



TECHNICAL UNIVERISTRY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
(BTIT 12S – Y3 S1)

EIT 4305: ADVANCED OBJECT ORIENTED PROGRAMMING

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- Answer Booklet

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

Question One (Compulsory)

a) Explain the difference between the following as found in Java:

- (i) Local variable and field variable
- (ii) Declaring a variable and defining a variable
- (iii) A servlet and Applet
- (iv) A while statement and a do statement

(8 marks)

b) Show the exact output that would be produced by the following main () routine, public static void main (strong () args)

```
int N;  
N = 1;  
While (N <= 32)  
{  
N = 2* N;  
System.out printin (N)  
}  
}
```

(4 marks)

- c) Explain the reason/meaning for each keyword of public static void main (String [] args) **(4 marks)**
- d) State the different types of access modifiers **(4 marks)**

Question Two

- a) Describe THREE main principles of object oriented programming in Java **(12 marks)**
- b) Write a complete Java Applet that displays the string “Hello Word” in green letters on a webpage. you will need a paint function and you will need to make use of the draw string. **(8 marks)**

Question Three

- a) Explain the following:
 (i) Garbage collection
 (ii) Java API **(8 marks)**
- b) Write a Java program that enters a 12-digit string as a typical KE telephone number, - Extracts the 3 digits area code, the 3-digit exchange and the remaining 6-digit number as separate strings, prints them and then prints the complete number in the usual formatting. A sample run might look like this:
 You entered 254720123456 The area code is 254
 The exchange is 0720
 The number is 123456
 The complete telephone number is (253) 720 – 123456 **(12 marks)**

Question Four

- a) Suppose that a class, Employee is defined as follows:

```
Class Employee ; {
String First Name:
Double Hourly wage:
Int YearWithCompany;
}
```

Suppose that data about 100 employees is already stored in an array:

```
Employee [ ] Employee Data = New
Employee [100];
```

Write a code that will output first name, last name and hourly wage of each employee who has been in the country for 20 years or more **(8 marks)**

- b) Transaction isolation level describe the degree to which data being updated is visible to other transaction. This is important when two transactions are trying to read the same row of table. Imagine two transactions: A and B 2 types of inconsistencies that can occur. **(6 marks)**
- c) Write a program that prints the pattern below

```
P
P P
P P P
P P P P
P P P P
```

(6 marks)

Question Five

Write a complete Java program that demonstrates the following concepts:

Input and output
Selection (e.g. if statement)
Arithmetic
Loops
Arrays
Classes/Objects

The program will be called fishing and just include the following:

- Is it the right season. If users in June to September return “go fishing”. if not return “DO return “DO not go fishing” it’s the wrong season”
- Is it the right weather. If user input is sunny return “go fishing its good day to fish” If not “it’s a bad day to fish stay home”
- Is the fish caught legal to keep. If the user input is trout and 12 inches long or longer return “great job you caught a legal fish” If not return” throw it back it is not a legal fish”

(20 marks)