



## DEPARTMENT OF INFORMATION TECHNOLOGY

### UNIT TEST - I

**Class: BEIT**

**Semester: VII**

**Date: 29/08/2024**

**Time: 2:00-3:30 PM**

**Max marks: 40**

**Subject: HAIMLC701- AI&ML in Healthcare**

**Note the following instructions**

- 1. Attempt all questions.**
- 2. Draw neat diagrams wherever necessary.**
- 3. Write everything in ink (no pencil) only.**
- 4. Assume data, if missing, with justification.**

<b>Q1</b>	<b>Attempt any two</b>	<b>Marks</b>	<b>CO</b>													
A	Explain the four distinct categories of AI with an example for each.	[5]	CO1													
B	Explain in brief the following applications of AI in healthcare. (i) Personalised treatment and behaviour modification (ii) Drug Discovery	[5]	CO1													
C	Elaborate on the listed challenges of AI & ML in the Healthcare domain. (i) Fragmented data (ii) Understanding gap	[5]	CO1													
D	Explain the use case "Electronic Health Records".	[5]	CO1													
<b>Q2</b>	<b>Attempt any two</b>															
A	Compare and contrast the ensemble techniques: Bagging, Boosting, and Stacking.	[10]	CO2													
B	Apply the concept of evolutionary algorithms to illustrate the diagnosis of Amblyopia condition.	[10]	CO2													
C	Make use of the architecture of Convolutional Neural Network to illustrate its usage in disease diagnosis with a neat diagram.	[10]	CO2													
<b>Q3</b>	<b>Attempt any one</b>															
A	Make use of the given confusion matrix of a classifier which detects TB in patients with two classes: the disease is present (class Y) or absent (class N). Explain all the terms and formula required and calculate the following performance metrics: (i) Accuracy (ii) Precision (iii) Specificity (iv) Recall (v) F-measure <table border="1" data-bbox="502 1713 798 1971"><tr><td colspan="2" rowspan="2"></td><th colspan="2">Predicted</th></tr><tr><th>Y</th><th>N</th></tr><tr><th rowspan="2">Actual</th><th>Y</th><td>910</td><td>90</td></tr><tr><th>N</th><td>70</td><td>300</td></tr></table>			Predicted		Y	N	Actual	Y	910	90	N	70	300	[10]	CO3
				Predicted												
		Y	N													
Actual	Y	910	90													
	N	70	300													
B	Differentiate Model parameters from Hyperparameters. Demonstrate Grid search and Random search hyper parameter tuning algorithms with an example.	[10]	CO3													



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