NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS
SCHOOL OF MANAGEMENT SCIENCES
JANUARY/FEBRUARY 2013 EXAMINATION

COURSE CODE: **MBA 816**   **CREDIT UNITS: 2**

COURSE TITLE: **BASIC MATHEMATICS AND STATISTICS FOR MANAGERS**
TIME ALLOWED: **2 HOURS**

Instructions: 1. Attempt question number one (1) and any other two (2).

2. Question number 1 is compulsory and carries 30 marks   while the other 2 questions carry 20 marks each.

3. Present all your points in coherent and orderly manner.

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1(a) A Ship travels between two ports. The cost of fuel is 100(ax + b/x + 10) naira, where x is the average speed of the Ship in knots, and a and b are constants. If the Ship travels at 4 knots, the cost of fuel would be N9,000, but at 6 knots, the cost would be N7,000.
(i) Find the values of a and b
(ii) What is the cost of fuel at an average speed of 5 knots?

(15 marks)

(b) The followings are data on the number of stores that purchase bottled water in the cities as listed: Sokoto 25,000   Lagos 20,000   Enugu 20,000   Port Harcourt   5,000, summarise these information using a pie chart.

(15 marks)

2. The followings are data on annual gross revenue of a Company:

Year	t	Gross Revenue (N'milllons) (y)	ty	t^2
1987	1	13.0	13	1

Year	t	y	ty	t²
1988	2	14.1	28.2	4
1989	3	15.7	47.1	9
1990	4	17.0	68	16
1991	5	18.4	92	25
1992	6	20.9	125.4	36
1993	7	23.5	164.5	49
1994	8	26.2	209.6	64
1995	9	29.0	261	81
1996	10	32.8	328	100
	$\Sigma t = 55$	$\Sigma y = 210.6$	$\Sigma ty = 1336.8$	$\Sigma t^2 = 385$

(a) Sketch the data on your answer script
(b) Compute the regression equation, using y as dependent variable and t as independent variable.
(c) Find the trend forecasts for the years 1999, 2001, 2004, and 2006

(20 marks)

3(a) The annual income of a bank clerk is N240,000. His income tax is charged at 10 percent, and the employer deducts 5 percent for the Pension fund. Calculate the clerk's net monthly income.
(b) Using the expression for the nth term of a geometric progression, compute the 8th term of the geometric progression: 72, -24, 8, …

(20 marks)

4. Given the income distribution of a sample of 50 MTN customers as follows:

Income (N'000s)	Number of Subscriber
20 – 30	20
31 – 41	15
42 – 52	10
53 – 63	5

(a) Compute the arithmetic mean of the incomes;
(b) Compute the Median income

(20 marks)

5. A total of N10,000 was invested in two business ventures, A and B. At the end of the first year, A and B yielded returns on the original investments of 6 percent and 5.75 percent respectively. How was the original amount allocated if the total amount earned was N588.75?

(20 marks)