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(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

FIRST YEAR

SPECIAL/SUPPLEMENTARY EXAMINATION

FOR THE DEGREES OF

BCOM, BED(ARTS), BED(SC), BPH, BCH, BIO, BCE, BBC, BAB, EDE, BBM, COM, BCR, BSW, BRB, BSC(MATHS) & BAE

COURSE CODE: KUC 125

COURSE TITLE: QUANTITATIVE SKILLS

DATE: 18/1/2022

TIME: 8:00AM - 10:00AM

INSTRUCTIONS TO CANDIDATES

Answer Question One and any other TWO Questions

TIME: 2 Hours

This Paper Consists of 4 Printed Pages Please Turn Over.

QUESTION ONE

- a) The government of Kenya has been holding a series of BBI meetings across the country to sensitize her people on the Building Bridges Initiative resolutions. Where is the source of funds that make these meetings to happen? Highlight **six** possible sources (6 marks)
- b) Kiambu County Governor, Mr. Ferdinand Waititu was impeached in January 2020 for alleged misuse of public funds. Outline **five** principles that guide government expenditure that he may have flouted (5 marks)
- c) Etienne Laspeyres, an economist from Germany invented a methodology to calculate the consumer price index which analyses the changes in prices of goods as compared to the base year period. Explain **five** reasons to support those who think that Etienne invented a useful thing (5 marks)
- d) Ten students scored the following marks in a test in Quantitative Skills; 57, 78, 48, 66, 88, 72, 72, 48, 60 and 91. (2 marks)
i. Find the median mark. (3 marks)
ii. Compute variance
- e) With the aid of examples, differentiate between the following terms: (2 marks)
i. Identity matrix and singular matrix. (2 marks)
ii. Histogram and frequency polygon.

QUESTION TWO

- a) Below are the prices and quantities of selected fruits sold at a Kanduyi market stall in the years 2010 and 2020

Commodity	2010		2020	
	Prices (Ksh)	Quantity(Bags)	Price (Ksh)	Quantity(Bags)
Apple	05	20	135	30
Cartoon	95	8	160	7
Strawberry	150	5	320	8

Using 2010 as the base year, calculate and comment on each of the following:

- i. Laspeyres index (3 marks)
 - ii. Paasche price index (3 marks)
 - iii. Fisher's ideal index (3 marks)
 - iv. Marshal Edge-worth index (3 marks)
- b) Nairobi Stock Exchange market is relied upon by investors for trade in shares and other securities. Describe **four** circumstances under which an investor in shares will engage in buying and or selling shares (8 marks)

QUESTION THREE

- a) The following data was obtained from the mass of students in the first year class.

Mass (kg)	42-46	47-51	52-56	57-61	62-66	67-71	72-76
No. of students	2	5	6	4	7	4	4

Calculate the inter quartile range (5 marks)

- b) The following are scores obtained by 40 students

47 65 65 87 97 49 88 65
 77 56 68 83 63 79 87 81
 75 88 81 29 74 37 81 83
 89 52 83 66 90 68 56 68
 73 87 63 91 76 58 83 63

- c) Using classes of equal width=7 and starting with 29 as the first class, construct a grouped frequency distribution table showing the data and find the mode (6 marks)
- d) Compute:
- i. Mean (4 marks)
 - ii. Standard deviation (5 marks)

QUESTION FOUR

- a) Find the inverse of the matrix below (2 marks)

$$\begin{bmatrix} 3 & 3 \\ 2 & 5 \end{bmatrix}$$

Hence use the inverse to determine the point of intersection of the lines represented by the following equations (4 marks)

$$3x + 3y = 2700$$

$$2x + 5y = 2600$$

- b) Find the inverse of matrix A below (7 marks)

$$A = \begin{bmatrix} -1 & 3 & 1 \\ 2 & 5 & 0 \\ 3 & 1 & -2 \end{bmatrix}$$

Hence or otherwise, solve the following systems of linear equations in three unknowns (7marks)

$$-x + 3y + z = 1$$

$$2x + 5y = 3$$

$$3x + y - 2z = -2$$

QUESTION FIVE

a) The table below shows how income tax was charged in a certain year:

<i>Taxable Income p.a.</i>	<i>Rate (ksh for every ksh20)</i>
1- 72600	2
72601 - 145200	3
145201 - 217800	5
217801 - 290400	7

Mr. Poncianus earned a basic salary of ksh 9560 and a house allowance of ksh 2800 per month. Being a single man, he was entitled to a special single relief of ksh 250 per month. The following deductions were also made from his monthly income.

Cooperative shares	Ksh750
K.C.B Loan	Ksh800
Service charge	Ksh185

Determine Mr. Poncianus'

- i. Annual taxable income (2 marks)
- ii. Gross annual tax (2 marks)
- iii. Net annual tax (2 marks)
- iv. Monthly PAYE (2 marks)
- v. Net monthly salary (2 marks)

c) First year students at KIBU were investigated to establish whether they prepare a budget for use while at university. Results revealed that only 16% of the students prepare budgets. Highlight on five reasons to support the action of the 16% of the students (10 marks)