

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF CERTIFICATE IN PROCUREMENT AND LOGISTICS MANAGEMENT AND CERTIFICATE IN BUSINESS MANAGEMENT

CIBM 00151: BUSINESS MATHEMATICS

STREAMS: CIBM

TIME: 2 HOURS

DAY/DATE: TUESDAY 05/12/2017

230 P.M. – 4.30 P.M.

INSTRUCTIONS: Answer question ONE (Compulsory) and any other two

QUESTION ONE

- (a) In January 1989, a firm employed 90 staff of whom 79 were men. During the year 17 staff left and 13 of these were men. The total recruitment during the year was 13 out of whom 3 were women.

During 1990 wastage declined by 3 amongst men compared with 1989 and no women left. 6 more men but 2 fewer women were recruited than in the previous year. The total number employed on 1st January 1991 amounted to 93

Required:

Arrange the above information in concise tabular form showing all relevant totals and sub-totals. [12 marks]

- (b) Explain five objectives of business mathematics. [5 marks]

- (c) Explain any three advantages of direct observation as a method of data collection. [3 marks]

- (d) A company splits its home sales area into three regions each having a sales representative. Over a particular period, representative A averages sh 86.42 from 24 sales, representative B sh 112.91 from 37 sales and representative C sh 104.22 from 25 sales.

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Required:

- (i) Find the average value per sale overall. [3 marks]
- (ii) Calculate the harmonic mean from the following data. [7 marks]

Class interval	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
Frequency	20	25	36	72	51	40

QUESTION TWO

- (a) In his will, Mr. FadhiliDonge had shared his property as follows:- $\frac{1}{4}$ to his eldest son, $\frac{1}{5}$ to each of his two sons (Juma and Hassan), $\frac{1}{6}$ to his surviving second wife, $\frac{1}{9}$ to his only daughter and the balance to his younger brother. If younger brother got sh. 65000 worth of property,
- (i) What was the original value of the estate. [3 marks]
- (ii) Calculate the amount each person got. [3 marks]
- (b) A WestGerman tourist came to Kenya with D.M 25860. He exchanged all his Deutche marks into Kenya currency paying a bank charge of 15%. He spent ksh. 185,000 during his stay in Kenya and changed his remaining cash to D.M again paying a bank charge of 1.5%. How many D.M. did he receive? Use the following rate of exchange. I.D.M = Ksh. 15.60 [5 marks]
- (c) A Kenyan businessman imported 20000 watches from Switzzland at a cost 30 Swiss francs per watch. He incurred additional expenses as follows. Sh 16,000 freight; sh 34,000 insurance on the consignment and customs duty @sh. 90 per watch
- (i) Calculate the total cost of the consignment in Kenya shillings. [3 marks]
- (ii) Calculate the price at which he should sell each watch if he were to make a profit of 10% on total cost you have calculated in (a) above. [6 marks]

QUESTION THREE

- (a) A man deposited 20,000 in a savings account for 3 years at a simple interest rate of 12.5% p.a. How much money would he have lost if he had deposited the same amount for 2 years in a fixed account where the money was compounded at 16% p.a. [5 marks]
- (b) Find the present value of the following amounts if rate of interest is 10%.
- (i) SH. 5000 after one year [2 marks]
- (ii) Sh. 8000 after 2 years [2 marks]

- (c) Robert sold an article for sh. 2500 at a profit of 25% on cost (mark up). Find out his cost price. [4 marks]
- (d) If sh. 45000 is lent at 9% simple interest p.a. after how many years will it earn interests of sh. 12150? [3 marks]
- (e) Calculate the effective annual rate of interest of:
- (i) 16% compounded quarterly [2 marks]
- (ii) 18% compounded monthly [2 marks]

QUESTION FOUR

- (a) An article costs sh 8400 and it is sold at a loss of 20% of s.p what is s.p. [2 marks]
- (b) James and Omondi are partners in a business. Omondi is entitled to a salary of sh. 2000 p.a. profit sharing ratio of James and Omondi is 3:2 respectively. If the profit for the year 2016 is sh 80,000, calculate how much each would receive. [4 marks]
- (c) Given the following values, determine Q_1 , Q_3 interquartile range and mid-range. 12, 15, 20, 28, 30, 42, 50 [4 marks]
- (d) From the information below find the median [5 marks]

Salary	Number of employees
150 – 179	3
180 – 209	8
210 – 239	10
240 – 269	13
270 – 299	33
300 – 329	40
330 – 359	35
360 – 389	30
390 – 419	16
420 – 449	12

From the data below, calculate

- (i) Variance [2 marks]
- (ii) Standard deviation [2 marks]
- (iii) Coefficient of variation [1 mark]

12, 6, 14, 8, 6, 11, 13