

DBM 04



OFFICE OF THE DEPUTY PRINCIPAL  
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

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## UNIVERSITY EXAMINATIONS

### 2021 /2022 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER REGULAR EXAMINATION

### FOR THE DIPLOMA IN BUSINESS MANAGEMENT

**COURSE CODE: DBM 04**

**COURSE TITLE: QUANTITATIVE SKILLS 1**

**DATE: 21/01/2022**

**TIME: 9-12pm**

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### INSTRUCTION TO CANDIDATES

- SEE INSIDE

**THIS PAPER CONSISTS OF 5 PRINTED PAGES**

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**REGULAR – MAIN EXAM****DBM 04: QUANTITATIVE SKILLS****STREAM: DIPLOMA BUSINESS MANAGEMENT DURATION: 3 Hours****INSTRUCTIONS TO CANDIDATES**

- i. Answer Question **ONE** and any other **TWO** questions.
- ii. Maps and diagrams should be used whenever they serve to illustrate the answer.
- iii. Do not write on the question paper.

**QUESTION ONE**

- a) Clearly define the term ‘statistics’ and state its two branches (5 marks)
- b) Discuss the uses of statistics to business organizations (5 marks)
- c) Given the days to maturity for 40 short term investments as:

70	64	99	55	64	89	87	65
62	38	67	70	60	69	78	39
75	56	71	51	99	68	95	86
57	53	47	50	55	81	80	98
51	36	63	66	85	79	83	70

**Required:**

- (i) Prepare the frequency distribution for the data using the class interval 31 – 40, 41 – 50, 51 – 60 ..., along with the class boundaries. (4 marks)
  - (ii) In addition to (a) above, prepare the columns for the midpoint, relative frequency, cumulative frequency and the ~~cumulative relative frequency~~. (4 marks)
- d) Variables can be categorized into two broad categories namely; Qualitative variables and quantitative variables. Using relevant examples distinguish between two variables. (6 marks)

**QUESTION TWO**

- a) Two judges gave the following ranks to eight competitors in a beauty contest. Examine the relationship between their judgements. (10 marks)

Judge A	4	5	1	2	3	6	7	8
Judge B	8	6	2	3	1	4	5	7

- b) Explain the difference between regression and correlation analysis (4 marks)  
 c) Discuss three methods of collecting a sample (6 marks)

**QUESTION THREE**

The table below gives the prices of a set of products sold in a particular supermarket.

YEAR	2008		2009	
ITEMS	PRICE (Ksh.)	QUANTITY	PRICE (Ksh.)	QUANTITY
A	72	100	80	95
B	160	12	180	10
C	90	16	82	18
D	10	1100	12	1200

Calculate;

- a) Laspeyer's price index (4 Marks)  
 b) Paasche's price index (4 Marks)  
 c) Fisher's price index (4Marks)  
 d) Discuss the various uses of index numbers (8 Marks)

**QUESTION FOUR**

A company has a fleet of vehicles and is trying to predict the annual maintenance cost per vehicle. The following data have been supplied for a sample of vehicles:

Vehicle number	Age in years (x)	Maintenance cost per annum (y)
1	2	60
2	8	132
3	6	100
4	8	120
5	10	150
6	4	84
7	4	90
8	2	68
9	6	104
10	10	140

**Required:**

- a) Using the least squares technique calculate the values of a and b in the equation  $y = a + bx$ , to allow managers to predict the likely maintenance cost, knowing the age of the vehicle. (15 marks)
- b) Estimate the maintenance costs of a 12-year-old vehicle and comment on the validity of making such an estimate. (5 marks)

**QUESTION FIVE**

A woven cloth is liable to contain faults and is subjected to an inspection procedure. Any fault has a probability of 0.7 that it will be detected by the procedure, independent of whether any other fault is detected or not.

If a piece of cloth contains three faults, A, B and C,

- Calculate the probability that A and C are detected, but that B is undetected (5 marks)
- Calculate the probability that any two of A, B and C be detected, the other fault being undetected; (5 marks)

b) Explain the following terms as used in probability theory:

- i) Events (2marks)
- ii) Random experiment (2marks)
- iii) Complementary events (2marks)
- iv) Sample space (2marks)
- v) Mutually exclusive events. (2marks)