



TECHNICAL UNIVERSITY OF MOMBASA

School of Humanities and Social Sciences

Department of HOSPITALITY & Tourism MANAGEMENT

UNIVERSITY EXAMINATION FOR AWARD OF: DIPLOMA IN TOURISM MANAGEMENT (DTM S23)

BAC 2201: QUANTITATIVE TECHNIQUES

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2024

TIME: 2 HOURS

DATE: Pick Date DECEMBER 2024

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt Choose instruction.

Do not write on the question paper.

SECTION A (Answer all the questions) **POINTS**

30

QUESTION 1:

a) Explain the following concepts (10 marks):

- i. Ratio Data
- ii. Interval Data
- iii. Ordinal Data
- iv. Nominal Data
- v. Quantitative Data

b) Explain FIVE (5) sources of quantitative data for tourism (10 Marks)

- c) Describe FIVE (5) applications of quantitative techniques in the context of tourism (10 marks)

QUESTION 2

- a) Consider the following data

x_1	x_2	x_3	x_4	x_5	x_6
50	25	65	92	110	112

- (i) Enumerate the following expression (6 marks)

$$\sum_{i=1}^6 x_i = ?$$

$$\sum_{i=3}^5 x_i = ?$$

$$\sum_{i=1}^6 x_i^2 = ?$$

- (ii) Compute the mean for the dataset (2 marks)
- (iii) Compute the medias for the dataset (2 marks)
- b) Using a scatter plot, illustrate the following (10 marks):
- Variable X and Y are positively correlated
 - Variable X and Y are negatively correlated
 - Variable X and Y are not correlated
 - Curvilinear relationship between Variables X and Y

QUESTION 3

- (i) Explain the term time series as used in quantitative analysis (2 marks)
- (ii) Describe three components of a time series tourism demand data (6 marks)
- (iii) Explain the Naïve forecasting method (2 marks)
- (iv) Describe the basic assumptions of the ordinary least square regression analysis (5 marks)

- (v) The following are examples of scales used for measurements of quantitative data. Classify them into the appropriate scale used in the data collection (5 marks):

	Measurement	Scale
a)	Gender: Male/female	
b)	Number of tourist visiting Haller park per day	
c)	Temperature at the coast in degree Celsius	
d)	Longitude of a place on the earth's surface	
e)	Job satisfaction level: low/medium/high	

QUESTION 4

- (i) A study was conducted to determine the association between employee age and their performance quantified on a scale of 20-50. The results are as tabulated in the following table:

Staff	A	B	C	D	E	F	G	H	I
Age	51	58	66	62	54	50	64	55	68
Performance	40	35	28	32	48	45	30	44	32

- a) Calculate the Pearson's correlation coefficient between age and performance (8 marks)
b) Comment on the association between the two variables in the study (2 marks)
- (ii) Describe five methods of data presentation used in quantitative analysis (10 marks)

QUESTION 5

- a) In an experiment to investigate the effect of price on ice cream sales at Nyali Food Court, a research student estimated the following model:

<i>Regression Statistics</i>				
Multiple R	0.969534312			
R Square	0.939996782			
Adjusted R Square	0.936838718			
Standard Error	0.1461076			
Observations	21			
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	3.534985905	0.295223266	-8.586674	0.05767308
X Variable 1	-0.060727986	0.003519947	17.25253	0.045881213

- i. Identify the independent and dependent variables in the investigation (2 marks)

- ii. State the general form of the estimated regression model (2 marks)
 - iii. What does the error term indicate in the model (2 marks)
 - iv. How well was the estimated model able to explain the researcher's observations? (2 marks)
 - v. According to the student's findings, comment on the effect of price on ice cream sales at the mall in question (2 marks)
- b) From the following data on the number of minutes staff members spent browsing social media per day at PETTY safaris, compute the average amount of time members of staff spent on social media while on duty (10 marks)

Class	Frequency
0 -20	12
21 -40	12
41-60	4
61 -80	5
81 -100	3