B.110 - 1-D

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December 2023 (REEXAM)

TY (SEMESTER - I)

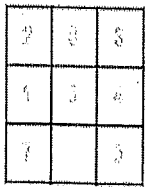
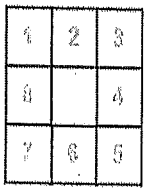
COURSE NAME: **PROFESSIONAL ELECTIVE-I ARTIFICIAL INTELLIGENCE** **Branch: COMPUTER ENGINEERING** **COURSE CODE:** **CSUA31205D**

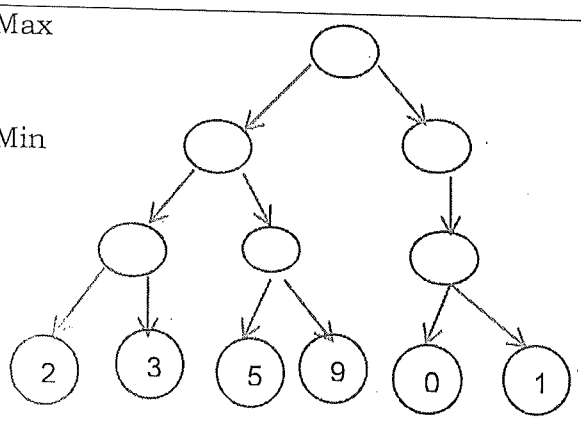
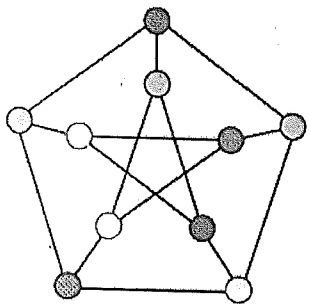
(PATTERN 2020)

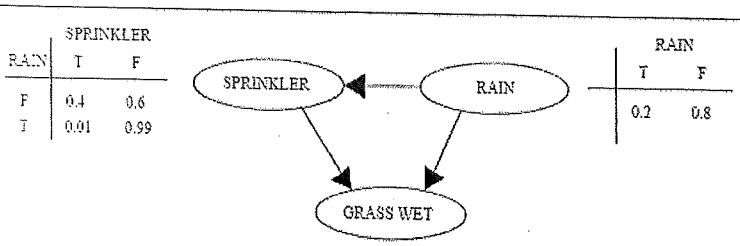
Time: [2 Hrs] **[Max. Marks: 60]**

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 two sub questions each from each Question 1 ,2, 3,4,5,and 6 respectively**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Classify the environment for AI system for Banking Chatbot according to the five principal distinctions: Accessibility, Determinism, Discreteness, Episodicness, and Staticness	[5]	1	Apply
	b) Apply PEAS (i.e. Performance, Environment, Actuators, and Sensors) descriptions for automatic taxi driver.	[5]	1	Apply
	c) "AI aims to build rational agent" Justify this claim along-with neat diagram and suitable example.	[5]	1	Apply
Q2	a) Solve the following 8 puzzle problem using A*  Initial State  Final State	[5]	2	Apply
	b) Show for the following Min-Max game path with α-ß pruning traversed to reach to goal state. Show the computations at each step and clearly mention the conditions needed for the traversing	[5]	2	Apply

	Max Min  c) Solve Constraint satisfaction problem for coloring following graph using MRV algorithm 	[5]	2	Apply
Q3.	a) Consider the following axioms: Every Indian follows tradition. Everyone who follows tradition believes God. Ram is God, and Sham worships Ram. Anybody who worships Ram is happy or is lucky. No worshiping means no superstitions. Represent these axioms in predicate calculus	[5]	3	Apply
	b) Explain forward and backward chaining to prove that "Sham is Happy" for above statements.	[5]	3	Apply
	c) Predict the impact of turning the sprinkler on	[5]	3	Apply

	 SPRINKLER | T | F F | 0.4 | 0.6 T | 0.01 | 0.99 RAIN | T | F 0.2 | 0.8 SPRINKLER RAIN | GRASS WET T | F F F | 0.0 | 1.0 F T | 0.8 | 0.2 T F | 0.9 | 0.1 T T | 0.99 | 0.01			
Q.4	a) Build a perceptron classifier for NAND Gate	[5]	4	Apply
	b) Suppose you have built decision tree model and that result in overfitting. Identify and justify the technique to overcome overfitting problem.	[5]	4	Apply
	c) Compare Linear and Logistic regression w.r.to suitable example .With appropriate explanation explain loss function of Logistic Regression	[5]	4	Apply
Q.5	a) Apply text normalization for following paragraph: "It would be unfair to demand that people cease pirating files when those same people aren't paid for their participation in very lucrative network schemes. Ordinary people are relentlessly spied on, and not compensated for information taken from them. While I'd like to see everyone eventually pay for music and the like, I'd not ask for it until there's reciprocity."	[5]	5	Apply
	b) Calculate Trend for following data using Moving Average. Year 2001 2002 2003 2004 2005 2006 2007 2008 2009 Var 205 316 340 446 396 450 515 575 495	[5]	5	Apply
	c) Differentiate between Trend, Seasonality, Cyclic variation and Residual with appropriate example.	[5]	5	Apply
Q.6)	a) Write a note on Amazon Textract	[5]	6	Understand
	b) Explain Google cloud AI building blocks	[5]	6	Understand
	c) Explain Amazon Rekognition.	[5]	6	Understand