MANIPAL INSTITUTE OF TECHNOLOGY

BENGALURU

(A constituent unit of MAHE, Manipal)

20/30

VI Semester Re-MidTerm TEST

Artificial Intelligence (PE-I) (CSE_4053)

Time Duration: 2 Hours **Date: 12.04.2024** **Max marks: 30**

Question No	Topic	Marks	BL	CO
1.	Which type of AI can operate in real time without human intervention and learn from its environment? a) Narrow AI b) Reactive AI c) General AI d) Reinforcement Learning Agent ✓	0/1 1	1	1
2.	Which domain of AI is primarily used in devices like Amazon Alexa or Google Assistant? a) Robotics b) Machine Vision c) NLP (Natural Language Processing) ✓ d) Expert Systems	1/1 1	2	1
3.	A problem in a search space is defined by _____. a) Initial state b) Initial state and goal state ✓ c) Initial state, goal state, and intermediate states d) Sensor inputs	0/1 1	1	1
4.	If a robot can clean the room by analyzing the layout and learning from mistakes, which AI concept is applied? a) General AI b) Supervised Learning c) Reinforcement Learning ✓ d) Deep Learning	1/1 1	2	3
5.	In the context of intelligent agents, what are percept sequences? a) Actions performed by the agent b) Goals set by the agent c) Observations received from the environment over time ✓ d) Internal states of the agent	1/1 1	2	2
6.	Reinforcement Learning uses _____. a) Decision trees b) Trial and error ✓ c) Historical data d) Fixed rules only	0/1 1	2	2
7.	A self-driving car using AI must decide between stopping for a pedestrian or continuing due to high-speed traffic behind. Which AI technique is most suitable for this scenario? a) Supervised Learning b) Rule-based Expert System c) Reinforcement Learning ✓ d) General AI	1/1 1	2	1

8.	What is the main advantage of Reinforcement Learning over Supervised Learning? a) It does not need labeled data b) It is faster than supervised learning c) It always gives 100% accurate results d) It does not require large datasets	1 1/1	1	1
9.	Which of the following is an example of unsupervised learning? a) Identifying spam emails from labeled examples b) Grouping customers based on their purchase history c) Training a self-driving car through rewards and penalties d) Translating a document from English to French	1/1 1	1	1
10.	Which AI application best represents the use of Computer Vision? a) Predicting customer buying behavior b) Detecting objects in surveillance footage c) Recommending movies on Netflix d) Generating human-like text responses	1/1 1	2	1
11 (a)	Design the specification in terms of *PAGE* for setting vacuum world agent.	5	5	3
11(b)	Write in detail about propositional logic and FOPL. Present suitable examples for each. Present a comparative study on these two schemes in not less than four points.	5	4	3
12(a)	Compare between *simple reflex agent* and *goal-based agent* along with neat sketches.	5	3	4
12(b)	Convert the following expression into clausal form; also, provide the detailed steps with explanation. $\exists x \exists w \forall y(\forall z P(f(x, y), w, z) \rightarrow (\exists u Q(w, u) \& \exists v R(y, v))$	5	4	4

Note: BL refers to Bloom's Taxonomy Level.