JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2022

M.Tech-I Semester (CS/DS)

COURSE CODE (CREDITS): 22M1WCI132 (3) MAX. MARKS: 15

COURSE NAME: Artificial Intelligence techniques

COURSE INSTRUCTORS: Ms. Aditi Sharma MAX. TIME: 1 Hour

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q1. Define the following terms: **CO1** (2 Marks)

i. Turing Test

ii. Semi-Supervised learning

Q2. Briefly describe the categories of computer systems. **CO1** (2 Marks)

Q3. Elaborate the challenges of Machine Learning. **CO3** (2 Marks)

Q4. Write the negation of the following statements using predicate calculus: **CO2** (1 Marks)

i. There is a student in this class, who has never seen a computer.

Q5. Use the inference rules to answer the question "Which course would Rama Like?", given the following facts: **CO2** (2 Marks)

Rama only likes easy courses.

Engineering courses are hard.

All the courses in the science department are easy.

EE101 is a science course.

Q6. Check if the following argument is valid using resolution **CO2** (2 Marks)

If the earth is flat, then you can sail off the edge of the earth.

You cannot sail off the edge of the earth.

Therefore, Earth is not flat.

Q7. Check if the following argument is valid using inference rules **CO2** (2 Marks)

Every student in this class understands logic.

Xavier is a student in this class.

Therefore, Xavier understands the logic.

Q8. Use rules of inference to show that if $\forall x(P(x) \vee Q(x))$, $\forall x(\sim Q(x) \vee S(x))$, $\forall x(R(x) \rightarrow \sim S(x))$, and $\exists x \sim P(x)$ are true, then $\exists x \sim R(x)$ is true. **CO2** (2 Marks)