

COMMON ENTRANCE EXAMINATION: JULY 2011 SESSION.
SERIES: ADMINISTRATIVE TECHNIC.
CYCLE: FIRST CYCLE TECHNICAL EDUCATION.
OPTION: ACCOUNTANCY, MARKETING, MANAGEMENT.ECONOMICS.
PAPER 2: BUSINESS MATHEMATICS DURATION: 3HRS.
COEFFICIENT: 3
CANDIDATES ARE ALLOWED TO USE FINANCIAL TABLES AND NON PROGRAMMABLE CALCULATORS.

QUESTION 1. Three capitals in decreasing arithmetic progression with the sum equal to 2700000fcfa were invested on 01/01/2009 at simple interest rate of 8 percent per quarter and the interest produced by three capitals were in increasing geometric progression with the first one equal to 96000fcfa.

Required:

Given that the total interest produced was worth 366000fcfa and the first capital invested for 3 months, determine:

- 1.) The common ratio
- 2.) The common difference.
- 3.) The due dates of each of these investments.

QUESTION 2.

Moses decided to make yearly deposits to a bank saving account at compound interest rate of 5 percent per semester as follows:

- A constant sum of money of 200000fcfa from 01/01/1999 to 01/01/2001.
- Then a constant sum of money of 300000fcfa from 01/01/2002 to 01/01/2003.
- Lastly a constant sum of money of 260000fcfa from 01/01/2004 to 01/01/2007.

The amount calculated on 01/10/2008 is reinvested at compounding quarter interest of 3 percent.

REQUIRED.

- 2.1.) Calculate the amount collected on 01/10/2008.
- 2.2.) calculate the total amount after the reinvestment on 01/01/2011.

QUESTION 3.

A business man purchased two types of goods, P and Q. The goods P were sold to customers with a mark up on sales of 20 percent, were as the goods Q were sold with a mark up on cost of 30 percent.

The total sales value of these goods amounted to 5918000fcfa when, their total cost prices amounted to 4640000fcfa.

The sales value of goods P was invested on 01/01/2004 at compounded interest rate of 5 percent per

Semester and, on 01/01/2006 the compounded interest rate changed to 8 percent per annum.

WORK REQUIRED.

3.1) calculate the cost price of each type of good.

3.2) calculate the gross margin of each type of good.

3.3) calculate the total interest produce by the sales value of P after 8 years of investment.

QUESTION 4.

Three trade bills with nominal values in arithmetic progression and common difference, 300000fcfa were remitted discount on 01/03/2008 at the simple interest rate of 6 percent per semester, the sum of their nominal values was 4.2 of the nominal value of the trade bill and their durations for discounting are in geometric progression with common ratio of 1.2.

Required:

4.1) calculate the nominal value of each trade bill

4.2) calculate the duration for discounting of each trade bill given that the total discount amounted to 32950fcfa.

QUESTION 5.

The following information was provided as for a statistic table.

x_i	n_i
4	5
5	a
6	12
8	b
12	18

Required:

5.1) calculate the value of a and b given the the arithmetic mean of x is 8.26 and the harmonic mean of x is 50/7 .

5.2) calculate the standard deviation of x.

QUESTION 6.

The following information was provided as for a statistic table:

p_i	n_i
P1	2
P2	1
5	3
6	2
8	2

Required:

6.1.) calculate the value of p_1 and p_2 given that the arithmetic mean of p is 5.1 and the variance of p is 3.89.

6.2) calculate the coefficient of variation.