Riara University

Riara School of Business

Nurturing business innovators

SEPTEMBER-DECEMBER 2019 TRIMESTER

EXAMINATIONS FOR BACHELOR OF BUSINESS ADMINISTRATION

DAY PROGRAMME

RFN 202 : STATISTICS FOR DECISION MAKING AND ANALYSIS

DATE: DECEMBER 2019   TIME: 2 HOURS

INSTRUCTIONS

i)   **Answer question one and any other two**

ii)   **Marks allocated to each question are shown at the end of the question**

iii)   **Arrange your work neatly and indicate the questions answered in the**

   Examination booklet

QUESTION ONE (COMPULSORY – 30 MARKS)

a) Rewrite the following using set notations   **[5 Marks]**

   i.   The first ten even natural numbers

   ii. Set of days of a week

b) The monthly salaries of two persons are in the ratio of 3:5. If each receives an increase of

   Ksh 20 in salary, the ratio is altered to 13:21. Find the respective salaries.   **[5 Marks]**

c) Solve the inequality $4(x + 1) < 2x + 3$ **[5 Marks]**

d) What sum of money will amount to Ksh. 5200 in 6 years at the same rate of interest (simple)

   at which Ksh. 1706 amount to Ksh. 3412 in 20 years?   **[5 Marks]**

e) Find the CI. on Ksh. 6,950 for 3 years if the interest is payable half-yearly, the rate for the

   first two years being 6% p.a. and for the third year 9% p.a.?   **[5 Marks]**

f) The true discount on a bill due 6 months hence at 8% p.a. is Ksh. 40, find the amount of the

   bill.   **[5 Marks]**

g) Evaluate   **[5 Marks]**

$$\begin{bmatrix} 3 & 5 \\ 2 & 7 \end{bmatrix} + 2\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} - \begin{bmatrix} 5 & 9 \\ 8 & 15 \end{bmatrix}$$

QUESTION TWO

a) Explain 5 types of Matrices   **[10 Marks]**

b) Find X where AX=B   **[5 Marks]**

$A=\begin{bmatrix} 1 & 2 \\ 9 & 4 \end{bmatrix}$ $B=\begin{bmatrix} 3 & 12 \\ 13 & 52 \end{bmatrix}$

c) Find the determinant of the 3x3 matrix   **[5 Marks]**

$\begin{bmatrix} -4 & 5 & 2 \\ -3 & 4 & 2 \\ -1 & 2 & 5 \end{bmatrix}$

QUESTION THREE

a) If A= {1, 2, 3}, and B = {1, 2, 3, 4}. Find $(A - B) \cup (B - A)$ **[4 Marks]**

b) State with reason whether each of the following statements is true or false.   **[6 Marks]**

   i. $1 \subset \{ 1, 2, 3 \}$

   ii. $\{1, 2\} \in \{ 1, 2, 4 \}$

   iii. $\{1, 2\} \subset \{1, 2, 3\}$

c) In a survey of 100 students it was found that 60 read Economics, 70 read mathematics, 50 read statistics, 27 read mathematics and statistics, 25 read statistics and Economics and 35 read mathematics and Economics and 4 read none. How many students read all the subjects?

                                                                                                  [10 Marks]

QUESTION FOUR

a) As the number of units manufactured in a factory is increased from 200 to 300, the total cost of production increases from Ksh. 16,000 to Ksh. 20,000. If the total cost of production is partly fixed and other part varies as number of units produced, find the total cost of for production 500 units.   **[10 Marks]**

b) If $\log_2 x + \log_4 x + \log_{16} x = \frac{21}{4} \; find \; x$ **[5 Marks]**

c) Solve $x^2 + 7x + \sqrt{x^2 + 7x + 9} = 12$ **[5 Marks]**