Subject Code: KCA301
MCA BTECH
(SEM-3) ARTIFICIAL INTELLIGENCE 2021-22

TIME:3 HOUR ***Total Marks: 100***

Instruction: Attempt the questions as per the given instructions. Assume missing data suitably.

SECTION – A

Attempt All Parts in Brief **2*10 = 20**

Q1	Questions	Marks
(a)	What is a heuristic function ?	2
(b)	Explain the role of computer vision in artificial intelligence.	2
(c)	What do you understand by feature extraction ?	2
(d)	What are the different properties of a task environment ?	2
(e)	Describe the first-order logic model.	2
(f)	Describe resolution in brief.	2
(g)	What is LISP? Why it is so popular in AI.	2
(h)	What is the role of intelligent agent ?	2
(i)	What is the need of classification techniques in pattern recognition ?	2
(j)	Differentiate supervised and unsupervised learning.	2

SECTION – B

Attempt *Any Three* of the following
3*10 = 30

Q2	Questions	Marks
(a)	What is meant by the term artificial intelligence? How it is different from natural intelligence ?	10
(b)	Discuss branch and bound search algorithm.	10
(c)	What is the difference between knowledge representation and knowledge acquisition ?	10
(d)	Explain clustering and differentiate between supervised and unsupervised learning.	10
(e)	Describe the N-queens problem in detail. Also explain with an example.	10

SECTION – C

Attempt *Any One* of the following **5*10 = 50**

Q3	Questions	Marks
(a)	What do you understand by natural language processing ?	10
(b)	Explain the concept of alpha-beta pruning. Write alpha beta search algorithm.	10

Q4	Questions	Marks
(a)	Differentiate between local search and global search.	10
(b)	Discuss simulated annealing search algorithm with its advantages and disadvantages.	10

Q5	Questions	Marks
(a)	Define forward chaining and backward chaining with examples.	10
(b)	Discuss various application domains of machine learning.	10

Q6	Questions	Marks
(a)	Write short notes on support vector machine.	10
(b)	What is pattern recognition ? Explain various steps involved in the designing of a pattern recognition system with the help of a diagram.	10
Q7	**Questions**	**Marks**
(a)	Write short notes on Bayesian classifier.	10
(b)	Write short on LDA and PCA.	10