PAST QUESTIONS & SOLUTIONS

ENG 214 2012/2013 SESSION

QUESTION 1:

1. A C++ program must be saved with the file extension *CPI*
2. In a C++ program, statements that begin with the symbol # are called *preprocessor*
3. IDE is an acronym meaning *Integrated Development Environment*
4. In a C++, << is an operator called *Stream insention operator (bitwise left)*
5. In C++, = is called *Assignment operator*
6. *A computer program* is a sequence of instructions for a computer to execute.
7. All C++ statements end with *semicolon* and is used as
8. *Statement terminator.*
9. The string that contains zeros character is called *binary* and is denoted as
10. *0's*

QUESTION 2: JAVA

1. Java virtual machine serves as a platform dependent compiler. *True*/False
2. _____ is a characteristic of Object Oriented Programming Language. *Encapsulation, abstraction* etc see more in the lecture note.
3. || is a *declaration* operator.
4. The IF-ELSE loop statement is an example of ***conditional*** control structure loop.
5. A Ternary operator has *3* operands.
6. A bitwise NOT operator is *unitary.*
7. *FALL THROUGH* describes a situation where a switch statement has no break.
8. Casting is the process of *converting of a variable data type to another.*
9. The answer to this expression 5+3-6/2*3 is (8-3)*3 = 5*3 = *15*
10. The smallest unit of a java program is a *token.*

QUESTION 4

a. With the provided line numbers (to the left) state one line number and the error presents. (6 marks)

Ans: Line 1 is a syntactic error; a class declaration must not begin with a number.

b. Assuming a successful compilation write out the output of your debugged java program. (4 marks)

```
1.  class 1ExamQuestion
2.  {
3.  public static void main(String[] args) {
4.  {
5.  int a,b,c,d,e,f,g;
6.  int x=5;
7.  int y=8;
8.  a=X++;b=y--;c=++x;d=--y;
9.  System.out.println("1."+"2."+"3."+c+"4."+d);
10. e=3; f=2;
11. g=e|f;
12. e=f;
13. System.out.println("5."+e);
14. Boolean h=5<20;
15. System.Out.println("6."+g+"7."+h);
16. double k=(Double)(e/f);
17. System.out.println("8."+k);
18. }
```

Answer:

1+2+3+6+4

5+6

6+1.5+7...

SECTION C

QUESTION 5

Write a C++ program that prints (show the printed output) the sum, difference, product, quotient, and remainder of two integers, initialize the integers with the values 60 and 7. (10 marks)

Answer:

The printf function example :=>

```
#include <cstdio>//The directive for printf and puts usage

int main(){

  int A=60,B=7;
  int ResultSum = A+B;
  int ResultDifference = A-B;
```

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DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING
RAIN SEMESTER 2013/2014 EXAMINATION
ENG 214-COMPUTER PROGRAMMING FOR ENGINEERING APPLICATION
INSTRUCTIONS: ANSWER ALL QUESTIONS IN ALL SECTIONS Time: 2 Hrs.

SECTION A(1 mark each)

1. C++ program is a collection of one or more subprograms called ____. 2. Convenient abstractions used in C++ to perform input and output operations are called ____. In C++ program, statements that begin with the symbol # are called ____. 4. ____ is the file extension that must be used to save a C++ program. 5. The information that is stored in an unspecified location in computer memory is called ____ and represented as ____6____. 7. A character constant is a character enclosed in ____. 8. In C++, the three ways to initialize variables are ____, ____ and ____10____. 11. A compiled java source code has ____ as its extension. 12. Java virtual machine converts byte codes to ____. 13. Every java programme must be written in a ____. 14. A java virtual machine is machine independent True/False. 15. All Java codes must be saved with ____ extension. 16. An identifier is made up of letters, numbers, underscore or $ sign True/False. 17. IDE is an acronym for ____. 18. Java programs are platform ____ 19. Break, int, ____ are examples of key words True/False. 20. ____ is an example of a data type in Java

SECTION B

1a What is wrong with this program?(2mks)

```
#include<iostream>
Int main ( );
{
n=22;
cout<<n<<endl;
return 0;
}
```

b. Answer TRUE or FALSE (6 marks)

i. A string is a set of characters. ii. The keyword void stands for Valueless. iii. Variable declaration is the same as initialization. iv. A constant once defined can be changed at any point in the program. v. Equivalent machine language program is called an object program. vi. Semicolon acts like an operator on an expression.

c. What is the output of the following program?(2mks)

```
#include<iostream>
Int main( )
{
//cout<< "Futo, Owerri" << endl;
return 0;
}
```

2. Given the equation of motion of a moving body, v = u + at, where v = final velocity, u = initial velocity, a = acceleration and t = time, consider parametric values to be the last three digits of your Matriculation Number for u, a and t, write a C++ program to display the values of these parameters (using the variable letters only) and also calculate the final velocity, v of the body. For the students without Matriculation Number, use the last three digits of Futo Private Mail Box (526). (10 marks)

3. Write declarations, statements or comments that accomplish each of the following tasks: a. Declare the variables x, y, z and result to be of type int. b. Let $X_1X_2X_3X_4X_5X_6$, represent the last six digits of your registration number, then do the following; i. Assign the values in positions X_1X_2 to variable x. ii. Assign the Values in positions X_3X_4 to y. iii. Assign the values in positions X_5X_6 to z c. Compute the product of these three integers contained in variables x, y and z and assign the result to the variable result. d. Display the message "product is" followed by the value of the variable result.

4. Answer TRUE or FALSE (10 marks) i. Comments cause the computer to print the text after the // on the screen when the program executes. ii. All variables must be given a type when they are declared. iii. Java considers the variables number and NuMBer to be identical. iv. The remainder operator (%) can be used only with integer operands. v. The arithmetic operators *, /, %, + and – all have the same level of precedence.

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2013/2014 ENG 214 SOLUTION

SECTION A

FUNCTIONS
STREAMS
PRE-PROCESSOR DIRECTIVE
CPP

SINGLE QUOTATION MARKS
C-LIKE INITIALIZATION
CONSTRUCTOR INITIALIZATION
UNIFORM INITIALIZATION
.Java
MACHINE LANGUAGE
CLASS
FALSE
.Java
TRUE
Integrated Development Environment
Independent
True
Boolean

SECTION B

In Line 1; There should be a wide space between #include and <iostream>
In Line 2: the "Int" should have a lower case "i" not an upper case. There should be no semi-colon, because it is not a statement.

There should be "Using namespace std;" in between line 1 and line 2.

In line 4; the variable was not declared ie int, float, double e.t.c.

11bi) True
ii) True
iii) False
iv) False
v) True
vi) False

1c) The output will be blank. This is because the supposed output begins with "//" which indicates a comment. (Comments are not shown as output).

2)
```
#include <iostream>
Using namespace std;
int main ()
{
int u,a,t;
double v;
 u = 9;
 a = 2;
 t = 3;
 v = u + a*t;
 Cout<<"u = "<<u<<endl;
 Cout<<"a = "<<a<<endl;
 Cout<<"t = "<<t<<endl;
 Cout<<"velocity = "<<v<<endl;
 return 0;
 }
```

3 In C++

a // variable declaration
int x, y, z, result;

b x1 x2 x3 x4 x5 x6 → 803923
i Let x = 80;
ii Let y = 39;
iii Let z = 23;

c int x, y, z, result;
x = 80;
y = 39;
z = 23;
result = x*y*z;

d Cout << " Product is " << result << endl;

In JAVA

a int x, y, z, result;

b x1 x2 x3 x4 x5 x6 → 80 39 23
i Let x = 80;
ii Let y = 39;
iii Let z = 23;

c int x, y, z, result;
x = 80;
y = 39;
z = 23;
result = x*y*z;

d System.out.println("Product is " + result);

4) i) False
ii) True
iii) False
iv) True
v) False

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RAIN SEMESTER EXAMINATION 2014/2015 SESS
ENG 214: COMPUTER PROGRAMMING FOR ENGINEERING AI ICATION
TIME ALLOWED: 2HRS
INSTRUCTION: ANSWER ALL QUESTIONS IN ALL SECTIO

SECTION A (1 Mark each) (20Mks)

1. "Hello, World" consists of 12 string literals?
2. #include is necessary for a C++ program to have output
3. All string of characters must be enclosed in quotation mark
4. Another name for insertion operators is output bidirectional operators and symbolized as << 5 >>
6. A string that contains zero character is called Empty string
7. < > is used to indicate that a written program is a standard C++ library file
8. A C++ program must be saved with the file extension .Cpp
9. { } is used to enclose the body of the main function in C++ program
10. Semi-colon is used as a statement terminator in C++ program
11. J2ME means Java 2 Micro Edition.
12. Java virtual machine converts byte codes to machine code
13. The unary operator ++x means Operator operates on the variable first
14. A java program is written once and can run on any device True/False True
15. The IDE used for writing java codes in Eng 214 is Net-bean
16. A variable is declared by <Modifier>* <data type>
17. A java class can have only one main method
18. /* and */ are used for Multiple line Comment
19. Boolean is an example of a data type True/False True
20. There are Eight Primitive data types.

SECTION B

1a. What is the output of this program? (2Mks)

```
Int main ( )
{
n = 22;
Cout << n<< endl;
return 0;
}
```

1b. Answer True or False (8 Mks)

i. The <and> are not part of file name True
ii. Comments are not ignored by a compiler False
iii. An equivalent machine language is called an object program True
iv. Characters cannot be used in a program statement as part of a string literal False
v. Every C++ program has a function called Main True
vi. C++ Program is not case sensitive False
vii. The programs written in high language are developed using integrated development Environment True

viii. A constant once defined can be changed at any point in the program False

1c. Correct the nine errors in the javacodes below, if debugged, write the output (5Marks)

```
// A programme that computes frictional force experienced by a body on a rough surface
publicclas2FrictionalForce {
public static void main (string [ ] args) { }
Int m = 85; double mui = 0.3 double g = 9.81;
System.Out.Println("The body with mass " +m + "Kg suffers an opposing frictional force of "m*mui*g + "N");}}
```

1d Answer TRUE/FALSE (5 Marks)

i. The If/Else loop is an example of a decision making structure True
ii. A data type of a variable can be changed by casting
iii. An identifier can be a keyword False
iv. The bitwise operator (|) and Boolean operator (||) are used for the same purpose.
v. 0.07 can be assigned as a float or a double. ~~float~~ True

SECTION C

Question 2 (10Mks)

Given the equation for the area of a trapezium as 0.5 (a + b) h, where a and b are the sides of the trapezium and h is the height of the trapezium. Let the parametric values (a, b and h) be the last three digits of your Matriculation Number. Write a C++ program to display the values of these parameters (using the variable letters only) and also compute and print the area (A) of trapezium. For the students without Matriculation Number, use the three digits of the course code.

Question 3 (10Mks)

Joskie Enterprise is a manufacturer of quality plastic chairs, as the manager operations you are required to write a program using for loops in java that computes the profit made by the company. Assume the total quantity (Q) of chairs increases by 10,000 yearly due to increased demand. The fixed cost (F) of production each year is ₦15,000; variable cost (V) of producing a chair is N30; Selling price (S) of Jockie chairs is N1,500 each. In the first year, the value of Q is the last five digits of your reg no. The output of your program should display the year, quantity sold and profit made per year for ten years. (Profit = SQ – (F + VQ)). Those without reg no should use 00214 as the last five digits.

DETAILED SOLUTIONS TO ENG 214 2014/2015 EXAMINATION

SECTION A

1. 5
2. << #include
3. Double qu
4. iostream
5. << >>
6. Uninary ~~empty~~ empty string
7. # include
8. .cpp
9. Curly brace }
10. //
11. J2ME means Java 2 Micro Edition
12. Machine code
13. Increame

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14. True
15. NET- BEAN
16. Typing <modifiers>*<
17. One main Method
18. Multiple line comment
19. True 20. -8

SECTION:B

1a. Cout << n>> endl;
22

1bi. True ii. False iii. True iv. False v. True
vi. False vii. True viii. False

1ci. There should be a space between public and class.
ii. Also space between class and frictional
iii. String should be uppercase
iv. There shouldn't be curly brace in front of (String [ ] args)
v. There should be one curly brace down after (String [ ] args)
vi. The Int should start with small letter
vii. The Out should be small letter
viii. There should be semicolon after double mui = 0.3 i.e 0.3;
ix. The curly brace should go down after the output

Output
System.out.Printin "The body with mass "+m + "Kg suffers an opposing frictional rce of " + m* mui * g + "N");

1di. True ii. True iii. False iv. True v. True

SECTION C

SOLUTION

```
// This program to calculate Area of a trapezium
# include <iostream>
Using namespace std;
Int Main ( )
{
Int a = 5;  // where 5, 8, 3 are last 3 digits of my Mat no.
Int b = 8;
Int h = 3;
Double ; Area;
Area = 0.5 (a + b) * h;
Cout <<a;
Cout << b;
Count << h;
Count << Area ;
}
Return 0;
```

DEPARTMENT OF ELECTRICAL/ELECTRONIC ENGINEERING
RAIN SEMESTER EXAMINATION 2016/2017 SESSION
ENG 214 (COMPUTER PROGRAMMING FOR ENGINEERING APPLICATION) UNIT: 2
INSTRUCTION: ATTEMPT ALL QUESTIONS IN ALL THE SECTIONS. TIME ALLOWED: 2 HOURS

SECTION A (20marks)

1. The symbol >> is called _____
2. A _____ is a sequence of statements that is treated as a single statement
3. C++ has _____ number of keywords
4. A compiler converts a high level language into equivalent machine language program called_____
5. All string of characters written must be enclosed in _____
6. When characters are used as individual objects, they must appear as _____
7. A string that contain zero character is called_____ and is represented as ____8____
9. In C++, the three ways to initialize variables are _____, ____10_____, __11_____
12. A character constant is a character enclosed in _____
13. Variable identifiers shall always begin with a_____
14. Input extraction stream statements are expressed as_____
15. The programs written in a high-level language are developed using _____
16. A variable is a portion of memory used to store _____
17. A program that loads an executable program into main memory is called _____
18. The syntax for do-while loop is: _____
19. An object's value and type can be determined by the _____
20. _____ Is an example of a jump statement

SECTION B (Answer TRUE or FALSE) (10 marks)

1. In C++, input is analogous to output TRUE OR FALSE
2. The pre-processor directive is required in any program that uses Cin OR Cout TRUE OR FALSE
3. In C++, the angle bracket <> are part of the file name TRUE OR FALSE
4. C++ is not case sensitive TRUE OR FALSE
5. Constants are usually declared after the main function. TRUE OR FALSE
6. The type of an object can be changed by type casting TRUE OR FALSE
7. Every iterative structure must contain an update for the control variable. TRUE OR FALSE
8. The while loop and the do... while loop are the same. TRUE OR FALSE
9. Real number types supported by C++ are float, double and long float. TRUE OR FALSE
10. The size of a data type is determined by the size of operator. TRUE OR FALSE

SECTION C (10 marks)

1. Write a C++ statement that subtracts the sum of x and y from z and then increments y (2marks)
2. Write a single C++ statement that decrements the variable n and then adds it to A (2 marks)
3. What is the output from the following program? (2 marks)

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

4. What is wrong in this program (2 marks)

```
#include iostream
using namespace std;
main ( )
{
n=22;
cout<<n<<endl;
return 0;
}
```

5. What is wrong with this declaration? Identify the error and effect the correction. (2 marks)
   int x= y= 22;

SECTION D (20 marks, each question carries 10 Marks)

(A) Given the equation for the area of a trapezium as $A = 0.5(a+b)h$, where a and b are the sides of the trapezium and h is the height of the trapezium. Let the parameters a, b and h be the three digits of this course code respectively. Write a programme to print the area of the trapezium.

(B) Write a C++ program using any iterative loop to solve and display the result for the engineering problem stated below (ensure you write the displayed result):
A bolt and nut is to be loosed by a set of spanners that differ in length by 2cm. The first spanner is of length 7cm (A typical 10 - 11 spanner) and the required torque needed to successfully loose the nut is 7Nm. Calculate the force needed to be applied perpendicular to the spanner's end assuming there are 10 spanners in the set. What can you infer from the result? [Torque (Nm)= Force (N) x D(m) where D is perpendicular distance]

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RAIN SEMESTER EXAMINATION 2017/2018 SESSION
ENG 214 (COMPUTER PROGRAMMING FOR ENGINEERING APPLICATION)
INSTRUCTION: ATTEMPT ALL QUESTIONS IN ALL THE SECTIONS. TIME ALLOWED: 2 HOURS

SECTION A (20marks)

1. A_____ is a sequence of statements that is treated as a single statement
2. C++ has _____ number of keywords
3. A variable is a portion of memory used to store _____
4. When characters are used as individual objects, they must appear as _____
5. The _____statement executes one of two alternative statements according to the value of specified condition
6. A C++ program is a collection of one or more subprograms, called _____
7. A variable identifier written in capital letters is equivalent to another one of same name in small letters. TRUE or FALSE?
8. Constants are usually declared after the main function; TRUE or FALSE?
9. The three logical operators that represents "and", "or" and "not" for compound conditions are___, ___ and ___
10. _____is used to combine several statements to execute within a loop.
11. A loop is controlled by three separate parts _____, ____12____ and ___13_____:
14. Another name for insertion operator is called_____
15. Which of the following data is not a data type (a) Float (b) Bool (c) Char (d) Doub (e) Void.
16. A _____combines the object program with the programs from libraries
17. An object's value and type can be determined by the_____
18. A program that loads an executable program into main memory is called _____
19. Variable identifiers shall always begin with a_____
20 A character constant is a character enclosed in _____

SECTION B (Answer TRUE or FALSE) (10 marks)

1. The type of an object can be changed by type casting. T
2. Every iterative structure must initialize the control variable. T
3. The Extraction Operator is same with input operator T
4. The size of a data type is determined by the size of operator T.
5. A compound statement is a sequence of statement treated as a single statement T
6. Real number types supported by C++ are float, double and long float. TRUE OR FALSE T
7. In C++, the angle bracket < > are part of the file name
8. C++ is not case sensitive
9. C++ has four (4) iteration statements
10. The while loop and the do… while loop are the same.

SECTION C (10 marks)

(a) Underline the errors in the following C++ Program below. Rewrite the debugged program and the output displayed. **(6marks)**

```
1  # include<iostream>
2  using  namespace sd;
3  int main (5)
4  {
5  int x=2,y=5, z=5;
6  Z+=10;
7   cout<<++x<<";"<<y--<<";"<<z<endl;
8  }
```

Energy = [V]

(b) Write a single C++ statement that decrements the variable n and then adds it to A (2 marks)

(c) What is the output from the following program? (2 marks)

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

I = E/V

Power rating P=IV P=IV

E= Energy V=Volt t=

SECTION D (20 marks, each question carries 10 Marks)

(A) An electric heater consumes 3.6MJ when connected to a 250V supply for 40 minutes. Write a Program to print the values of the power rating of the heater and the current taken from the supply. (Hint: Energy (E) is the product of Power (P) and Time (T)

(B) Write a C++ program using any iterative loop to solve and display the result for the engineering problem stated below (**ensure you write the displayed result**):
Crates on a lift machine possess potential energy (m*g*h). If the mass of all the crates is 20kg, and the height changes at 1m increment. Write a program that computes the rising energy the machine has to overcome as it carries the crates to a maximum height you key in during runtime (Let gravity = 9.8).