

Tutorial 1

1. Define the following terms:
 - (a) Syntax
 - (b) Compiler
 - (c) Algorithm
2. Describe the full process on how a C++ source code is compiled and executed. Illustrate your answer with appropriate diagram.
3. Describe the following tools and their advantages in planning a program:
 - (a) Structure chart
 - (b) Pseudocode
 - (c) Flowchart
4. Differentiate between a structure chart and an organization chart. Provide diagrams to aid your answer.
5. Draw a flowchart to represent the Pseudocode below:

```
if code is equal to '1'
    display "junior"
    assign 800.00 to salary
else if code is equal to '2'
    display "senior"
    assign 1200.0 to salary
else
    display "Wrong code!"
```
6. According to this institution exam grading system, design an algorithm by using Pseudocode to display the GPA (Grade Point Average) based on the total grade points of the courses and the total credit hours.
7. Differentiate between compilation error and runtime error.
8. Give **THREE (3)** reasons of why is it important to provide comments in your code. Demonstrate in two different ways of writing comments using C++.
9. Identify invalid identifier(s) and explain the reasons why they are invalid.

a) 40Hours	k) my_age
b) year	l) Get Data
c) cost_in_\$	m) Double
d) number1	n) A4
e) include	o) mark&score
f) int	p) first name
g) box-44	q) 5 th -Edition
h) Student-name	r) Page#
i) DVD_ROM	s) C++
j) 2morrow	t) 1stName

10. Write the output of the following segments of code:-

- (a) `cout << "\\\"\\nnow\\\"";`
- (b) `cout << "A1 \\\"Butch\\\" Jones;`
- (c) `cout << "\\\"Hello\\\"\\n Gandalf!";`

11. Briefly explain and correct the error(s) in each of the code segments below.

- (a) `string word;
cout << "Enter a word: ";
cin << word;`
- (b) `cout << "Two plus two is " 2+2;`
- (c) `double invest = 2000.0;
double return = 1.016 * invest;
cout << "The return on your investment of $"
<< invest << " is $" << return;`
- (d) `int x, y;
cin << x << y;`

12. Determine the appropriate data type for the following data:

- (a) The average of four marks.
- (b) The number of days in a month.
- (c) The length of the Penang Bridge.
- (d) The number of students in your class.
- (e) The distance from your house to TAR UC KL in kilometer.
- (f) The single-character prefix that specifies a product type.

13. Code the variable definitions for each of the following:

- (a) A character variable named `option`.
- (b) An integer variable, `sum`, initialized to 0.
- (c) A floating-point variable, `product`, initialized to 1.

14. Write single C++ statement to perform each of the following tasks:

- (a) Declare `num1`, `num2`, and `num3` as integer type variables.
- (b) Declare `tempA`, `tempB`, and `tempC` as double precision type variables. Initialize `tempA` to value 28.9.
- (c) Declare `let1` as character type variable and initialize it to value 'a'.
- (d) Declare variable `rate` as memory constant with value 2.95
- (e) Assign the letter "B" to the `char` variable `initial`.
- (f) Sends the value in variable `name` to the stream `cout`