

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Supplementary Examination, Dec 2021**

**Course: Problem Domains of AI**  
**Program: MCA with spl. AIML**  
**Course Code: CSAI7012**

**Semester: I**  
**Time : 03 hrs.**  
**Max. Marks: 100**

**Instructions: Attempt all Questions**

**SECTION A (20 Marks)**  
**MCQs/True-False choose appropriate option**

S. No.		Marks	CO
Q1	Choose the correct answer and write shortly explaining your choice with examples. Artificial Intelligence is about _____. a) Playing a game on Computer. b) Making a machine Intelligent. c) Programming on Machine with your Own Intelligence. d) Putting your intelligence in Machine	1+3	CO2
Q2	Choose the correct answer and write shortly explaining your choice with examples. Propositional Logic involves _____ types of transitions in agent programs. a) Atomic. b) Factored c) Structured d) None of the above.	1+3	CO2
Q3	What is rote learning? Explain in short.	1+3	CO3
Q4	Choose the correct answer and write shortly explaining your choice with examples. A) Representational Adequacy of a KR is the ability to represent all kinds of knowledge that are needed in that domain. B) Inferential Efficiency of a KR is ability to subside the incorrect knowledge. a) Only A is true b) Only B is true c) Both are true d) Both are wrong	1+3	CO2
Q5	Choose the correct answer and write shortly explaining your choice with examples. A) Propositional Logic can be best if the facts and decisions are complex. B) Predicate Logic is better form of propositional Logic. a) Only A is true b) Only B is true c) Both are true d) Both are wrong	1+3	CO2
<b>SECTION B (40 Marks)</b>			
Q 6	What are intelligent agents? How would you define rationality of an AI agent?	10	CO1
Q 7	Explain problem, state-space search using the Water Jug Problem.	10	CO1

Q 8	Explain the components of an expert system. What are the difference between expert system and conventional system?	10	CO3																		
Q 9	<p>What are various methods of learning? Explain.</p> <p style="text-align: center;"><b>Or</b></p> <p>Explain neural network based learning.</p>	10	CO4																		
<b>SECTION-C (40 Marks)</b>																					
Q 10	<p>Represent Eight puzzle (8-Puzzle) problem using state space and suggest one possible step taking following initial and goal state..</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <table border="1" data-bbox="250 632 431 768" style="border-collapse: collapse; text-align: center;"> <tr><td>2</td><td>3</td><td>4</td></tr> <tr><td>8</td><td>6</td><td>2</td></tr> <tr><td>7</td><td></td><td>5</td></tr> </table> <div style="text-align: center;"> <p><i>Initial State</i></p> </div> <table border="1" data-bbox="761 623 915 768" style="border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>8</td><td></td><td>4</td></tr> <tr><td>7</td><td>6</td><td>5</td></tr> </table> <div style="text-align: center;"> <p><i>Goal State</i></p> </div> </div> <p style="text-align: center;"><b>Or</b></p> <p>Write about the components of a learning system. Explain them in short.</p>	2	3	4	8	6	2	7		5	1	2	3	8		4	7	6	5	20	CO4
2	3	4																			
8	6	2																			
7		5																			
1	2	3																			
8		4																			
7	6	5																			
Q11	<p>Represent following in predicate logic using:</p> <p>a) Isa relation</p> <p>b) Instance relation</p> <ul style="list-style-type: none"> <li>• Dolly is a maid.</li> <li>• She works with Kajol.</li> <li>• Manish is the owner of house.</li> <li>• Dolly is not a good maid.</li> <li>• Kajol is dolly's sister.</li> <li>• Kajol and dolly doesn't like Manish.</li> </ul>	20	CO2																		