

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)**

**CLASS: MTECH  
BRANCH: CSE**

**SEMESTER : I  
SESSION : MO/2025**

**SUBJECT: CS512 ARTIFICIAL INTELLIGENCE**

**TIME: 3 Hours**

**FULL MARKS: 50**

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Explain structure of agent software and discuss utility in artificial intelligence.	[5]	1 2
Q.1(b)	Discuss problem space and search space with example.	[5]	1 2
Q.2(a)	Explain difference between Breadth First Search and Depth First Search with example.	[5]	2 2
Q.2(b)	How heuristic search strategies are important for AI problems.	[5]	2 3
Q.3(a)	Explain A* Search algorithm with example.	[5]	2 2
Q.3(b)	How Mini-max Search Procedure is similar/different with Alpha-Beta Pruning technique.	[5]	2 2
Q.4(a)	Discuss Procedural Versus Declarative Knowledge representation in AI.	[5]	3 2
Q.4(b)	Discuss Components of A Planning System in AI.	[5]	3 2
Q.5(a)	Discuss Inductive Learning in AI with example. Differentiate between Syntactic Processing, and Semantic Analysis in NLP.	[5]	4 2
Q.5(b)	How planning uncertain movements are important for Robotics?	[5]	5 3

:21/11/2025:::E