



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF HEALTH AND APPLIED SCIENCES

DEPARTMENT OF MATHEMATICS AND STATISTICS

QUALIFICATION: Diploma in Business Process Management	
QUALIFICATION CODE: 06DBPM	LEVEL: 5
COURSE CODE: BST611C	COURSE NAME: BASIC STATISTICS
SESSION: JANUARY 2019	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 90

SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER	Mr. A.J. ROUX
MODERATOR:	Mr. R. Mumbuu

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL the questions in the booklet provided.2. Show clearly all the steps used in the calculations.3. All written work must be done in blue or black ink and sketches must be done in pencil.

PERMISSIBLE MATERIALS

1. Non-programmable calculator without a cover.

ATTACHMENTS

1. Standard Normal Distribution Table

THIS QUESTION PAPER CONSISTS OF 4 PAGES (Including this front page)

QUESTION 1 [15]

1.1 Indicate whether each of the following variables is quantitative or qualitative, and identify the appropriate scale of measurement:

- 1.1.1 age of a respondent to a consumer survey (2)
- 1.1.2 gender of a respondent to a consumer survey (2)
- 1.1.3 class rank of people taking an exam (2)
- 1.1.4 make of a motorcar owned by a sample of 50 drivers (2)
- 1.1.5 the number of participants entered for a race (2)

1.2) For each of the following random variables, indicate the data type discrete or continuous

- 1.2.1) The weight of a new born baby (1)
- 1.2.2) The number of stones in a basket (1)
- 1.2.3) The distance I walk to campus. (1)
- 1.2.4) The number of assignments submitted by mail (1)
- 1.2.5) The height on a building (1)

QUESTION 2 [30]

The data below shows heights (in meters) for a random sample of 7 buildings in the CBD of Windhoek

86, 72, 23, 56, 62, 94, 48

Use the data provided to calculate and interpret the following:

2.1) The mean, median and modal height (4 + 4 + 2 = 10)

2.2) The first and the third quartile of the heights (2x5=10)

2.3) The standard deviation and the coefficient of variation in heights (6+4=10)

QUESTION 3 [25]

3.1) Suppose that the following contingency table was set up:

	C	D
A	10	30
B	25	35

What is the probability of:

- 3.1.1) Event A (2)
- 3.1.2) Event A and C (2)
- 3.1.3) Event A and B (2)
- 3.1.4) Event B or D (3)
- 3.1.5) Event C or D (3)

3.2) A local ambulance service handles 0 to 5 service calls on any given day. The probability distribution for the number of service calls is as follows

Number of service calls	Probability
0	0.10
1	0.15
2	0.30
3	0.20
4	0.15
5	0.10

- 3.2.1) What is the expected number of service calls? (4)
- 3.2.1) What is the variation in the number of service calls? (6)
- 3.2.2) What is the standard deviation? (3)

QUESTION 4 [20]

4.1) Past records from the Office of the Bursar at the Polytechnic of Namibia shows that 10% of students pay the full course fees at registration. Recently, an accounting clerk inspected the accounts of 12 students. By using the probability mass function of the binomial distribution:

4.1.1) What is the probability that **none** of these students paid the full course fees at registration? (3)

4.1.2) What is the probability that **at least two** of these students paid the full course fees at registration? (7)

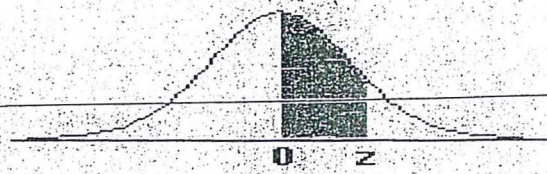
4.2) Pulse rates of adult men are approximately normally distributed with a mean of 70 and a standard deviation of 8. What proportion of men have a pulse rate that is.....

4.2.1) Greater than 76? (4)

4.2.2) Between 64 and 76? (6)

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APPENDIX C: The Standard Normal Distribution



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990