

LNCT UNIVERSITY, BHOPAL

Enrollment No. ...W400T(2)NA...

AL - 303 / 304 (OLD)

B.TECH (AIML) III SEMESTER

EXAMINATION [DECEMBER-2024]

PROBABILISTIC MODELLING AND REASONING WITH PYTHON

Maximum Marks: 70

Time Allowed: 3Hours

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

(SECTION -A)

I. Short Answer Type Questions (Attempt Any Five) [5x6=30]

- What is the role of statistics in scientific methods?
- What are the main types of sampling techniques used in data gathering?
- Define the axioms of probability with examples.
- What are the methods of finding statistical estimators?
- What is a hypothesis test, and why is it important in statistics?
- How can p-values help in determining the validity of a hypothesis?
- How can Python be used to calculate the mean, mode, and median?

(SECTION -B)

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

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