

(3 Hours)

[Marks: 80]

- N.B.:** 1) Question No. 1 is compulsory.
 2) Answer any three out of remaining questions.
 3) Assume suitable data if necessary.
 4) Figures to the right indicate full marks.

- Q1. (a) Discuss in brief the challenges of AI in healthcare domain. (5)
 Q1. (b) Differentiate between bagging and boosting. (5)
 Q1. (c) Calculate Accuracy, Precision, Recall and F1 Score with the help of the following data:
 True Positive (TP)= 105, True Negative (TN) = 50, False Positive (FP)= 10, False Negative (FN)=1. (5)
 Q1. (d) List down applications of Natural Language Processing (NLP). (5)
- Q2. (a) Discuss in detail with example how Deep learning techniques are leveraged in medical domain for disease diagnosis. (10)
 Q2. (b) Explain the need of ethics while applying AI and ML in healthcare domain with examples. (10)
- Q3. (a) Illustrate with medical example how computational intelligence techniques and evolutionary algorithms are used. (10)
 Q3. (b) What are hyperparameters? Differentiate hyperparameters and model parameters. Explain any two hyperparameter tuning algorithms with medical example. (10)
- Q4. (a) Explain high level NLP components. (10)
 Q4. (b) How Virtual and Augmented reality are used in healthcare. Explain by giving example. (10)
- Q5. (a) Explain Convolution Neural Network with a neat diagram. (10)
 Q5. (b) Sketch the architecture of Intelligent Personal Health Record system and explain it. (10)
- Q6. Explain **any Two**: (20)
 i) Explain NLP pipeline
 ii) Connected Medicine
 iii) Multivariate Testing
