



INSTITUTE OF INDIGENOUS MEDICINE, UNIVERSITY OF COLOMBO
DEGREE OF BACHELOR OF AYURVEDA/ UNANI MEDICINE AND SURGERY
LEVEL II SECOND SEMESTER SUPPLEMENTARY EXAMINATION
JANUARY - 2022

SW2201/ TS2202 – RESEARCH MATHODOLOGY AND BIOSTATISTICS

Date: 22.01.2022

Time: 1.00 PM – 2.00 PM

Index No

Answer all questions.

Part I - Structured Questions

1.

1.1 What is the mean of a sample data?

[05 Marks]

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1.2 Write down the formula to calculate mean of a study population?

[03 Marks]

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1.3 Calculate the standard deviation of the following weights (in kg) of the eight pregnant mothers.

[12 Marks]

Pregnant Mother Number	1	2	3	4	5	6	7	8
Weight (in Kg)	80	95.5	120	82	92	65	90	102

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2.

2.1 Define the term "Probability"

[02 Marks]

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2.2 Name the relations between events in "Probability"

[03 Marks]

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2.3 Define the probability distribution of a discrete random variable

[02marks]

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2.4 Present the characteristics of the Normal Distribution

[03 Marks]

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2.5 Present the subdivision of the area under the normal curve

[06 Marks]

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2.6 What is the region of acceptance?

[02 Marks]

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2.7 Write down the formula for z-transformation for sample means

[02 Marks]

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Part II - Essay Questions

1.

1.1 Name the steps in hypothesis testing by using your own example [5 marks]

1.2 A random sample of 50 females were taken to a research study and fasting blood glucose level (mg/dL) was checked and recorded as;

125	100	175	78	157	360	98	158	120	125
90	125	300	385	169	150	235	169	135	140
152	226	225	297	413	274	145	225	320	220
425	150	98	125	260	128	136	358	145	132
125	98	125	120	340	136	175	145	120	140

Assume that sample is from a normal distribution and use these data to prepare:

1.2.1. A frequency distribution [05 Marks]

1.2.2. A relative frequency distribution [04 Marks]

1.2.3. A cumulative frequency distribution [04 Marks]

1.2.4. A cumulative relative frequency distribution [04 Marks]

1.2.5. A histogram [03 Marks]

1.2.6. A frequency polygon [03 Marks]

1.2.7. Find the mean and standard deviation of the above sample [5+5 =10 Marks]

1.2.8. Write the equations for confidence limits [04 Marks]

1.2.9. Draw a diagram to show the confidence interval [03 Marks]

1.2.10. Using above information construct a 95% confidence interval for the true average and fasting blood glucose level (mg/dL) for all females and test the hypothesis using the assumption $H_0: \mu \geq 100$. [15 marks]

(The value of t at 95 % and $df = 7$ is 2.365.)

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