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

Date: 18.09.2024 **Time: 01.00 PM- 04.00 PM**

Index Number ..... **NIC Number: .....**

Part B - Short Answer Questions **(40 Marks)**

Q1. In a study investigated the association between smoking habits and gender, the total sample size is 100. There are 45 males in the sample and 15 of them were smokers. Among females, 50 were nonsmokers.

1.1 What is the best graphical representation method to represent above data set in a single plot. **(02 marks)**

1.2 Present the data using a plot mentioned in question 1.1. **(04 marks)**

1.3 Compute the standard error of the proportion of smokers (p) in the above sample **(04 marks)**

Q2. A variable X in a sample with 200 individuals are normally distributed with mean = 30 and variance = 4. The values between 26 to 34 is considered as normal and consisted of 95% of the observations.

2.1 List four (04) properties of the normal distribution. **(04 marks)**

2.2 Find the percentage of individuals in normal range of the Variable X. **(03 marks)**

2.3 Compute the number of individuals in normal range of Variable X. **(03 marks)**

Note: Question numbers 3 and 4 are based on the following description.

A researcher wants to test if the smoking status (non-smoker, past smoker, current smoker) affects sprint time (the time taken to run at full speed over a short distance). Assume that the data (sprint time) for each group is normally distributed and answer the following questions.

Q3.

3.1 What is the appropriate parametric test to determine if smoking status (non-smoker, past smoker, current smoker) affects sprint time? **(02 Marks)**

3.2 State two (02) assumptions that should be checking before conducting the above parametric test. **(04 Marks)**

3.3 State the null hypothesis and alternative hypothesis for the above parametric test **(04 Marks)**

Q4

4.1 Table 1 below shows the outcome of Levene's test conducted for the above scenario.

Table 1: Leven's Test

		Levene Statistic	df1	df2	Sig.
Sprint	Based on Mean	2.415	2	350	.091

a) State the purpose of conducting Leven's test? **(01 Marks)**

b) Interpret the outcome of the Leven's test. **(04 Marks)**

4.2 Table 2 below shows the test statistics of the test you have identified in question number. Interpret the results of Table 2. **(05 Marks)**

Table 2: Test Statistics

Sprint

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.788	2	13.394	9.209	.000
Within Groups	509.082	350	1.455		
Total	535.870	352			

Part C - Structured Essay Questions **(Total – 30 Marks)**

Q1. A study was conducted to assess the effects of alcohol consumption on liver cancers. There were 240 liver cancer patients and 80 of them were alcoholics. Total sample size and the total number of individuals who are taking alcohol were 480 and 120 respectively.

1.1 Construct contingency table to present above data (consider liver cancer -cases and control as Colom variable, alcohol consumption -exposure or without exposure as row variable. **(04 marks)**

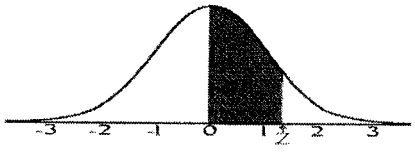
1.2 Find out that whether the alcohol consumption is risk factor for liver cancers and interpret the results. **(11 Marks)**

Q2. The Systolic Blood pressure level of 64 individuals in sample distributed with a standard deviation of 16 Hgmm. The Total Systolic Blood Pressure level in the sample is 7680 Hgmm.

2.1 Compute the mean Systolic Blood pressure level in the sample. **(05 marks)**

2.2 Compute the 95% Confidence Interval for the mean of Systolic Blood Pressure level.

(10 marks)



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