CBCS SCHEME

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15CS/IS562

Fifth Semester B.E. Degree Examination, Jan./Feb. 2023
Artificial Intelligence

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Explain different characteristics of AI problem are to choose most appropriate method. **(08 Marks)**

b. Define Artificial intelligence and list the task domains of artificial intelligence. **(08 Marks)**

OR

2 a. Write a note on water jug problem using production rules. **(08 Marks)**

b. State and explain best first search algorithm with an example. **(08 Marks)**

Module-2

3 a. Explain the approaches to knowledge representation. **(08 Marks)**

b. Define CNF. Give an algorithm for converting given propositions to CNF. **(08 Marks)**

OR

4 a. Consider the following predicates

i) Man (Marcus)
ii) Pompeian (Marcus)
iii) born (Marcus, 40)
iv) $\forall x$; man (x) $\rightarrow$ mortal (x)
v) $\forall x$: Pompeian (x) $\rightarrow$ died (x, 79)
vi) erupted (volcano, 79)
vii) $\forall x : \forall t_1 : \forall t_2$: mortal (x) $\wedge$ born (x, t_1) $\wedge$ gt(t_2-t_1, 150) $\rightarrow$ dead (x, t_2)
viii) now = 1991
ix) $\forall x : \forall t$:[alive(x, t) $\rightarrow$ $\sim$ dead (x, t)] $\wedge$ [$\sim$ dead(x, t) $\rightarrow$ alive(x, t)
x) $\forall x : \forall t_1 : \forall t_2$: died (x, t_1) $\wedge$ gt (t_2, t_1) $\rightarrow$ dead (x, t_2)

Prove that : $\sim$ alive (Marcus, now) **(10 Marks)**

b. What is matching in rule based system? Briefly explain the different proposals for matching. **(06 Marks)**

Module-3

5 a. What is Non-Monotonic reasoning? Explain the logic and approaches for Non – monotonic reasoning. **(08 Marks)**

b. Explain justification Based truth maintenance system (JTMS). What are the 2 critical criterions that must be met during labeling of JTMS and illustrate with suitable example. **(08 Marks)**

OR

6 a. Write a note on Dumpster Shafer theory. **(08 Marks)**

b. Explain somatic network criterion example.. **(08 Marks)**

Module-4

7 a. Explain the conceptual dependency representation of an event or action. (08 Marks)
b. Explain Minmax search procedure with appropriate algorithm. (08 Marks)

OR

8 a. What are scripts? Explain the important components of a script with an example. (08 Marks)
b. Write a note on global ontology. (08 Marks)

Module-5

9 a. What is natural language processing? Explain the different steps in the process. (08 Marks)
b. Defining Learning and give the difference between neural net learning and genetic learning. (08 Marks)

OR

10 a. Explain the expert system and knowledge acquisition process with example. (08 Marks)
b. Explain the spell checking with different techniques. (08 Marks)

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