Total No. of Printed Pages: 03

PRN No.	

PAPER CODE	U313-235-D-ESE

December 2023 (ENDSEM) EXAM

TY (SEMESTER - I)

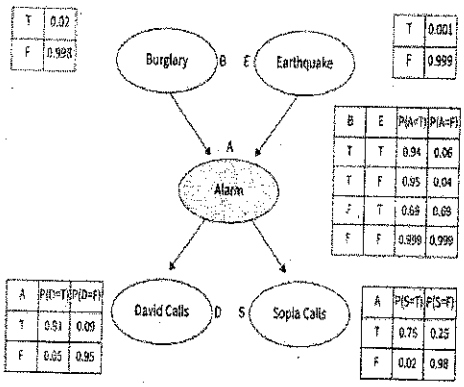
COURSE NAME: PROFESSIONAL ELECTIVE-I ARTIFICIAL INTELLIGENCE **Branch: COMPUTER ENGINEERING** **COURSE CODE: CSUA31205D**

(PATTERN 2020)

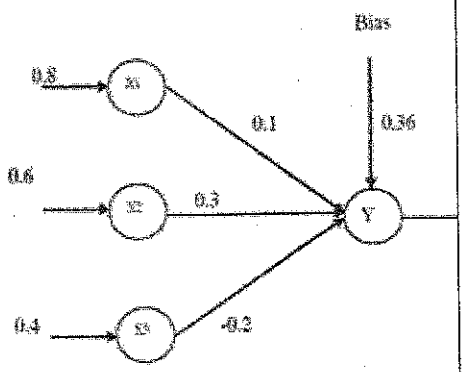
Time: [1Hr. 30 Min] **[Max. Marks: 40]**

() Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data wherever required**
4) **All questions are compulsory. Solve any one sub question from Question 3 and any two sub questions each from Questions 4,5 and 6 respectively.**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Explain type of environment for following agents i. Internet Shopping ii. Automated taxi driver	[2]	1	Apply
Q2	a) Explain limitations of Hill climbing algorithm	[2]	2	Understand
Q3.	a) Determine the likelihood that the alarm went off but neither a burglary nor an earthquake had taken place, and that both David and Sopia had phoned Harry. 	[6]	3	Apply

	b) Prove by method of Resolution that "John is Happy" i. Anyone passing exam and winning lottery is happy. ii. Anyone who is lucky or studies can pass exam iii. John did not study but he is lucky. iv. Anyone who is lucky wins the lottery	[6]	3	Apply
Q.4	a) Assume we have a set of data from patients who have visited Sasoon hospital during the year 2020.A set of features (e.g., temperature, height)have been also extracted for each patient. Some patient features are expensive to collect(e.g., brain-scans) whereas others are not (e.g., temperature).Therefore, we have decided to first ask our classification algorithm to predict whether a patient has a disease, and if the classifier is 80% confident that the patient has a disease, then we will do additional examinations to collect additional patient features. In this case, which classification methods do you recommend: neural-networks, decision-tree, or naïve-Bayes? Justify your answer.	[5]	4	Apply
	b) Analyze the following scenarios, Identify and justify the type of learning (supervised, unsupervised and reinforcement learning) involved in following cases:- i) Playing a game where the user has the goal of getting a high score and can make moves in the game. ii)A taxi agent wants to develop the concept of "good traffic days" and "bad traffic days". iii)Based on past information about spams, filtering out a new incoming email into Inbox (normal) or Junk folder (Spam) iv) You want to detect groups of similar subscribers of your YouTube channel as you have many subscribers of your channel.	[5]	4	Apply
	c) Obtain the stepwise output of the neuron Y for the network shown in figure (only 1 Epoch) using activation function as binary sigmoid. Also back-propagate the error.	[5]	4	Apply



Q.5	a) Calculate 5 yearly and 7 yearly moving averages for the following data for the commercial production and industrial failure. Comment on Trend.	[5]	5	Apply
	b) Through a step-by-step process, calculate TF-IDF for the given corpus and mention the word(s) having highest value. Document 1: We are going to Pune Document 2: Pune is a famous place. Document 3: We are going to a famous place. Document 4: I am famous in Pune.	[5]	5	Apply
	c) Explain in detail the model building process in Time Series.	[5]	5	Apply
Q.6	a) Explain Azure Machine Learning Service	[5]	6	Understand
	b) Write a note on Amazon Textract	[5]	6	Understand
	c) Explain Amazon Rekognition.	[5]	6	Understand

Year	No. of Failures
2012	23
2013	26
2014	28
2015	32
2016	20
2017	12
2018	14
2019	10
2020	9
2021	13
2022	11