RAN-2511000608022001

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M. Sc. (IT) (Sem. : VIII) Examination April - 2025

Artificial Intelligence and Machine Learning (Paper : 802)

Time: 3 Hours] **[Total Marks: 70**

સૂચના : / Instructions

(૧) નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of ☛ signs on your answer book

Name of the Examination:
☛ **M. Sc. (IT) (Sem. : VIII)**

Name of the Subject :
☛ **Artificial Intelligence and Machine Learning (Paper:802)**

Subject Code No.: **2511000608022001**

Seat No.:

Student's Signature

(2) Do as directed.
(3) Draw the figure wherever necessary.

Q.1 **Answer the following:** **14**

A. Explain about different types of intelligent agents.

OR

How knowledge is represented in Artificial Intelligence? Explain about different types of knowledge representation. **7**

B. Explain about monotonic and non-monotonic reasoning with example. Also explain advantages and disadvantages of each. **5**

C. List out applications of expert system. **2**

Q.2 **Answer the following:** **14**

A. What is the importance of Machine Learning? Explain about machine learning life cycle.

OR **7**

What are the different types of machine learning? Explain each one with example.

B. Explain any 5 real world applications of machine learning. **5**

C. List out features of machine learning. **2**

Q.3 **Answer the following:** **14**

A. Explain about steps to develop classification model. Also explain different criteria for selecting appropriate machine learning algorithm.

OR **7**

Explain about decision tree classification algorithm with appropriate example.

B. Differentiate linear and polynomial regression. Explain about different types of Logistic regression. **5**

C. Differentiate Classification and regression. **2**

Q.4 **Answer the following:** **14**

A. What is Clustering? Explain about Exclusive clustering with example

OR **7**

What do you mean by dimensionality reduction? Explain about principle component analysis with appropriate example.

B. Explain about different types of clustering criterion. **5**

C. Give any 2 real world examples of unsupervised learning. **2**

Q.5 **Answer the following:** **14**

A. Calculate MSE and R squared error with respect Linear Regression for the given data set: **7**

x	43	44	45	46	47
y	41	45	49	47	44

B. What is AUC-ROC? Explain How it works. **5**

C. Differentiate precision and recall. **2**

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