Machakos University College

(A Constituent College of Kenyatta University)
UNIVERSITY EXAMINATIONS 2013/2014
SCHOOL OF COMPUTING AND APPLIED SCIENCES
SECOND YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF COMMERCE
BMS 201: COMPUTER PROGRAMMING

DATE: Tuesday, 1ˢᵗ April, 2014   TIME: 8.30 a.m. – 10.30 a.m.

Instructions:

Question 1 and ANY OTHER TWO Questions

QUESTION ONE (30 MARKS)

a) Differentiate between the following concepts

  i.   Syntax errors and semantic errors.

  ii. Interpreters and compilers

  iii. Pseudo code and flowchart   (6 marks)

b) Briefly discuss the core features of the following programming languages giving an example of each:

  i. Low level programming languages.

  ii. High level programming languages.   (4 marks)

c) Differentiate between a statement and comment giving an illustration of each in programming language   (4 marks)

d) Explain the effect of the following flow control structures on a program. (6 marks)
  i.   Iteration
  ii. Selection

iii.   Modularity

e) Jessy is a lecturer and wants to grade students for his programming unit.

Write a program to request the lecturer to input the student marks then the program

returns the grade for the marks given the grading system as follows.

MARKS	70-100	60-69	50-59	40-49	0-39
GRADE	A	B	C	D	F

(8 marks)

QUESTION TWO

a) Discuss three types of errors commonly made by programmers while writing programs.

(6 marks)

b) Use the 'FOR' loop to write a program that prints all numbers between 10 and 30.

(6 marks)

c) (i) Define variable and show how is declared and initialized in C/C++.   (4marks)

(ii) State the rules for naming variables in C/C++ language.   (4 marks)

QUESTION THREE

a) A program is required to calculate interest earned from principal amount deposited in a bank for a given period of time. The interest rate depends on the principal amount deposited is as follows:

Principal Amount	Interest Rate Per Annum
Below 50,000	10%
50,000 and above	20%

The user first inputs the principal amount and duration in years. The program should:

Compute and display the interest amount earned and total amount after the expiry period.

The details should also save the results on the database

HINT Interest = P x Rx T /100

Required:

(i)   Design pseudo code for above program.   (6marks)

(ii)   Design a flowchart for above program   (6marks)

(iii)   Write the program code for the above program.   (6marks)

b) Draw the following flowchart symbols: (2marks)

   i.   Process

   ii. Decision/branch   (4 marks)

QUESTION FOUR

a) State and briefly explain the steps followed while creating a program.   (10 marks)

b) Differentiate between the operators and operands in programming. Use example.

(4marks)

a) The gross salary of an employee at Mombasa Botique is based on a kshs. 10,000 basic salary and commission as a percentage of sales as follows:

Monthly Sales Amount	Commission Rate
Above kshs. 40,000	30%
Between kshs. 20,000 and kshs. 40,000	25%
Below kshs. 20,000	20%

Write a program that would be used to calculate and display the commission amount and total salary for the employee. The use inputs the monthly sales amount first.   (6 marks)

QUESTION FIVE

a) (i) Design a flowchart for a program that reads in the age of a person and outputs an

appropriate message based on;

If age<18 print "You are a minor"

If age>=18 print "You are an adult"   (6 marks)

ii) Write the program code for the above flowchart.   (6marks)

b) (i) Define the term constant.   (2marks)

(ii)   Write a program to demonstrate how to declare and use constant.

(5 marks)

(iii)   Define language translator.   (1mark)