

# Question Paper

Exam Date & Time: 30-Dec-2022 (09:30 AM - 12:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

### INTERNATIONAL CENTRE FOR APPLIED SCIENCES END SEMESTER THEORY EXAMINATION - DECEMBER 2022

#### III SEMESTER B.Sc (Applied Sciences) in Engg.

#### MACHINE LEARNING [ICS 237]

Marks: 50

Duration: 180 mins.

Answer all the questions.

Missing data may be assumed suitably.

- 1) Write down the roles of Machine learning in the following diversified fields: (5)
- A) i) Machine vision  
ii) Biometric recognition  
iii) Medical diagnosis  
iv) Alignment of Biological Sequences  
v) Drug design
- B) With a functional diagrammatic representation, explain the working scheme of a learning machine? (5)
- 2) What is a confusion matrix? How to judge a classification through confusion matrix? (4)
- A)
- B) Considering the following three class confusion matrix given below, (6)  
calculate precision, accuracy and recall per class. Also calculate weighted average precision and weighted average recall for the classifier.

class	Predicted		
Actual	17	4	5
	9	17	10
	4	5	47

- 3) Obtain the linear regression line for the following data set and evaluate the obtained model using standard error of the estimate and infer whether the model is acceptable or not? (5)
- A)

x	1	2	3	4	5
y	4	6	7	6	7