



AIR FORCE INSTITUTE OF TECHNOLOGY
 FACULTY OF SOCIAL AND MANAGEMENT SCIENCE
 DEPARTMENT OF BUSINESS ADMINISTRATION
 SECOND SEMESTER EXAMINATION 2020/2021
 200 LEVEL

Course Title: BUSINESS STATISTICS

Course Code: BUS 204

Credit Unit: 2 Units

Instruction: ANSWER QUESTION ONE, AND ANY OTHER TWO (2) QUESTIONS

Duration: 2 HOURS 30 MINS

Date: 2ND February, 2022

*Population
 Parameter
 developed for testing*

Question 1 (a) i. With specific examples, differentiate between Probability and Non-Probability Sampling in Statistics 3 Marks

ii. Write short notes on the following: Type 1 and Type 11 errors, Hypotheses, One tailed and two tailed tests in statistics. 8Marks

iii. Enumerate the steps involved in Chi Square Tests according to Karl person. 4 marks

1b(i). The number of students that cheat in a semester examination who appeared before Examination Malpractice Committee is shown in the table below. Test the Null hypothesis that cheating is independent of nature of programme a student runs in a University, at level of significance ($\alpha = 5\%$). 7 1/2 marks

Number of Cheats in different University Programme

	Bus Admin	Accountancy	Banking/ finance	Marketing
Cheats	25	22	21	24

(b)ii. A simple random sample is selected from the population of the total size of 400 whose standard deviation is known to be 10. The sample numbers have values 64, 67, 85, 60, 89, 71, 83, 67, and 72. Estimate the population mean and measure the variability of this estimate. 7 1/2 marks

Question 2a (i) With a simple illustration, state the meaning of Probability Distribution. 3marks

ii. Suppose that probability distribution of a random variable x is defined by the formular $P(x) = x/15$, where $x=1, 2, 3, 4, 5$. Confirm that P(x) is a probability distribution. 5marks

b. Fit a positive function to the data in the table below. Number of ignitions in 250 days.

x	0	1	2	3	4	5	6 or more
f	75	90	54	22	6	2	1

12 marks

22-11

Question 3a (i) State the assumptions of simple linear regression analysis. 2marks

ii. With clear diagrams, illustrate the different types of relationships between the dependent and independent variable (Y, X). 3marks

b. The table below presents data of a random sample of $n=8$ students with regards to hours of study outside the class during a free week period and grades of the exam at the end of their time period for a class in statistics.

Sample students	Hours of study	Exam scores
1	20	64
2	16	61
3	34	84
4	23	70
5	27	88
6	32	92
7	18	72
8	22	77

i. Determine the regression equation for estimating the exam grade given the hours of study.

ii. Use the regression to estimate the exam grade for a student who devoted 30 hours for studying the course material. 8Marks

c. The data below represents the grade of students in maths and English examination.

Maths	44	69	64	34	20	52	87	16	85	08
English	42	52	56	44	36	55	56	35	65	26

Using spearman's rank correlation, determine if there is any significant difference between Maths and English grades of students. 7Marks

Question 4a. Describe vividly the following terms

- Time Series Analysis
- Trend Analysis
- Method of least squares.

10 Marks

b. Suppose we have the following data

Year	Q1	Q2	Q3	Q4
2004	218	325	275	248
2005	444	585	495	385
2006	660	852	623	525

- Plot the demand figure against time
- Calculate the four quarterly (four period moving averages). 10 Marks