

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI
DEPARTMENT OF ELECTRICAL/ELECTRONIC ENGINEERING
RAIN SEMESTER EXAMINATION 2015/2016 SESSION

ENG 214-COMPUTER PROGRAMMING FOR ENGINEERING APPLICATION

INSTRUCTION: ANSWER ALL QUESTIONS IN ALL SECTIONS

TIME ALLOWED: 2HRS

SECTION A (1 mark each)(20mks)

1. "Electrical Electronic Engineering" consists of _____ string literals?
2. Another name for insertion operators is _____
3. The insertion operator is symbolized as _____
4. A C++ program must be saved with the file extension _____
5. C++ has _____ numbers of integer types.
6. _____ acts like an operator as well an expression and transforms an expression into a statement
7. There are _____ number of ways to initialize in C++
8. All string of characters must be enclosed in _____
9. Which control structure can be used to select between several options? _____
10. The IDE used for the C++ Practical is _____
11. A matrix can be represented by _____ dimensional array in Java
12. The unary operator ++x means _____.
13. The JVM converts _____ into machine language.
14. In program development, API stands for _____.
15. J2ME means _____
16. Another name for Java development kit 1.6 is _____
17. The basic unit of a Java program is called _____
18. The Java Standard Development Kit contains a _____, _____, and _____
19. All Java codes must be saved with _____ extension.
20. Reserved words are also called _____

SECTION B

1(a₁) What is the output of the following program? (2mks)

```
#include <iostream>
using namespace std;
int main ()
{
//cout<< "hello, world<<endl;
return 0;
}
```

1(a₂) What are the errors with this program? (2mks)

```
int main ()
{
n=22;
cout<<n<<endl;
return 0;
}
```

Question 1(b) Answer True or False (6mks)

- a. Computer languages deal with two concepts—*data* and *algorithms*.
- b. The programs written in high language are developed using Integrated Development Environment.
- c. The < and > are not part of file name.
- d. If the preprocessor directive is missing in a program, the program will execute its functions
- e. Characters cannot be used in a program statement as part of a string literal.
- f. A constant once defined can be changed at any point in the program.

Question 1(c) Answer True or False (6mks)

- i. The primary purpose of an array is to facilitate the storage and manipulation of large quantities of data.
- ii. A java program is written once and can run on any device
- iii. Boolean is an example of a data type
- iv. In Java, one source code can be used by any operating system
- v. In Java programming, every variable declaration is a statement
- vi. Java programs are sensitive to line spacing

Question 1(d) (4mks)

- i. In a single declaration, assign the following values to a java array named "sales": 2.3, 4.5, 2.8, 3.8.
- ii. Represent $int[][] A = \{\{2, 8, 5\}, \{3, 2, 10\}, \{1, 7, 8\}, \{2, 3, 8\}\}$; as ordinary mathematical matrix .
- iii. Declare an array of 5 integers in Java
- iv. In the program : public class ASimpleJavaProgram, what is the basic function of "public"

SECTION C

2. An automobile tire with a volume of $0.6m^3$ is inflated to a gage pressure of $200kPa$. Write a C++ program to calculate the mass of air in the tire if the temperature is $20^\circ C$ using the ideal-gas equation of state. Note: Absolute pressure and absolute temperature are applied. Given an ideal gas equation as $PV = mRT$, where $P = P_{atm} + P_{gage}$, $P_{atm} = 100kPa$, $R = 259.8Nm / KgK$, m is the mass of air and Temperature $T = T_c + 273$ (10mks).
3. Write a simple java program that will declare three variables, x, y and z. The numbers 10 and 20 should be assigned to variables x and y respectively and their sum should be assigned to z. Print out the following "The sum of variables x and y is:" before printing out the sum. Indicate the line comments (10mks)