ASSIGNMENTS INTRO TO PROGRAMMING (CIT-112)

THEORY ASSIGNMETN # 2

Insturctions:

1. Algorithm and code is given you only need to put code where comments are given
2. You need to write all these 20 x projects on notebook
3. Also submit code files using VS Code as well.

History of C Programming:

1. Who is the creator of the C programming language?
2. In which year was the C programming language first developed?
3. What was the initial purpose of developing the C programming language?
4. Which language influenced the development of C?
5. What are some of the key milestones in the history of C programming?

Why C is Popular:

6. Why is C considered a popular programming language?
7. What are some industries or domains where C is commonly used?
8. How does C's performance contribute to its popularity?
9. What role did the development of the UNIX operating system play in C's popularity?
10. What are some advantages of C that make it popular for system programming?

IDEs in C:

11. Name a few popular Integrated Development Environments (IDEs) for C programming.
12. What features do IDEs provide for C programmers?
13. How do IDEs help with code debugging in C?
14. Can you name an open-source IDE for C programming?
15. What is the role of a compiler in the C development process?

Structure of C Program:

16. What is the basic structure of a C program?
17. What is the purpose of the **main()** function in a C program?
18. What is the role of header files in a C program?
19. What is a comment in C, and why is it used?
20. How are statements in a C program terminated?

Data Types in C:

21. Name some of the basic data types in C.
22. What is the difference between a float and a double in C?
23. How do you declare a character data type in C?
24. What is the **sizeof** operator used for in C?
25. How do you define a custom data type in C?

Variables in C:

26. What is a variable in C?
27. How do you declare a variable in C?
28. Can variable names in C start with a digit?
29. What is the scope of a local variable in C?
30. How do you assign a value to a variable in C?

Arithmetic Operators in C:

31. Name some common arithmetic operators in C.
32. What does the modulus operator (%) do in C?
33. How do you perform exponentiation in C?
34. What is the order of precedence for arithmetic operators in C?
35. What happens if you divide an integer by zero in C?

Logical Operators in C:

36. Name some logical operators in C.
37. What is the result of the logical AND operation in C?
38. How is the logical OR operation different from bitwise OR in C?
39. What is short-circuit evaluation in C?
40. How do you negate a logical expression in C?

Relational Operators in C:

41. Name some relational operators in C.
42. What is the difference between == and = in C?
43. How does the != operator work in C?
44. What is the result of a relational expression in C?
45. Can you compare strings using relational operators in C?

Bitwise Operators in C:

46. Name some bitwise operators in C.
47. How does the & operator work in bitwise operations in C?
48. What does the << operator do in bitwise left shift?
49. What is the purpose of the | operator in C bitwise operations?
50. How can you use bitwise operators for setting and clearing specific bits in a variable in C?

LONG QUESTINS

1. Explore the historical context in which the C programming language was developed. What were the key challenges and needs that led to its creation, and how did it address those challenges?
2. Discuss the enduring popularity of C in various industries. How has C's versatility and efficiency made it a preferred choice in fields like embedded systems, operating systems, and game development?
3. Explain the fundamental structure of a C program in detail. How does the execution flow typically progress through the program, and what are the roles of functions, header files, and the main() function?

4. Describe the different data types available in C, including the basic data types and user-defined data types. How do you choose the appropriate data type for a specific task, and what factors influence this decision?
5. Provide a comprehensive overview of variables in C. Explain the concept of variable declaration, initialization, scope, and lifetime. How do variables store and manage data, and what are the best practices for naming variables in C?