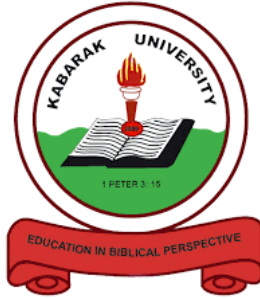


KABARAK



UNIVERSITY

**UNIVERSITY EXAMINATIONS
MAIN CAMPUS**

THIRD SEMESTER, 2015/2016 ACADEMIC YEAR

EXAMINATION FOR THE BACHELOR OF SCIENCE COMPUTER SCIENCE

COMP 215: OBJECT ORIENTED PROGRAMMING

STREAM: Y2S1

TIME: 11.30-1.30 P.M

EXAMINATION SESSION : AUGUST

DATE: 10/08/2016

INSTRUCTIONS

- **ANSWER QUESTION ONE AND ANY OTHER TWO**

Question one 30 marks

- a) Write a C++ program to enter basic salary of an employee and calculate gross salary according to given conditions:
Basic Salary ≥ 10000 : HRA = 20%, DA = 80%
Basic Salary ≥ 20000 : HRA = 25%, DA = 90%
Basic Salary ≥ 30000 : HRA = 30%, DA = 95%
The program should print the name of the employee, department and the gross salary [4 marks]
- b) An electric power distribution company charges its domestic consumers as follows:

Consumption units	Rate of charge (Ksh)
0-200	0.50 per unit
201 -400	100 plus 0.65 per unit
401 – 600	230 plus 0.80 per unit
601 -700	390 plus 1.00 per unit
700- 999	500 plus 3.0 per unit
≥ 1000	700 plus 5 per unit

As members of Kabarak University family, we purpose at all times and in all places, to set apart in one's heart Jesus as Lord. (1 Peter 3:15)

- Write a program that reads customer number and power consumed and prints amount to be paid by the customer. [6 marks]
- c) Using do while statement write a program to find the sum of n numbers where n is defined by the user. [4 marks]
- d)) (i) Define inheritance? [2 marks]
(ii) Using a suitable program describe multiple inheritance [4 marks]
- e) Using functions write C++ program to perform arithmetic functions [4 marks]
- f) Using switch statement write a C++ program to display the day depending on the choice entered by the user from the key board [6 marks]

QUESTION 2 (20 MARKS)

a) An employee in a particular sales company is either full time or part time. Full time employees are grouped into two – administrators and salesmen. Details stored for a full time employee include a unique employee code, the employee’s name and his/her contacts, salary, title, total sales made in the month (only for salesmen), and the job group (only for administrators). The operations performed here include registering a new employee, and computing the net salary (Tax is 20% of salary, and a sales commission of 5 % (only for salesmen)).

Details stored for a part time employee include a unique employee’s code, his/her name and contacts, title, and the employee’s hourly pay rate. The operations performed on a part time employee include registering a new employee, and computing the monthly income (input total hours worked).

Required: Write a program to solve the above problem. [10 Marks]

- b) Write c++ program to perform withdraw and depositing of money in the bank, then print the bank account number, previous balance and current balance [6 marks]
- c) Using inline function write a program to perform arithmetic operations [4 marks]

QUESTION 3 (20 MARKS)

a) A shape can be a circle, a square, a rectangle or a triangle. The details stored include the area, the perimeter, the radius (only for a circle), the length (for a square), and the length and the height (for a triangle and a rectangle). The operations performed on a shape include inputting the details of each, computing the area and computing the perimeter.

Required: Write the definition of classes to demonstrate how you can implement this using polymorphism. [10 marks]

- b) Discuss memory allocation and de allocation technique available in c++ [4 marks]
- c) Write a C++ program to find odd and even n umbers within a given range [4 marks]
- d) Define function overloading? [2 marks]

QUESTION 4 (20 MARKS)

- a) (i) Assume a class inherits another class using public inheriting mode. State what happens to the following members of the base class. [3 Marks]
 - (i). Private members (ii). Protected members (iii). Public members
 - ii) Repeat the above using private inheriting mode instead of public. [3 Marks]
- a) Explain the meaning of the following [4 marks]
 - (i) ptr1 = &x
 - (ii) y = *ptr1
- b) Write c++ program to find the largest value of any three numbers entered by the user through the keyboard [4 marks]
- c) What is a class? Describe its structure [4 marks]
- d) Explain two types of Polymorphism [2 marks]

QUESTION 5 (20 MARKS)

- a) Write c++ program to implement Multiple inheritance [6marks]
- b) Write c ++ to implement the use of try, catch, and throw. [6 marks]
- c) Using a suitable example describe goto statement [4 marks]
- d) Explain four advantages of using a pointer within the program [4 marks]