



'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.A./B.Sc. Honours 4th Semester Examination, 2022

CC10-ECONOMICS

Time Allotted: 2 Hours

Full Marks: 60

*The figures in the margin indicate full marks.
All symbols are of usual significance.*

GROUP-A

1. Answer any **four** questions: 3×4 = 12
- (a) Distinguish between parameter and statistic.
 - (b) Define independent and mutually exclusive events.
 - (c) Define Type I and Type II errors.
 - (d) State the axioms of probability.
 - (e) The mean and variance of binomial distribution are 3, and 4. Are these possible?
 - (f) Distinguish between standard error and standard deviation.

GROUP-B

Answer any four questions

6×4 = 24

- 2. Distinguish between simple random sampling with replacement and simple random sampling without replacement from a finite population.
- 3. Show that for two events A and B that are not mutually exclusive,
$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$
- 4. State and prove Bayes Theorem of probability.
- 5. For a binomial distribution, the mean and variance are respectively 4 and 3. Calculate the probability of getting a non-zero value from this distribution.
- 6. Derive the mean of normal probability distribution.
- 7. State the importance properties of normal distribution.

GROUP-C

Answer any *two* questions

12×2 = 24

8. State and prove the Theorem of compound probability.
9. Find the mean and the standard deviation of binomial distribution with parameter n and p .
10. Prove that the limiting form of binomial distribution is the Poisson distribution.
11. What is test statistic? Distinguish between one tailed and two tailed tests. What is p -value?
12. Explain the method of maximum likelihood for estimating the value of a population parameter.

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