Vidya Jyothi Institute of Technology(Autonomous)

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DEPARTMENT OF HUMANITIES & SCIENCES

SUBJECT: Programming for Problem Solving-II

UNIT-1

Short Answer Questions

1. Define function, what are the advantages of using functions?
2. Define array, what are different types of array?
3. Define recursion, what are the advantages of recursion?
4. Define string. How to declare and initialize the string?
5. Write short notes on strings.
6. Explain compile time initialization of strings?
7. Explain Runtime time initialization of strings?
8. What are the differences between scanf() and gets()
9. List out all string manipulation functions?
10. Explain standard I/O functions of strings?
11. Write a program to read and display string using character by character.
12. Write a program to read and display string using gets() and puts().
13. Write a program to find length of string without strlen().
14. Write a program to find length of string with strlen().
15. Write a program to copy one string to another using strcpy().
16. Write a program to compare one string with another using strcmp().
17. Write a program to concatenate two strings using strcat().
18. Write a program to reverse the given string using strrev().
19. Write a program to compute factorial of a given number using recursion.
20. Write a program to display fibonacci series using recursive function.

Long Answer Questions

1. Define String and explain how to declare and intialize string at compile time and runtime with examples?
2. Explain all string handling functions along with syntax and examples?
3. Write a program to compare two strings without strcmp().
4. Write a program to reverse the given string without strrev().
5. Write a program to copy one string to another string without strcpy().
6. Write a program check the given string is palindrome or not.
7. Write a program to find reverse of given string without strrev().
8. Write a program to implement linear search using functions.
9. Write a program to implement binary search using functions.
10. Write a program to implement bubble sort using functions.

UNIT-II

Short Answer Questions

1. Define Structure and write the syntax to define structure.
2. How to declare structure variable and define structure datatype.
3. What are structure operators, how to use them?
4. Define Structure. How to access structure members using structure variables.
5. Define structure. How to access structure members with pointers?
6. Discuss memory allocation of structure types with example.
7. Define nested structure and what is the use of it, give an example?
8. Define array of structures explain with neat diagram?
9. What is the advantage of using array as a structure member, give an example?
10. Define self referential structure, give an example?
11. Define union, give an example?
12. Write any 3 differences between structures and unions?
13. Write a program to read and display student details using structures.
14. Write a C program to read and display complex number using structure.
15. Write a C program to display the addition of 2 complex numbers using structures.
16. Write a C program to display the multiplication of 2 complex numbers using structures.
18. Discuss memory allocation in unions?
17. Write the comparisons between structures and arrays, with examples.
18. Define type def statement and how to use it, give an example.
19. Define enumerated data type and how to use it, give an example.
20. Define structure using type def statement.

Long Answer Questions

1. Write the differences between structures and unions?
2. Define structure, what are structure operators and how to access structure members explain with program?
3. Explain the concept of structures and functions with program?
4. Write a program to find the addition of two complex numbers using structures with functions?
5. Write a program to find the multiplication of two complex numbers using structures with functions?
6. Explain structures and functions along with programs?
7. Write a program to read and display list of all students details in a class using array of structures?
8. Write a program to read and display list of all students details in a class using array of structures?
   Note: use nested structures for Date of Birth
9. Write a program to read and display all students details using array of structures. Calculate the percentage of each student based on 6 subjects marks. **Note: Consider array for marks of 6 subjects.**
10. What are user defined data types in C, explain in detail?

UNIT-III

Short Answer Questions

1. Define pointer, how to declare and initialize pointer?
2.What are pointer operators, how to use them?
3. What are the advantages of using pointers?
4. Define pointer to an array, give an example?
5. Define array of pointers, give an example?
6. Write a program to illustrate pointer concept?
7. Define pointer to structure, how to access structure members using structure pointer, give an example?
8. Write a program to illustrate pointer to pointer concept?
9. Write a program to read and display 1-D array using pointer to array?
10. Write a program to read and display 2-D array using pointer to array?
11Define and discuss call by reference.

12 Differentiate call by value and call by reference

13.Write the syntax for malloc(),calloc() ,realloc() and free().

14 List Dynamic memory allocation functions in C.

15 Demonstrate pointer to pointer concept with example program

16 Discuss the functionality of realloc() function.

17 Explain free() function with example.

18 .Write the differences between malloc() and calloc().

19. Write a C program to implement void pointer

20.Write short notes on NULL pointer.

Long Answer Questions

1. Define pointer, how to declare and initialize pointers, What are pointer operators, illlustrate with example?
2. Discuss in detail about pointer expressions?
3. Explain pointer to 1-D array and 2-D array, how to access array elements using pointers, explain with neat diagram and suitable examples?
4. Define array of pointers and implement relevant program?
5. Define pointer to a structure, explain with any suitable program?
6. Explain passing reference to a function in detail with an example program?
7. Explain in detail about malloc() with an example program?
8. Explain in detail about calloc() with an example program?
9. Explain in detail about realloc() with an example program?

10. Explain passing value to function in detail with an example program?

UNIT-IV

Short Answer Questions

1. Define Data structure.
2. Classify the types of data structures.
3. Define and discuss linear and Nonlinear data structures.
4. Write pop operation in stack, with example.
5. Write push operation in stack, with example.
6. Implement pop operation of stack using array.
7. Implement push operation of stack using array.
8. Implement enqueue operation of queue using array.
9. Implement dequeue operation of queue using array.
10. Explain overflow and underflow conditions of stack?
11. Explain Overflow and Underflow conditions of Queue?
12. List the advantages of stack.
13. List the applications of stack.
14. List the applications of a Queue.
15. List the advantages of a Queue.
16. Discuss various operations performed on a stack.
17. Discuss various operations performed on a Queue.
18. Write any few examples of Linear and Non Linear Data Structure.
19. How stack perform insertion and deletion? Describe it. (Hint:LIFO)
20. How Queue can perform insertion and deletion? Describe it.(Hint:FIFO)

Long Answer Questions

1. Define and describe stack and write a short notes on various operations of a stack.
2 .Define and describe stack and write a short notes on various operations of a Queue.
3. Write a program to implement stack using arrays.
4. Write a program to implement Queue using arrays.
5. Define LIST, and write short notes on Linear and Non-linear list with examples.
6. Write advantages and applications of stacks.

7. Write advantages and applications of Queue

8. Write an algorithm to insert and delete elements from the stack, explain with example.

9. Write an algorithm to insert and delete element from the queue, explain with algorithm.

10. Discuss what is FIFO and LIFO with suitable example.

UNIT-V

Short Answer Questions

1. Define and describe single linked list. Give an example.
2.Define self referential structure with example.
3. List various operations of a Linked list.
4. List the advantages of a Linked list.
5. Define binary file and text file and give examples of each.
6. List out the standard library I/O functions for files.
7. What are command line arguments and how to use it?
8. What are argc and argv illustrate with example?
9. List different file handling functions.
10. What is EOF, discuss?
11.Write the syntax and example for fseek().
12. Write the syntax and example for ftell().
13. Describe fscanf () and fprintf() with syntax.
14. Describe fgetc() and fputc() with syntax.
15. Write short notes on fopen().
16. Differentiate append mode and write mode.
17. Write a program to open a file in read mode and display the contents of the file on standard output.
18. Define stream. List out different streams.
19. List different streams with their predefined constants. Write the usage of each.
20. Write the difference between Standard I/O stream and File I/O stream with examples

Long Answer Questions

1. Write a program to demonstrate all Linked list operations.

2.Explain insertion operations at different positions in SLL in detail with a diagram

3.Explain deletion operations at different positions in detail with a diagram

4. Write a program to copy the contents from one file to another.

5.Write a program to reverse first n characters of a file.

6. Write a program to merge two files.

7. Explain different types of modes in detail with an example programs.

8. Explain fseek() in detail with an example program.

9. Explain ftell() in detail with an example program.

10. Explain rewind() in detail with an example program