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THE OPEN UNIVERSITY OF SRI LANKA  
DEPARTMENT OF NURSING  
ACADEMIC YEAR 2024/2025 – SEMESTER I  
MASTER OF SCIENCE IN NURSING DEGREE PROGRAMME  
NGP9306 STATISTICS FOR EVIDENCE BASED NURSING PRACTICE- LEVEL 9  
FINAL EXAMINATION



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Date: 06.06.2025	Time: 01.30 PM- 04.30 PM
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**Part B: Short Answer Questions (40 Marks)**

**Q 01.** The Number of patients attended in clinic- A for 16 days (16, 22, 22, 10, 36, 34, 25, 30, 32, 12, 22, 42, 34, 18, 40, 34) distribute as following Stem and Leaf plot

Stem	Leaf
1	0, 2, 6, 8
2	2, 2, 2, 5
3	0, 2, 4, 4, 4, 6
4	0, 2

1.1 Compute the median in the above sample. (6 Marks)

1.2 Find the mode/s in the above sample. (2 Marks)

1.3 Find the range in the above sample. (2 Marks)

**(Total=10 Marks)**

**Q 02.** In the study related to assessing the effects of smoking habit on asthma. There were 120 asthma patients and 40 were smokers among them. Total sample size and the Total number of smokers were 240 and 60 respectively.

Consider

Odd Ratio =

$$\text{OR} = \frac{\text{Number of cases with exposure/ Number of control with exposure}}{\text{Number of cases without exposure/ Number of control without exposure}}$$

2.1 Fill the following table. (4 Marks)

	Asthma individuals	Normal individuals	Total
Smokers			
Non-smokers			
Total			240

2.2 Compute the Odd Ratio (OR) in the above sample. (4 Marks)

2.3 Find whether smoking habit is a risk factor for asthma. (2 Marks)

**(Total=10 Marks)**

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**Q 03.** The correlation between the two variables in sample in clinic -B are as follows according to SPSS result output.

		Height	Weight
Height	Pearson Correlation	1	.992**
	Sig. (2-tailed)		<.001
	N	32	32
Weight	Pearson Correlation	.992**	1
	Sig. (2-tailed)	<.001	
	N	32	32

- 3.1 How many individuals are in the above sample. **(2 Marks)**
- 3.2 Based on the r value, what type of correlation is indicated? **(4 Marks)**
- 3.3 Formulate null and alternative hypothesis, if a study is carried out to investigate whether there is a correlation between weight and height in individuals in clinic B. **(4 Marks)**
- (Total=10 Marks)**

**Q 04.** In a study related to variable X and Y, The Variable X is normally distributed with mean = 42 and variance = 4. The significance value of normality test (Shapiro-Wilk test) of variable Y is 0.45.

- 4.1 List 2 properties of normal distribution. **(2 Marks)**
- 4.2 Find the percentage of individuals in range between 38 and 46 of Variable X. **(2 Marks)**
- 4.3 Formulate null and alternative hypothesis for normality test for variable Y **(4 Marks)**
- 4.4 Find whether the Variable Y is normally distributed or not (Consider  $\alpha = 0.05$ ). **(2 Marks)**

**(Total=10 Marks)**

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**Part C: Structured Essay Questions (30 Marks)**

**Q 01.** The Weight of 125 individuals in a clinic distributed with a variance of  $25 \text{ Kg}^2$ . The Total weight of individuals in this clinic is 6250Kg. The weight between 50 Kg to 56 Kg is categorized as mild risk for getting diabetics in the clinic.

1.1 Compute the mean and standard deviation of weight of individuals in the clinic. **(6 Marks)**

1.2 Compute the number of individuals who have mild risk for getting diabetics in the clinic

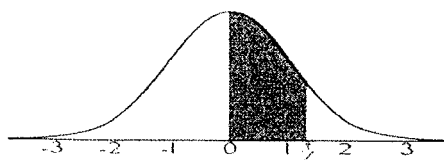
**(9 Marks)**

**Q 02.** The Study was conducted to assess whether the mean Fasting Blood sugar level of patients in medical ward is equal to 120 mg/dL or not. The Mean fasting blood sugar level of patients in a sample is 130mg/dL. The standard deviation and total sample size are 10mg/dL and 25 respectively.

2.1 Name the statistical test that can be used for hypothesis testing and formulate null and alternative hypothesis to assess objective of above study. **(6 Marks)**

2.2 Find out whether the Fasting Blood Sugar level of individuals in a medical ward is equal to 120mg/dL or not and interpret the result. (Consider  $\alpha = 0.05$ ) **(9 Marks)**

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## STANDARD NORMAL TABLE (Z)

Entries in the table give the area under the curve between the mean and  $z$  standard deviations above the mean. For example, for  $z = 1.25$  the area under the curve between the mean (0) and  $z$  is 0.3944.

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	0.0190	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	0.2969	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	0.3513	0.3554	0.3577	0.3529	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
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998

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two-tails	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.002	0.001
df										
1	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.646