

KABARAK



UNIVERSITY

UNIVERSITY EXAMINATIONS

2008/2009 ACADEMIC YEAR

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN
COMPUTER SCIENCE**

COURSE CODE: COMP 326

COURSE TITLE: OBJECT ORIENTED IN JAVA

STREAM: Y3S2

DAY: TUESDAY

TIME: 9.00 – 11.00 A.M.

DATE: 04/08/2009

INSTRUCTIONS:

Section A is **compulsory** and has 30 (marks). Attempt **any TWO** questions from Section B. Each question has 20 (marks).

PLEASE TURN OVER

QUESTION ONE 30MKS

a) Why is Java known as plat-form neutral language? [2mks]

b) What is meant by a constant in java programming? [1mk]

c) If(weight > 170)

if (height < 50)

Count = count +1;

By combining the test conditions, write another code that is equivalent to the one above. [2mks]

d) class Rectangle

```
{
int length;
public void setData(int x, int y)
{
int width= y;
length=x;
}
public int Area()
{
int area= length*width;
return area;
}
}
```

Identify the error in the above code, classify this error and re-write the code correctly. [4mks]

e) When do we declare a member of a class static? [1mks]

f) Define what a constructor is. [2mks]

g) Differentiate between a compiler and an interpreter [2 mks]

h) If you have the source code for a Java program, and you want to run that program, you will need both a *compiler* and an *interpreter*. What does the Java compiler do and what does the Java interpreter do? [4mks]

i) How do we declare an array? Illustrate with an example. [2mks]

j) Give the meaning of each of the following Java operators, and how they are used

i) ++

ii) &&

iii) !=

[6mks]

k) Describe event driven programming [2mks]

l) -----

int a =2, b =4, c = 6;

Float d = 6/5;

Use this segment of code to answer the following questions.

- i) Show two ways to correct the error (if any) on this code [1 mk]
- ii) What will be the values of; `c = b` ; and `(c + a) != (b*a)`; [1 mk]

QUESTION TWO (20 MKS)

- a) Explain the following concepts
 - i) Inheritance [2mks]
 - ii) polymorphism [2mks]
 - iii) Data encapsulation [2mks]
 - iv) java virtual machine [2mks]
- b) What are the different parts of a method in a java object [2mks]
- c) for the following `main()` method

```
public static void main(String[] args) {  
    int x,y;  
    x = 5;  
    y = 1;  
    while (x > 0) {  
        x = x - 1;  
        y = y * x;  
        System.out.println(y);  
    }  
}
```

- i) Show the exact output produced by [2mks]
 - ii) Show how the values of x and y are changing with every looping execution [3mks]
- d) i) What output is produced by the following program segment?

```
String name;  
int i;  
boolean startWord;  
  
name = "Richard M. Nixon";  
startWord = true;  
for (i = 0; i < name.length(); i++) {  
    if (startWord)  
        System.out.println(name.charAt(i));  
    if (name.charAt(i) == ' ')  
        startWord = true;  
    else  
        startWord = false;  
}
```

- [3mks]
ii) Explain you answer? [4mks]

QUESTION THREE 20MKS

- a) a) Write a program to determine the sum of the following harmonic series for a given value of n.

$$1 + 1/2 + 1/3 + 1/4 + \dots + 1/n.$$

The program should allow the value of n to be entered interactively through the key board and the answer be displayed on the screen. [10mks]

- b) Determine how many times the body of this loop is going to be executed

```
x = 5;
y = 50;
while ( x <= y)
{
    x = y/x;
}
```

[2mks]

- c) State the difference between a **simple if** and an **if...else** statement? [2mks]
d) Using an appropriate example, explain the difference between overriding and overloading of methods in java. [6mks]

QUESTION FOUR 20MKS

- a) Name and discuss the two main categories of errors in Java programming giving two examples of errors in each case [6mks]
b) State and briefly explain any three common Java exceptions [3mks]
c) How is an applet different from a application in Java? [5mks]
d) Write a method named `countChars` that has a `String` and a `char` as parameters. The function should count the number of times the character occurs in the string, and it should return the result as the value of the method [6mks]

QUESTION FIVE 20MKS

a) State and briefly explain any three common Java exceptions [3mks]

b) Explain what event handling is when designing a Java based GUI. [1mk]

c) Show the exact output produced by the following code segment.

```
char[][] pic = new char[6][6];
    for (int i = 0; i < 6; i++)
        for (int j = 0; j < 6; j++) {
            if ( i == j || i == 0 || i == 5 )
                pic[i][j] = '*';
            else
                pic[i][j] = '.';
        }
    for (int i = 0; i < 6; i++) {
        for (int j = 0; j < 6; j++)
            System.out.print(pic[i][j]);
        System.out.println();
    }
```

[6mks]

d) What is layout management in java GUI [2mks]

e) Explain at least four different layout managers available in swing [8mks]