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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Fifth Semester, B.E. - Computer Science and Engineering

Semester End Examination; Dec. - 2019

Artificial Intelligence

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a. Define AI and also brief out the categories of AI. 10

b. How does model based reflex agents works and also write down the function for the same. 10

2 a. How do you formulate a problem? Justify with respect to an environment. And also brief out the five major components of well defined problem. 10

b. Discuss the Game theory and also brief out the elements of a game. 10

UNIT - II

3 a. Brief out a typical Wampus-World and also explain the following:

i) Performance measure ii) Environment

iii) Actuators iv) Sensors 10

b. Demonstrate the working of forward chaining and backward chaining with suitable example. 10

4 a. Justify the knowledge engineering process with respect to content, scope and difficulty. Also explain its steps. 10

b. Write down the Unification algorithm and also explain its function. 10

UNIT - III

5 a. Brief out the sementic network and also design a sementic network for objects (Jhon, Mary 1, 2) and for categories and also show the fragment of semantic network showing the representation of the logical assertion.

Fly (Shankar, New York, New Delhi, Yesterday) 10

b. Explain planning with state space search. 10

6 a. What Ontological engineering represents and illustrate with suitable diagram working of upper Ontology of the world and also brief out all its two major characteristics. 10

b. Brief out the termination of graph plan in detail and also explain its properties. 10

UNIT - IV

7 a. Consider the below table consisting three Boolean variables toothache, cavity and catch and having full joint distribution 2×2×2. Calculate;

i) How many possible worlds in which Cavity V toothache holds?

ii) The marginal probability of cavity. 10

iii) The distribution of P(Cavity/toothache)

Contd…2

	Toothache			¬ tooth ache
	Catch	¬ catch	Catch	¬ Catch
Cavity	0.108	0.012	0.072	0.008
¬ Cavity	0.016	0.064	0.144	0.576

b. Explain Enumeration algorithm for answering queries on Bayesian Networks. 10

8 a. What is Bay's Rule? Apply and demonstrate the Bay's rule to simple case and demonstrate the same. 10

b. How do you represent knowledge in an uncertain domain demonstrate with suitable example. 10

UNIT – V

9 a. What is Learning? Explain the forms of learning and also explain components to be learned. 10

b. Brief out the Decision-Tree-Learning Algorithm and also justify how decision-tree induced with suitable example? 10

10 a. Explain Top-down inductive learning methods and also explain the litrals. 10

b. Explain ensemble learning with suitable example. 10

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