BOWEN UNIVERSITY, IWO
COLLEGE OF MANAGEMENT AND SOCIAL SCIENCES
ECONOMICS PROGRAMME
BSc DEGREE 2023/2024 ACADEMIC SESSION
FIRST SEMESTER EXAMINATION

Course code: ECN 205   **Course credit: 2**
Course Title: Statistical Methods in Economics   **Time Allowed: 2 hours**
Answer all questions in Section A and B and any other two questions in section C

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Section A   1.5 Marks each
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1. The sample selection procedure that requires one to select a kth term or individual is known as …………..?

2. A method used to select a subset of individuals from a larger population is known as………….

3. A selection technique where every member of the population has equal chances of being selected and involves dividing the population into subgroups or strata is known as?

4. A sampling technique where the population is divided into subgroups based on specific characteristics, and a predetermined number of individuals are sampled from each subgroup?

5. When a researcher selects participants based on their knowledge of the population and the study objectives, this selection method is referred to as?

6. When you accept the null hypothesis and conclude that there is no difference when it should be rejected, you have committed what type of error?

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Section B   1 Mark each
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7. The act of generalizing from the data (sample) to a larger population with calculated degree of certainty is?
   a. Probability distribution
   b. Statistical inference
   c. Statistical distribution
   d. Statistical estimation

8. Point and Interval are the two forms of?
   a. Parameter
   b. Inferences
   c. Estimation

   d. Null hypothesis

9. A statistical constant that describes a feature about a phenomena or population is?
   a. Parameter
   b. Sample
   c. Probability
   d. Statistics

10. ………………….. Is also referred to as Population Proportion
   a. Binomial Probability
   b. Poisson Probability

c. Normal Probability
d. Bernoulli Probability

11. Population mean µ is also called
   a. Expected value.
   b. Sample mean
   c. Point estimate
   d. Population proportion

12. The point estimator of σ is?
   a. Sample mean
   b. Sample proportion
   c. Sample standard deviation
   d. Sample differences

13. The point estimator of ρ is?
   a. Sample mean
   b. Sample proportion
   c. Sample standard deviation
   d. Sample differences

14. The standard deviation of the sampling distribution of mean is equal to?

   a. $\sqrt{\frac{}{n}}$

   b. $\frac{\sigma}{\sqrt{n}}$

   c. $\sqrt{\frac{}{\sqrt{n}}}$

   d. $\frac{\sigma}{n}$

15. 95% Confidence Interval has an α value of ……. and a $Z_{1-\alpha/2}$ value as?
   a. 0.50 and 1.64
   b. 0.50 and 1.96
   c. 0.05 and 1.64
   d. 0.05 and 1.96

16. 99% Confidence Interval has an α value of ……. and a $Z_{1-\alpha/2}$ value as?
   a. 0.10 and 2.58
   b. 0.10 and 1.96
   c. 0.01 and 2.58
   d. 0.01 and 1.96

17. The confidence interval is used to address potential locations of the?
   a. sample mean

b. margin of error
c. sample SEM
d. population mean

18. The Z-score for 95% level of significance is?
   a. ±1.64
   b. ±1.96
   c. ±2.58
   d. ±1.99

19. $\sigma\chi = \frac{\sigma}{\sqrt{N}} \sqrt{\frac{N\rho-N}{N\rho-1}}$ this formular is used for?
   a. Finite without replacement
   b. Finite with replacement
   c. Infinite without replacement
   d. Infinite with replacement

20. Test of independence is a way to test?
   a. Sampling distribution of proportion
   b. Z test
   c. Chi-square test
   d. T-test

21. All but ONE are called procedures that help us to accept or reject hypotheses.
   a. Test of Hypotheses
   b. Tests of significance
   c. Rules of decision
   d. Test of margin error

22. Determine the Margin of error (m) with the 95% C.I for µ given a random sample of 21, 42, 5, 11, 30, 50, 28, 27, 24, 52. And σ = 15.
   a. ±9.27   b. 9.30
      c. ±9.78   d.   9.73

SECTION C

Answer question one (1) and any other ONE questions

1. a. What can you say about chi-square distribution?   5 marks
   b. State the four features of chi-square distribution   4 marks
   c. Test to see whether 3 varieties of maize yields as a result of their heights. The following results were obtained from the trials of the 3 varieties, can it be said that the yield is independent of the heights of the maize? test thus at 1% level of probability.   16 marks

	maize	Height A	Height B	Height C
R1	Yield A	6	7	8
R2	Yield B	7	6	10
R3	Yield C	8	9	11

25 Marks

2. A group of sporting friends Cathy, Lizy, Sucy, Jenny and Dorothy were observed with these numbered Jessy wear 2,3,6,8 and 11 respectively. Using all possible sample size of **2** that can be drawn from the sporting friends. Find
   a. The mean of the population   6 marks
   b. The sampling distribution of the sample mean   14 Marks

     20 Marks

3. a. Distinguish between the following statistical concepts
   i. point and confidence interval   3 marks
   ii. Convenience and judgement sampling   3 marks
   iii. One tail test and two tail test   4 marks
   b. Present the various formulae involved in hypothesis testing for
   i. difference between two population mean   4 marks
   ii. difference between two population proportion   3 marks
   iii. mean and standard deviation of sampling distribution without replacement   3 marks

     20 Marks

4. a. Provide the five steps procedure involved in hypothesis testing   7.5 marks
   b. Distinguish between the following statistical terms
   i. Null and alternative hypothesis   4 marks
   ii. Type one and type two error   4 marks
   iii. Statistic and parameter   4.5 marks

     20 Marks