Final Exam Instructions

The final exam will mainly cover the following course topics in the table below. There are eight comprehensive questions in total, adding up to 100 points. It is partially open book, where every student is allowed to bring a piece of A4 paper to write their own summary of the learning content, including key points, formulas, and theorems that are not easy to remember, on it for reference. Calculators are allowed.

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| **Major content** |  |
| Search | Uninformed Search，Informed Search (Heuristic Search) |
| Adversarial Search | Minimax Search，Alpha-Beta Pruning |
| Constraint Satisfaction Problems | Backtracking search，Inference in CSPs |
| Knowledge and Reasoning | Knowledge-based Agent, Propositional Logic, Proof by Resolution |
| Probabilistic Reasoning | Joint and marginal distributions, Conditional distribution, Product rule, chain rule, Bayes’ rule, Inference, Independence and conditional independence |
| Bayesian network I | Joint probability, Conditional independence,  Enumeration, elimination |
| Classification | Decision Trees, Perceptron, Artificial Neural Network |
| Deep Learning I | Convolutional Neural Networks |
| Markov Decision Processes | Problem Formulation, Value Iteration, Policy Iteration |
| Reinforcement Learning | Model-based Learning, Model-Free Learning |