Total 110 points. 1-11 each 3 points: True or False, give brief explanation (one or two sentences).

1. discounted model of optimality in MDP

2. utility function

3. reward function

4. unbounded long-term reward

5. optimal strategy in Nash equilibrium

6. convergence of K-means

7. convergence of EM

8. Uninformative Feature Function

9. scale invariance

10. no free lunch theorem

11. credit assignment problems

12. (12 points) Principal components analysis & independent components analysis

13. (15 points) Given a Deterministic Markov Decision Processes, how to find the best policy among all the policies with different values of γ.

14. (16 points) Given a Markov Decision Processes, how to calculate utilities for each state

15. (16 points) How to calculate dominated strategies, pure-strategy, and mixed-strategy in Nash equilibria

16. (18 points) How to design a reinforcement learning agent to solve real-life problems