.
3. How can pointers help in achieving the effect of call by reference parameter passing mechanism? Explain clearly giving suitable examples.
4. Explain the purpose of the following declarations :
  - (i) `float (*x)[10];`
  - (ii) `struct date *x[20];`
  - (iii) `float x( int (*a)[] );`
  - (iv) `float x(int *x[] );`
5. Consider the declaration  
`float *p;`  
What is the difference between `*p++` & `p++` ?
6. Consider the following code  
`int x[] = {1, 2, 3, 4, 5};`  
`int *ptr, **ptr2;`  
`ptr = x;`  
`ptr2 = &ptr;`
7. Referring to the code above, how would you assign 10 to `x[2]` using `ptr2`?
8. What do you understand by dynamic memory allocation ? How is it different from static memory allocation?
9. What do you understand by program controlled dynamic memory allocation? What are the functions available in C which can be used for dynamic allocation and de-allocation of memory? Explain.
10. What is a linked list? What is the difference between an array and linked list? Explain the pros and cons of array and linked list.
11. 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.
12. What are the primary advantages of using a data file ? What is the difference between a binary file and a text file in C ?