



MACHAKOS UNIVERSITY

University Examinations for 2016/2017 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

FIRST YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN BUSINESS
MANAGEMENT

BMS 031: QUANTITATIVE METHODS

DATE: 2/6/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS.

Answer Question One and Any Other Two Questions

1.
 - a) Given the total revenue function; $R = 2X^3 - 2X^2 + 8$, derive the marginal revenue function. (4 marks)
 - b) State and explain briefly the difference between measures of central tendency and measures of dispersion. (6 marks)
 - c) Write short notes on: i) Multi – Stage sampling (4 marks)
ii) Simple random sampling (4 marks)
 - d) Outline the main sources of primary data (8 marks)
 - e) Give the features of a good questionnaire (4 marks)
2. For the data below calculate the mean, mode and the standard deviation.

No. of sales	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29
No. of salesmen	2	10	23	23	15	7

(20 marks)
3. Determine the co-ordinates and nature of any turning points on the cost curve represented by the cost function $C = 2x^2 - 15x^2 + 36x + 6$. (20 marks)

4. The data obtained from claims on life assurance policies for a particular category of employment for nine males.

Age at retirement	57	62	60	57	65	60	58	62	56
Age at death	71	70	66	70	69	67	69	63	70

Calculate,

- The product moment correlation coefficient (r), and
 - The coefficient of determination and interpret your results. (20 marks)
5. A certain diet for a week has to contain a minimum amount of three nutrients; 10g of nutrient A, 12g of nutrient B and 8g of nutrient C. The nutrients are to be provided by two food stuffs X and Y in quantities shown in the table below. The price per unit of each foodstuff is the same. Find the cheapest way of providing the diet.

Foodstuff.	Nutrient provided (g/unit)			
	A	B	C	
X	5	4	3	
Y	2	3	5	(20 marks)