Chapter-3
Programming Guidelines

1. Excessive comments add time to the execution of your program. (True/False). Justify your answer.

Ans: No, Comments don't add time to program execution. As comments are only for documentation purpose. They are non executable statements.

2. Differentiate between compile time and run time errors.

Ans: a. Compile time errors occur due violation of grammatical rules of a programming language. Run time errors occur during execution of program.

b. Compile time errors are easy to correct as we get error message corresponding to that which give an idea to correct it. Run time errors causes abnormal termination of program.

c. Example of compile time error: Missing semicolon(;). Example of run time error: Divide by zero error, Logarithm of a negative number.

3. Which error is harder to locate and why?

Ans: Logical errors are harder to locate. Logical errors occur due to error in the logic of a program. When a program is syntactically correct, even running properly but not giving a desired output, it means that it has a logical error.
One common example of logical error is when we write a statement Eng+Math+Gk/3 instead of (Eng+math+Gk)/3 to calculate average of marks of 3 subjects.

4. **Explain the following terms:**

a) **Exception handling -** A run time error is called an exception , which causes abnormal termination of program. To handle such type of errors/exception is called Exception handling. In java exception handling is done by try{ } and catch {} block. Statements that can raise exception are put in try{ } block and its handling code is written in catch { } block.

b) **Syntax :** Formal set of rules defined for writing any statement in a language is known as syntax. Example- Every line in JAVA should be terminated by semicolon(;).

c) **Portability** -Portability means an application should run on different platform without doing any changes.

d) **Prettyprinting -** Prettyprinting is the formatting of a program to make it more readable. These formatting conventions usually consist of changes in positioning, spacing, color, contrast, size and similar modifications intended to make the content easier to view, read and understand. Prettyprinters for programming language source code are sometimes called code beautifiers or syntax highlighters. Netbeans supports prettyprinting and the shortcut key to format any source code in Netbeans is Alt+Shift+F.

e) **Syntax error:** Formal set of rules defined for writing any statement in a language isknown as syntax. Syntax errors occur when syntax rules of any programming language are violated. These errors occur during compilation of the application but in Netbeans these errors are highlighted in design stage itself using the error indicator. Some of the common examples of syntax errors are missing semicolon, missing parenthesis and using incompatible data types.

5. The code given below will give an error on execution if the value entered in t2 is 0. Identify the type of the error and modify the code to handle such an error.
int a,b,c;
a= Intger.parseInt(t1.getText());
b= Intger.parseInt(t2.getText());
c= a / b;

Ans: The error is logical error.
int a,b,c;
a= Intger.parseInt(t1.getText());
b= Intger.parseInt(t2.getText());
if (b!=0)
c= a / b;
else{
JOptionPane.showMessageDialog(null,"Denominator cann't be zero");
t2. setText(" ");

t2.requestFocus();

}

6. What are the characteristics of a good program?

Ans: The characteristics of a good program are

A. The program should be efficient in terms of execution speed and effective memory utilization.

B. The should be accurate. It should produce correct result.

C. The program should user friendly. It means meaningful names should be given to variable, proper messages should be given,use of comments and indentation.

D. The program must be reliable that is it should be able to handle the situation when the wrong inputs are given.

E. The program should be portable so that it can run on different platforms without doing any changes.

7. What is the use of comments and indentation?

Ans Comments are non executable statements and are used for internal documentation purpose. In Java

comments are given either by // or /* ....*/ brackets.

Example-

/* This method calculates sum of two numbers.*/

int Sum(int x, int y)// x,y are formal parameters

{ return (x+y); }

Indentation makes a program readable and understandable. When you are writing a program you must remember that

(i) The opening braces should properly match with a closing braces.

(ii) Spaces should be inserted between operator and operands in an expression.