COMPETITIVE ENTRANCE EXAMINATION INTO HTTTC BAMBILI	
CYCLE: 1ST CYCLE **LEVEL**: 1ST YEAR **OPTION**: ALL	**Session: 2012**
DURATION: 3hrs	

INSTRUCTION: ANSWER ALL QESTIONS

1. Three capitals in decreasing arithmetic progression with sum equal to 2,700,000FCFA were invested on 01/01/2009 at simple interest rate of 8% per quarter and the interests produced by these capitals were in increasing geometric progression with the first one equal to 96,000FCFA.

   Required: Given that the total interest produced was worth 366, 000FCFA and the first capital was invested for three months, determine;

   1.1.   The common ratio
   1.2.   The common difference
   1.3.   The due dates of each of these investments   (10mrks)

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

   ❖ A constant sum of money of 2,000,000FCFA from 01/01/1999 to 10/10/2001;

   ❖ Then , a constant sum of money of 3,000,000FCFA from 01/01/2003 to 01/10/2007

   ❖ Lastly, a constant sum of money of 2,600,000FCFA from 01/01/2004 to 01/01/2007

   The amount collected on 01/10/2008 is reinvested at compounded quarterly interest of 3%

   Required:

2.1. Calculate the amount collected on 01/10/2008

2.2. Calculate the total amount after the reinvestment on 01/01/2011 (10mrks)

3. A businessman purchased two types of goods P and Q. The goods P were sold to customers with a mark – up on sales of 20%, whereas, the goods Q were sold with a mark – up on cost of 30%. The total sales values of these goods amounted to 5,918,00FCFA when their total cost price s amounted to 4,640,000FCFA.

The sales value of goods P was invested on 01/01/2004 at compounded interest of 5% per semester and on 01/01/2006 the compounded interest rate changed to 8% per annum.

Required:

3.1. Calculate the nominal value of each trade bill

3.2. Calculate the gross margin of each of type of goods

3.3. Calculate the total interest produced by the sales value of P after eight years of Investment. (10mrk)

4. Three trade bills with nominal values in arithmetic progression and common difference 300,000FCFA were remitted for discount on 01/03/2008 at the simple interest rate of 6% per semester; the sum of their nominal values was 4.2 of the nominal value of the first trade bill and their durations for discounting are in geometric progression with common ratio of 1:20.

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 32,950FCFA. (10mrks)

Question 5

a) 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 that the arithmetic mean of X is 8.26 and the arithmetic mean of X is 50/7

5.2.   Calculate   the   standard   deviation   of   X (10mrks)

b) The following table was provided as for statistic table:

P_i	n_i
P_1	2
P_2	1
5	3
6	2
8	2

Required:

5.3. 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.

5.4.   Calculate   the   coefficient   of   variation. (10mrks)

Solutions to 2014 biz maths

1.A	2.D	3.C	4.B
5.B	6.D	7.A	8.A
9.C	10.	11. C	12.D
13.D	14.C	15.A	16.B
17.A	18.D	19.A	20.C
21.C	22.D	23.A,D	24.A
25.C			

Solutions to 2013 biz maths

1.B	2.D	3.C	4.B
5.	6.A	7.D	8.A
9.	10.B	11. D	12.A
13.D	14.D	15.B	16.A
17.A	18.D	19.A	20.C
21.	22.D	23.	24.
25.C	26.C	27.A	28.