QUIZ 1

SCQ

Q1. Which method best reduces data sparsity in recommender systems?
A. Pure collaborative filtering
B. Hybrid approach combining content + collaborative
C. Ignoring cold-start users
D. Increasing similarity threshold
Answer: B

Q2. Transformer models handle long-range dependencies using:
A. Convolution filters
B. Self-attention mechanism
C. Hidden Markov transitions
D. Recurrent weight loops
Answer: B

Q3. What is the role of pooling layers in CNNs?
A. Increase parameter count
B. Reduce spatial size and computation
C. Add non-linearity
D. Perform normalization only
Answer: B

Q4. Which AI model is best suited for predicting credit-risk scores from tabular data?
A. CNN
B. Random Forest
C. GAN
D. K-Means
Answer: B

Q5. NDVI helps detect:
A. Vegetation greenness using red & NIR reflectance
B. Soil temperature variation
C. Air humidity
D. CO_2 concentration
Answer: A

MSQ

Q6. Which techniques enable adaptive traffic-signal control?
A. Reinforcement Learning
B. Deep Q-Network (DQN)
C. Linear Regression only
D. Static rule-base
Answers: A, B

Q7. Key algorithms for robot navigation and control are:
A. A* search
B. PPO
C. Naïve Bayes
D. DDPG
Answers: A, B, D

Q8. Adaptive learning platforms (e.g., ViBe, CAL) rely on:
A. Behavior tracking
B. Bayesian user modeling
C. Reinforcement learning for content flow
D. Uniform content delivery
Answers: A, B, C

Q9. Bias in AI can be mitigated using:
A. Balanced sampling
B. Re-weighting techniques
C. Adversarial debiasing
D. Ignoring protected attributes
Answers: A, B, C

Q10. AI applications supporting sustainability include:
A. Flood forecasting
B. Urban heat-island detection
C. Food-price prediction
D. Water-leak detection
Answers: A, B, D

NAT

Q11. Q4. (AI in Finance – Risk Scoring)
A risk model outputs 0.9 probability for default; threshold = 0.75. If 10 out of 12 such cases are actual defaults, calculate Precision (%).

A. 80 B. 83.3 C. 85 D. 90
Answer: B (≈83.3%)

Q12. Model outputs positive probability 0.82 and threshold 0.5. Label assigned = ?
A. 0.25 B. 0.5 C. 1 D. 0
Answer: C

Q13. Input 256×256 → two pooling layers (2×2). Output size = ?
A. 128×128 B. 64×64 C. 32×32 D. 16×16
Answer: B

Q14. Precision = 0.9, Recall = 0.6. F1 = ?
A. 0.54 B. 0.72 C. 0.80 D. 0.66
Answer: B

Q15. NIR = 0.72, RED = 0.18. NDVI = ?
A. 0.60 B. 0.40 C. 0.25 D. 0.80
Answer: A