



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF BUSINESS & ECONOMICS**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS
ADMINISTRATION WITH IT/BACHELOR OF EDUCATION ARTS WITH
IT/BACHELOR OF EDUCATION IN SPECIAL NEEDS**

2ND YEAR 2ND SEMESTER 2024/2025 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: BAB 1202

COURSE TITLE: BUSINESS STATISTICS

EXAM VENUE: BH 2

STREAM: (BBA/BED ARTS/SNE)

DATE: 16/04/2025

EXAM SESSION: 9.00 – 11.00 AM

TIME: 2 HOURS

INSTRUCTIONS:

- 1. Answer Question ONE and ANY OTHER TWO questions**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

QUESTION ONE (30 MARKS) - COMPULSORY

- a) Examine the relevance of Business statistics as a tool of management. (3 marks)
- b) Identify and justify the level of measurement used in the following scenarios (nominal, ordinal, interval or ratio):
- A research that wants to find out the relationship between the amount of time students spend on preparing for the exam and the marks they get in it. (2 marks)
 - A survey tries to find out how people rank the importance of: safety, price, speed, and comfort, when they are buying cars. (2 marks)
- c) With illustrations, State and explain any two methods of Presenting quantitative data. (4 marks)
- d) The frequency distribution below shows the grouped percentage scores in Business statistics for a section of year two Bachelors of Business administration and education students at JOOUST.

Grouped Score (%)	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
No. of Students	6	8	8	15	10	4	3	1

Required:

- Using 60% as an assumed mean, calculate the actual mean score for the distribution (5 marks)
 - Compute the mode for the distribution and (3 marks)
 - Hence explain the significance of mode in business management (1 mark)
- e) The price of a certain Product P increased from K.sh 300 in the year 2024 to Ksh. 450 in the year 2025. Using 2024 as the base year, calculate simple price index of product P (2 marks)
- f) The following data relates to thirty daily sales (in US \$) for a given month for a certain firm:
- 1.5, 3, 4, 5, 5, 6, 8, 10, 10.5, 11
12, 14, 13, 15, 16, 16.5, 17, 17, 18, 18.5,
19, 20, 21, 22, 23, 24, 25, 26, 28, 33

Required:

- Using a class interval of five and starting with class group of 0- 4, followed by 5-9, e.t.c, present the above data using grouped frequency distribution table. (2 marks)
- Construct a less than cumulative frequency (orgive) curve on a graph for the data. (5 marks)
- Hence, determine the median daily sales for the firm during the month. (1 mark)

QUESTION TWO (20 MARKS)

- a) The managers of an import agency are investigating the length of time that customers take to pay their invoices, the normal terms for which are 30 days net. They have checked the payment record of 100 customers chosen at random and have compiled the following table:

<u>Payment in</u>	<u>Number of customers</u>
5 to 9 days	4
10 to 14 days	10
15 to 19 days	17
20 to 24 days	20
25 to 29 days	22
30 to 34 days	16
35 to 39 days	8
40 to 44 days	3

Required: Compute

- (i) the range of time in payment (1 mark)
 - (ii) the semi interquartile range or quartile deviation time in payment (6 marks)
 - (iii) the standard deviation time in payment (6 marks)
 - (iv) Hence, the variance. (1 mark)
- b) State and Explain three areas of importance of range as a measure of dispersion (3 marks)
- c) Examine any three methods of data collection (3 marks)

QUESTION THREE (20 MARKS)

- a) (i) using relevant examples, differentiate between mutually exclusive events and independent events as used in probability theory. (3 marks)

(ii) A machine comprises of 3 transformers T_1 , T_2 and T_3 . The machine may operate if at least 2 transformers are working. The probabilities of each transformer working are given as shown below;

$$P(T_1) = 0.6, P(T_2) = 0.5, P(T_3) = 0.7$$

A mechanical engineer went to inspect the working conditions of those transformers. Find the probabilities of having the following outcomes:

- i. Only one transformer operating (4 marks)
 - ii. Two transformers are operating (4 marks)
 - iii. All three transformers are operating (2 marks)
- b) (i) what is conditional probability? (1 mark)

(ii) In a class of 100 students studying at JOOUST main Campus, 36 are male and studying BBA, 9 are male but not studying BBA, 42 are female and studying BBA, 13 are female and are not studying BBA. Calculate the probability that a student is studying BBA given that he is male (6 marks)

QUESTION FOUR (20 MARKS)

- a) State any five problems encountered in the construction of the consumer price index. (5 marks)
 b) Given the prices and quantity of five products for two given periods 2020 and 2021 in which 2020 is taken to be the base year as below:

Commodity	2020		2021	
	Quantity	Price	Quantity	Price
C ₁	15	300	20	350
C ₂	12	400	15	250
C ₃	7	150	7	200
C ₄	8	250	6	200
C ₅	5	100	1	400

Required: Determine each of the following indices and interpret your results

- i. The Laspeyres price index (5 marks)
 ii. The Paasche price index (5 marks)
 iii. Fisher’s ideal price index taking 2020 as the base year (3 marks)
- c) State and explain any two probability sampling methods (2 marks)

QUESTION FIVE (20 MARKS)

- a) Given that {1, 3, 5} is a set of integers picked at random. Let Y denote the sum of two of the integers from the given set.
 i) List all distinct values of Y. (2 marks)
 ii) Obtain the probability distribution of Y. (2 marks)

b) Nyambura, a fruits juice vendor categorized her daily sales according to financial gain as ‘high’, moderate’ and ‘low’. Her estimates are such that the high sales are 20% and moderate are 50%. She also calculated that her average revenue on the three categories of sales were US \$ 440 US \$ 260 and US \$ 80 respectively. If her average cost per day is US \$ 160

Required: Calculate her expected profit per day. (4 marks)

- c) (i) what is a binomial probability distribution? (1 mark)

(ii) In a survey 40% of the people in the working class interviewed said that they bought newspapers only over the weekend. If ten people are selected at random,

Required: Find the probability that exactly four of these people buy the newspapers only over the weekend. (5 marks)

- d) If X is a random variate which is distributed normally with mean 600 and standard deviation 50, find the probabilities of the event : $600 \leq X \leq 700$ (6 marks)

AREA UNDER STANDARD NORMAL CURVE

Z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0910	.0948	.0987	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1519	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.499	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

