

**Priyadarshini College of Engineering, Nagpur**  
**Sessional Examination (2022-23) Odd Semester**  
**B.Tech.Fifth Semester (Computer Technology) (C.B.C.S.)**  
**Artificial Intelligence**

**P. Pages: 2**

**PCE/KW/22/BTCT505T**

**Time: Three Hours**

**Max. Marks: 70**

- Notes:
1. All questions carry marks as indicated.
  2. Solve Question 1 or Question 2.
  3. Solve Question 3 or Question 4.
  4. Solve Question 5 or Question 6.
  5. Solve Question 7 or Question 8.
  6. Solve Question 9 or Question 10.
  7. Due credit will be given to neatness and adequate dimensions.
  8. Assume suitable data wherever necessary.
  9. Illustrate your answers whenever necessary with the help of neat sketches.

Q. No.	Question	CO	BT	Marks
1.	a) Explain the characteristics of AI problems with the help of suitable example.	CO1	II	7
	b) Define control strategies & State the requirements of good control strategies.	CO1	I	7
	<b>OR</b>			
2.	a) Discuss the various task domains of Artificial Intelligence with suitable examples.	CO1	II	7
	b) You are given 4 gallon and 3 gallon water jugs. Both the jugs are initially empty. Neither of them has measuring mark on it. Apply state space search to find solution path from initial state to goal state where goal state is (2,0).	CO1	III	7
3.	a) Differentiate between:- i) Procedural and declarative knowledge ii) Predicate logic and propositional logic iii) Forward and Backward reasoning.	CO2	II	7
	b) Illustrate mean-end analysis with the help of robot example.	CO2	III	7
	<b>OR</b>			
4.	a) Represent the following facts in FOPL and convert them into clause form. Use resolution technique to find that Ravi is spy. i) One of Raman, Ravi, Raghu and Ramesh is spy. ii) Raman is not spy. iii) Spies were light coloured dresses and do not attract attention of others. iv) Raghu was wearing a dark coloured suit. v) Ramesh was the centre of attention of that evening.	CO2	III	9
	b) State the various approaches to knowledge representation? Explain in detail.	CO2	I	5

*Unified Resource Locator*

Q. No.	Question	CO	BT	Marks
5.	a) Use semantic net to represent the following statements i) Radha gave a book to Sita ii) Every dog in the city bites the constable	CO3	III	5
	b) Explain the following :- i) Fuzzy logic ii) Certainty factor. iii) Monotonic reasoning with example.	CO3	II	9
	OR			
6.	a) Explain the following. i) Scripts ii) Frames iii) Conceptual dependency.	CO3	II	9
	b) State the importance of using Bayes theorem? Explain , the conditional probability,posterior probability and prior probability.	CO3	III	5
7.	a) Describe the architecture of expert system with the help of block diagram	CO4	II	7
	b) List the levels of NLP and explain each with suitable example.	CO4	II	7
	OR			
8.	a) Explain minmax search procedure.	CO4	II	9
	b) Explain the two basic parsing techniques & differentiate between them.	CO4	II	5
9.	a) Define : i) Artificial Neural Network. ii)Genetic Algorithm. iii)Neural learning.	CO5	I	9
	b) Explain various applications of ANN.	CO5	II	5
	OR			
10.	a) Explain the following terms:- i) Genes ii) Chromosomes iii)Cost function.	CO5	II	9
	b) List the genetic operators and explain each of them with suitable example.	CO5	II	5