

LNCT UNIVERSITY, BHOPAL

(SECTION -B)

Enrollment No.W.D.PET.CRIM.A..

AL - 303 / 304 (OLD)

B.TECH (AIML) III SEMESTER

EXAMINATION [DECEMBER-2024]

PROBABILISTIC MODELLING AND REASONING WITH PYTHON

Maximum Marks: 70

Time Allowed: 3 Hours

Note:- Attempt all questions. Internal choice is given.

(SECTION -A)

1. Short Answer Type Questions (Attempt Any Five) [5x6=30]
 - i. What is the role of statistics in scientific methods?
 - ii. What are the main types of sampling techniques used in data gathering?
 - iii. Define the axioms of probability with examples.
 - iv. What are the methods of finding statistical estimators?
 - v. What is a hypothesis test, and why is it important in statistics?
 - vi. How can p-values help in determining the validity of a hypothesis?
 - vii. How can Python be used to calculate the mean, mode, and median?

2. Long Answer Type Questions (Attempt Any Four) [4x10=40]

- i. How can data be displayed to effectively summarize its characteristics?
- ii. Explain Bayes' theorem with a practical example.
- iii. How can the mean squared error be used to evaluate estimators?
- iv. How is Bayesian inference used in hypothesis testing?
- v. What is interval estimation, and how can Python be used to calculate it?
- vi. Describe the concept of a distribution-free confidence interval.