Task 1

a) Discuss the main concept and the effectiveness of using digitization for the automatic fan system.

The effectiveness of using digitization for the automatic fan system lies in its ability to provide a more efficient and cost-effective solution for maintaining optimal indoor air quality. By automating the fan control process, it eliminates the need for manual intervention, which can be time-consuming and prone to errors. Additionally, it allows for real-time monitoring of environmental factors, enabling quick adjustments to be made as needed.

b) Compare Assembler, Compiler, and Interpreter.

A compiler is a software that converts programs written in a high-level language into machine language. An interpreter is a software that translates a high-level language program into machine language while an assembler is a software that converts programs written in assembly language into machine language.

c) Describe Program Development Life Cycle.

Program development life cycle (PDLC) The process containing the five phases of program development: analyzing, designing, coding, debugging and testing, and implementing and maintaining application software.

d) Distinguish between the Syntax and Semantics

The syntax of a programming language describes which strings of of characters comprise a valid program. The semantics of a programming language describes what syntactically valid programs mean, what they do.

e) Explain how this string "ICT" is represented as a digital data using ASCII code.

I = 73, C = 67, T = 84

ICT = 73 67 84 (in Decimal)

ICT = 1001001 100011 1010100 (In Binary)

f) Define the applications that use the C programming and define the Identifiers in C programming language.

1. Operating systems: C is widely used for developing operating systems like Windows, Unix, and Linux.

2. Database systems: C is used for developing database management systems like MySQL, Oracle, and PostgreSQL.

3. Graphics applications: C is used for developing graphics applications like video games, image processing software, and computer-aided design (CAD) tools.

4. Networking applications: C is used for developing networking applications like routers, switches, and firewalls.

Identifiers in C programming language:

1. An identifier can only contain letters (both uppercase and lowercase), digits (0-9), and underscores (_).

2. The first character of an identifier must be a letter or an underscore.

3. Identifiers are case sensitive; that is "myVar" and "myvar" are two different identifiers.

4. An identifier cannot be a keyword or a reserved word in the C programming language.