FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA
Department of Nursing
4th End Semester Examination – 2020 –2016/2017 Batch (10th)
NSE 2226- Statistics and Epidemiology in Nursing - SEQ

Date: 25th November 2020 Time: 10.00 a.m.-12 noon Duration: 2 hours

Index Number: .....

Answer all the questions

1. Nursing undergraduate has designed a study to assess no of times a child (aged 2-5) would sleep per day at home. This study was conducted among 25 kids and mothers were asked to note down number of times her kid slept in a given day and had collected following data.

5	6	6	8	5	6	7	5	6
4	9	5	5	8	9	5	8	5
9	6	7	4	5	4	4		

1.1 What is the mean sleeping time among these kids? (05 marks)

.....

.....

1.2 What are the median sleeping times among these kids? (03 marks)

.....

.....

1.3 What is the most frequent sleeping time among the study subjects? (02 marks)

.....

.....

1.4 Tabulate frequency distribution of this study sample in the space below. (20 marks)

1.5 Based on your answer to 1.4, draw appropriate graph to express results in the space below. (15 marks)

1.6 A research report summarizes the results of a t-test by stating: $t=5.2$, $p<0.05$.
How you going to interpret this? (15 marks)

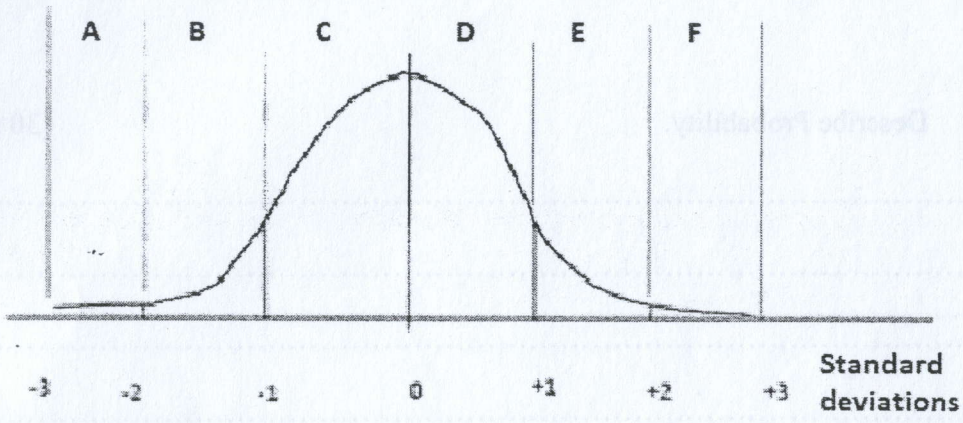
.....

.....

.....

.....

1.7 All student after their A/L examination was asked to sit for an examination to assess their IQ levels using Wechsler scale. Given that the mean score of 100 and the standard deviation of 20, Kasun's mother tells others that her son scores 120 and he is exceptionally intelligent. Consider the graph below which explained performances of all students.



1.7.1 Which band does Kasun's score fit in? (05 marks)

.....

1.7.2 What percentage of students is above his marks? (05 marks)

.....

1.7.3 What percentage of students is below his performance? (05marks)

.....

1.7.4 If the pass mark is 60, what is the percentage of students who will get through the examination? (05 marks)

.....

1.7.5 Give reasons for Kasun's mother comment 'exceptionally intelligent' (10 marks)

.....

.....

.....

1.7.6 A friend of Kasun's Mother also had her child tested and discovered that her daughter had an IQ of 2 standard deviations above the average IQ. What is her child's IQ? (10 marks)

.....

2.

2.1 Describe Probability. (30 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

2.2 What are the rules underlying the calculation of all probabilities? (10 marks)

.....

.....

2.3 Describe briefly <u>one rule</u> that you mentioned in 2.2 with an example. (20 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

2.4 There were 50 males and 75 females in the 10th batch of Nursing degree program. At the end of first semester males got on average 50 marks for Basic Sciences module whereas females got 55 marks. The standard deviation was 5 and 10 respectively. You were asked to assess any difference in marks among these 2 groups.

2.4.1 What is the statistical test you will apply to assess this difference. (05 marks)

.....

.....

2.4.2 What is your null hypothesis? (05 marks)

.....

.....

2.4.3 Formulate an alternate hypothesis for this assessment. (05 marks)

.....

.....

2.4.4 Test the hypothesis that was formulated in the question 2.4.2. (25 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

Use following formula or data for your calculations in 2.4.4

$$t = \frac{\bar{X}_T - \bar{X}_C}{\sqrt{\frac{var_T}{n_T} + \frac{var_C}{n_C}}}$$

Square root values

0.10 = 0.316

0.13 = 0.360

0.23 = 0.480

t Table

cum. prob	$t_{.50}$	$t_{.75}$	$t_{.80}$	$t_{.85}$	$t_{.90}$	$t_{.95}$	$t_{.975}$	$t_{.99}$	$t_{.995}$	$t_{.999}$	$t_{.9995}$
one-tail	0.50	0.25	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.001	0.0005
two-tails	1.00	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.002	0.001
df											
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232	3.460
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390
1000	0.000	0.675	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098	3.300
z	0.000	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090	3.291
	0%	50%	60%	70%	80%	90%	95%	98%	99%	99.8%	99.9%

FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA
Department of Nursing
4th End Semester Examination –2020 –2016/2017 Batch (10th)
NSE 2226- Statistics and Epidemiology in Nursing - SEQ

Date: 25th November 2020 Time: 10.00 a.m.-12 noon Duration: 2 hours

Index Number: .....

Answer all the questions

3.

3.1 Define the term Epidemiology. (10 Marks)

.....

.....

.....

.....

.....

.....

3.2 List five (05) goals of Epidemiology. (20 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

3.3 Briefly describe the Role of the Nurse in Epidemiology. (40 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(10 marks)

3.4 Define "Descriptive epidemiology".

.....

.....

.....

.....

.....

.....

3.5 State the descriptive epidemiology of COVID-19. (20 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA
Department of Nursing
4th End Semester Examination –2020 –2016/2017 Batch (10th)
NSE 2226- Statistics and Epidemiology in Nursing - SEQ

Date: 25th November 2020 Time: 10.00 a.m.-12 noon Duration: 2 hours

Index Number: .....

Answer all the questions

4

4.1 Outline the importance of studying "causality" for health care. (15 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

4.2 Define the term "confounding factor" with an example. (20 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

4.3 Define the terms given below, in relation to causality.

4.3.1. Consistency (05 marks)

.....

.....

.....

.....

.....

4.3.2. Dose-Response Relationship (05 marks)

.....

.....

.....

.....

.....

4.3.3. Experimental evidence (05 marks)

.....

.....

.....

.....

.....

4.4 List types of descriptive study designs used in epidemiological studies. (10 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

4.5 List two (02) advantages and disadvantages of following study designs. (10 marks)

4.5.1 Case control studies

.....

.....

.....

.....

.....

.....

.....

.....

.....

4.5.2 Cohort studies (10 marks)

.....

.....

.....

.....

.....

.....

.....

4.5.3 Descriptive cross sectional studies (10 marks)

.....

.....

.....

.....

.....

.....

.....

.....

4.5.4 Quasi experimental studies (10 marks)

.....

.....

.....

.....

.....

.....

.....