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| **Mid-Term Examinations – April 2023** | | | | | | | | | | |
| Programme | | | : | **B.Tech** | | Semester | | : | **Summer 2022-23** | |
| Course | | | : | Fundamentals in AI & ML | | Code | | : | CSA2001 | |
| Faculty | | | : | **Sonam Goswami** | | Slot/ Class No. | | : | **C11+C12+C13/0206** | |
| Time | | | : | **1 ½ hours** | | Max. Marks | | : | **50** | |
| **Answer all the Questions** | | | | | | | | | | |
| **Q.No.** | **Sub. Sec.** | **Question Description** | | | | | | | | **Marks** |
| 1 |  | What is A.I. technique and discuss its characteristics? Analyze the different problems where A.I. problems are solved by using non A.I. technique? | | | | | | | | **10** |
| 2 | (a) | Find the state space representation of 8-puzzle problem. | | | | | | | | **5** |
|  | (b) | In the game shown below, six moves have been made. Mark plays with crosses (X) and Mac plays with circles (0). However, you do not know who started the game. **Who will win the game?** | | | | | | | | **5** |
| 3 |  | Apply Alpha-Beta pruning to the following tree: | | | | | | | | **10** |
| 4 |  | Analyze the algorithm for Forward Chaining, Backward Chaining with the given example-  Rule 1: If A and C then F,  Rule 2: If A and E then G,  Rule 3: If B then E,  Rule 4: If G then D prove If A and B true then D is true | | | | | | | | **10** |
| 5 |  | Consider the following sentences:   1. If X is on top of y then y supports X 2. If X is above y and they are touching each other then x is on top of y. 3. A cup is above a book. 4. A cup is touching a book.   Translate these statements in predicate logic. Prove by backward reasoning “Book Support Cup”. | | | | | | | | **10** |
| ⇔⇔⇔ | | | | | | | | | | |