 **Foundation Certificate in Information Technology**

**Semester 01**

**Tutorial 01 – Programming languages**

1. What is a programming language?
2. What are the main components in a programming language?
3. Based on which characteristic languages are grouped into generations and levels
4. Name advantages and disadvantages of machine language
5. State differences between first generation and second-generation programming language
6. **Explain why machine language programming is so error prone.**
7. Fill the generation and level of each of the following programming languages.

|  |  |  |
| --- | --- | --- |
| Language | Generation | Level |
| COBOL |  |  |
| C |  |  |
| SQL |  |  |
| Machine language |  |  |
| Java |  |  |

1. What are the main tasks of a compiler?
2. Compilers and Interpreters are two types of translators. State 3 differences between the compiler and interpreter.
3. What are the differences between high level programming languages and low level programming languages?
4. Name and explain three types of errors that can occur in a computer program?
5. Explain how you can detect the above stated errors.
6. What is the major difference between 4th and 5th generation programming languages?
7. Mark True (T) or False (F) for the following statements

|  |  |
| --- | --- |
| 1. Machine language is very close to the human language |  |
| 1. 3 rd generation and 4 th generation programming languages are low level |  |
| 1. Mnemonics are used in machine language. |  |
| 1. Assembly language contains 1s and 0s only. |  |
| 1. Java is a procedural language |  |
| 1. SQL is a third generation programming language. |  |
| 1. Prolog is a third generation programming language |  |
| 1. An interpreter saves the object code in the hard disk |  |
| 1. Compiler is used to translate and assembly language program |  |
| 1. An Interpreter does not check the syntax of the program. |  |
| 1. Third generation programming languages are dependent on the computer processor. |  |
| 1. Syntax errors can be detected by the compiler |  |
| 1. A translator convert the source code into object code |  |