RAMAIAH
Institute of Technology

(Autonomous Institute, Affiliated to VTU)
(Approved by AICTE, New Delhi & Govt. of Karnataka)
Accredited by NBA & NAAC with 'A' Grade

SEMESTER END EXAMINATIONS JANUARY – FEBRUARY 2021

Program	:	**B.E. : Computer Science and Engineering**	**Semester**	: **V**
Course Name	:	**Artificial Intelligence**	**Max. Marks**	: **100**
Course Code	:	**CSE551/CSE02**	**Duration**	: **3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.
- Draw diagrams wherever necessary.
- Use suitable examples to support your answers wherever required.

UNIT- I

1.	a)	Describe model-based reflex agents and utility-based agents with real-time examples.	CO1	(12)
	b)	What is PEAS? Illustrate the PEAS description for i) Taxi driver (ii) Medical diagnosis system.	CO1	(08)
2.	a)	Define Artificial Intelligence. Discuss the foundations of AI. List out any five real-time applications of AI.	CO1	(10)
	b)	Mention the disadvantages of Best First search algorithm. Discuss how the A* Algorithm overcomes these drawbacks.	CO1	(10)

UNIT – II

3.	a)	Write five simple knowledge base sentences.	CO2	(05)
	b)	Define Modus ponens and AND-Elimination. Prove that there is no pit in position[1,2].	CO2	(08)
	c)	With the help of a suitable example explain the syntax and semantics of first order logic.	CO2	(07)
4.	a)	Write sequence of steps how to grab gold in typical wumpus world.	CO2	(05)
	b)	Explain 7 steps of knowledge engineering process in detail.	CO2	(10)
	c)	Explain simple backward chaining algorithm, inferring FOL.	CO2	(05)

UNIT – III

5.	a)	Give comparison of STRIPS and ADL language for representation of planning problem.	CO3	(06)
	b)	Define uncertainty. Explain prior probability and conditional probability.	CO3	(06)
	c)	what are the different types of activation functions used in neural networks explain in detail.	CO3	(08)
6.	a)	Define Bayes' rule and its use.	CO3	(06)
	b)	With a neat diagram explain nonlinear model of a neuron.	CO3	(07)
	c)	Explain decision trees as performance elements.	CO3	(07)

UNIT – IV

7.	a)	Define Information extraction. Explain with example attribute based extraction and relational extraction systems.	CO4	(10)
	b)	Explain the reason behind choosing conditional random fields for information extraction over Hidden Markov Model (HMM).	CO4	(10)

8.	a)	Identify the role of damping factor in Page Rank algorithm and write a note on ASKMSR system.	CO4	(10)
	b)	Convert the sentence " There is a smelly wumpus sleeping in [2,2]" into French. Draw and explain the bilingual translational model.	CO4	(10)

UNIT – V

9.	a)	Discuss in detail the subsumption and pipeline robot architectures. Also, state one application area where each of them would be suitable.	CO5	(08)
	b)	Compare the advantages of using a genetic algorithm approach over artificial Neural Networks to solve the "Network topology selection" problem and "Finding the optimal set of weights" problem.	CO5	(08)
	c)	Differentiate between Niching and Speciation methods in Genetic Algorithms.	CO5	(04)
10.	a)	Justify the importance of Genetic Algorithms (GA) to the world of Artificial Intelligence. Elaborate on the application of GA on the optimization problem of Job-shop scheduling.	CO5	(08)
	b)	Describe how robotic technology is used in Industry, transportation, hazardous environments, healthcare and human augmentation and entertainment.	CO5	(06)
	c)	List any three potential threats from AI technology to society. Also, discuss how these threats can be combated.	CO5	(06)

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