

(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)
- Explain NLP pipeline
 - Connected Medicine
 - Multivariate Testing
