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Quiz 1:

1. (ii), (iv), and (v)

2. reinforcement learning

3. unsupervised learning

4. supervised learning

4. active learning

6. both are floors

7. 2^L

8. E\_f{E\_OTS[A1, f]} = E\_f{E\_OTS[A2, f]}

9. 0.24

10. 0.39

11. 9.1\*10^(-9)

12. 5.52\*10^(-6)

13. 8/256

14. 31/256

15. 31 - 50 updates (45)

16. 31 - 50 updates (~39)

17. 31 - 50 updates (~40)

18. < 0.2

19. 0.2 - 0.4

20. < 0.2

Quiz 2:

1.

2. 0.5

3. 460,000

4. Devroye

5. Parrondo and Van den Broek

6.

7. 3

8. (why?)

9. D+1

10.

11.

12. min\_{1<=i<=N-1}

13. (下高斯)

14.

15. (why?)

16.

17. 0.15

18. 0.25

19. 0.25

20. 0.35

Quiz 3:

1. 100

2.

3.

4.

5.

6. (-2, 0)

7. 2.825

8. (1.5, 4, -1, -2, 0, 3)

9.

10. 2.361

11. x1, x2, x3, x4, x5, x6

12. Ein = 0.7

13. 0.5

14.

15. 0.1

16.

17.

18. 0.475

19. 0.220

20. 0.475

Quiz 4:

1. In general, deterministic noise will increase

2.

3.

4.

5.

6. To make sure that at least one person receives correct predictions on all 5 games from the sender, after the first letter ‘predicts’ the outcome of the first game, the sender should target at least 16 people with the second letter.

7. NTD 370

8. 1

9. 0.271

10. By applying a(x) AND g(x) to approve credit for new customers, the performance of the overall credit approval system can be improved with guarantee provided by the previous problem.

11.

12.

13. Ein = 0.05, Eout = 0.045

14.

15.

16.

17.

18. Ein = 0.035, Eout = 0.020

19.

20. Ein = 0.015, Eout = 0.02