



FACULTY OF COMMERCE; HUMAN SCIENCES AND EDUCATION

HAROLD PUPKEWITZ GRADUATE SCHOOL OF BUSINESS

QUALIFICATION: DIPLOMA IN BUSINESS PROCESS MANAGEMENT	
QUALIFICATION CODE: 06DBPM	LEVEL: 6
COURSE CODE: BBS611C	COURSE NAME: BASIC BUSINESS STATISTICS
SESSION: NOVEMBER 2025	PAPER: PAPER 1
DURATION: 3 HOURS	MARKS: 90

FIRST OPPORTUNITY EXAMINATION – QUESTION PAPER	
EXAMINER(S)	Mr. A. Roux
MODERATOR:	Mr. J. Amunyela

INSTRUCTIONS
1. Answer ALL the questions. 2. Write clearly and neatly. 3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Examination paper
2. Examination script
3. Scientific calculator

ATTACHMENTS

1. Standard Normal Probability Distribution Table
2. 2 x A4 Graph Sheet

THIS QUESTION PAPER CONSISTS OF 4 PAGES (INCLUDING THIS FRONT PAGE)

QUESTION 1 [17]

The Council of Churches in Namibia studied the religious affiliation of a thousand families in the country. The aim was to categorize the families into five religious categories *A*, *B*, *C*, *D* and *E* respectively. The following table shows data that were collected from a sample of 50 families.

<i>A</i>	<i>C</i>	<i>E</i>	<i>B</i>	<i>D</i>	<i>C</i>	<i>D</i>	<i>B</i>	<i>D</i>	<i>C</i>
<i>D</i>	<i>B</i>	<i>D</i>	<i>E</i>	<i>C</i>	<i>A</i>	<i>D</i>	<i>C</i>	<i>D</i>	<i>E</i>
<i>D</i>	<i>C</i>	<i>A</i>	<i>B</i>	<i>D</i>	<i>C</i>	<i>B</i>	<i>E</i>	<i>C</i>	<i>D</i>
<i>B</i>	<i>C</i>	<i>D</i>	<i>C</i>	<i>D</i>	<i>C</i>	<i>E</i>	<i>A</i>	<i>D</i>	<i>C</i>
<i>C</i>	<i>B</i>	<i>D</i>	<i>D</i>	<i>B</i>	<i>D</i>	<i>C</i>	<i>E</i>	<i>B</i>	<i>A</i>

- 1.1 Construct the frequency distribution for the qualitative data in the table. (5)
- 1.2 Describe the information that is discerned from the frequency distribution table about the categories of the religious affiliations, in terms of numbers of families in each category. (2)
- 1.3 Construct the relative frequency distribution for the data set. (2)
- 1.4 Draw two bar charts, one for the absolute frequency distribution and another one for the relative frequency distribution on two separate graph sheets. (4x2)

QUESTION 2 [18]

The Hillside Bowling Alley manager has selected a random sample of her league customers. She ask them to record the number of lines they bowl during the month of December, including both league and open bowling. The reason for her interest in these data is that she is planning on offering a special discount to customers who bowl over a specified number of games each month. The sample of eight people produced the following data:

13 32 12 9 16 17 16 12

- 2.1 Compute the mean for these sample data. (3)
- 2.2 Compute the median for these sample data. (3)
- 2.3 Compute the mode for these sample data. (2)
- 2.4 Calculate the variance (6)
- 2.5 Standard deviation for these sample data. (2)
- 2.6 For these sample data, which measure of location provides the best measure of the center of the data? Discuss. (2)

QUESTION 3 [15]

The Office of the Registrar at The Namibia University of Science & Technology revealed some information regarding salaries for a group of 2000 graduates at different fields of study.

	Low	Medium	High	Totals
Engineering	12	379	727	1118
Science	39	106	642	787
Business	48	20	57	95
Totals	69	505	1426	2000

- 3.1 Find the probability of randomly selecting one graduate from this group who earns a high salary (3)
- 3.2 Find the probability of randomly selecting one graduate from this group who studied Science or Engineering? (4)
- 3.3 Find the probability of randomly selecting one graduate from this group who earns a Low or a Medium salary? (4)
- 3.4 What is the chance of randomly selecting one graduate who studied Engineering, provided that this graduate earns a Medium salary? (4)

QUESTION 4 [15]

The number of accidents that occur on an assembly line have a Poisson distribution with an average of three accidents per week.

- 4.1 Find the probability that a particular week will be accident free. (4)
- 4.2 Find the probability that at least three accidents will occur in a week. (5)
- 4.3 Find the probability that exactly five accidents will occur in a week. (4)
- 4.4 If the accidents in different weeks are independent of each other, find the expected number of accidents to occur in a year. (2)

QUESTION 5 [25]

5.1) Consider the random variable with the following probability distribution.

$$P(x) = 0.1x \quad x = 1 ; 2 ; 3 ; 4.$$

5.1.1 Express the probability distribution in tabular form (2)

5.1.2 Find the probabilities $P(2 \leq X \leq 3)$. (2)

5.1.3 Find the mean, variance and standard deviation of X. (2 + 4 + 1)

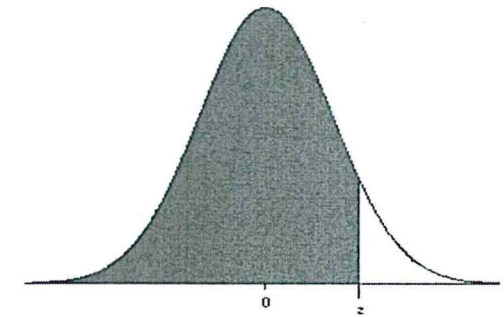
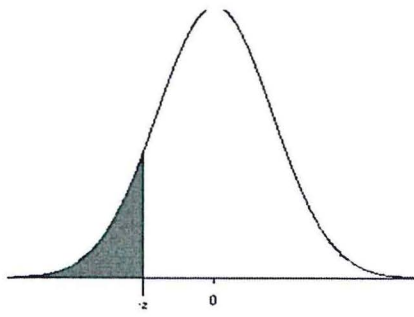
5.2 Weekly purchases of petrol at a garage are normally distributed with a mean of 5750 liters and a standard deviation of 2525 liters. What is the probability that in a given week, the purchases will be :

5.2.1 between 2575 and 6225 liters (6)

5.2.2 less than 4875 (4)

5.2.3 more than 3760 liters (4)

XX



01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997

