SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: ☐☐☐☐☐☐☐☐☐☐☐ Total number of pages:[2]

Total number of questions:06

MCA 5ᵗʰ Semester
Artificial Intelligence
Subject Code: MCA-501

06/12/17

(E)

Paper ID: (for office use)

Time allowed: 3 Hrs

Max Marks: 60

Important Instructions:
- **All questions are compulsory**
- **Assume any missing data**

PART A (2×10)

All COs

Q. 1. Short-Answer Questions:

(a) List basic elements of AI

(b) Define state space search in AI

(c) Difference between fact and belief in knowledge representation

(d) What is existential quantifier?

(e) What is the difference between declarative and procedural knowledge?

(f) Define Formal Grammar

(g) What is an inference engine?

(h) What is pragmatic analysis?

(i) What is the difference between backward and forward chaining?

(j) "Marry Owns a house'. Translate this sentence in to Predicate Logic.

PART B (8×5)

Q. 2. Define AI. Describe its role in Computer Science in detail   CO1

OR

What are the most important areas where Artificial Intelligence is applied?   CO1

Q. 3. Differentiate between Depth First versus Breadth First search methods.   CO2
Mention advantages and disadvantages of both.

OR

Describe the greedy best first search. Also Explain how do we minimize the   CO2
total estimated solution cost using A* search.

Q. 4. What is propositional calculus? How do you use inference rules to produce CO3
Predicate calculus expressions? Explain with the help of an example

OR

Discuss the steps needed to convert well defined formulae(wff) in predicate   CO3
logic and into clausal form

Q. 5. Explain the difference between the fuzzy theory and probability theory with Co4

the help of example

<div align="center">OR</div>

Co4

What is Expert System? Discuss Rule base architecture in Expert systems.

Q. 6. Explain different steps in Natural Language Processing. How NLP is playing   Co4
a key role in the field of recognizing different languages

<div align="center">OR</div>

What is game playing in AI? Explain perfect and imperfect information for   Co2
game playing