

MCQ_TE-B_ML_R16_Block2

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MCQ

Q1 *

1.	Which of the following are examples of unsupervised learning? i. Modeling a spam filter from a set of labeled emails as spam and not spam ii. Given a set of news articles found on the web, group them into articles under different categories iii. Given a database of customer data, automatically discover market segments and group customers into different market segments iv. Given a database of patients diagnosed as either having diabetes or not, learn to classify new patients as having diabetes or not
Option A:	Both i and iv
Option B:	Both i and iii
Option C:	Both ii and iii
Option D:	Both iii and iv

- ☐ A
- ☐ B
- ☒ C
- ☐ D

Q2 *

2.	Which of the following options are true about <u>Machine Learning</u> ? 1. Machine learning is automatic learning based on experience 2. Machine learning is programmed so that it learns, and past experience is not required. 3. It can learn and improve from the past experience without being explicitly programmed. 4. Machines can learn from past experience, but it must be explicitly programmed.
Option A:	1 and 2
Option B:	2 and 4
Option C:	1 and 4
Option D:	3 and 4

- ☐ A
- ☐ B
- ☒ C
- ☐ D

Q3 *

3.	Which of the following is an example of reinforcement learning?
Option A:	Stock price prediction
Option B:	Sentiment analysis
Option C:	Customer segmentation
Option D:	Robot in a maze

- ☐ A
- ☐ B
- ☐ C



☒ D

Q4 *

4.	In Downhill Simplex method, if $f(x)$ at the reflected point is greater than $f(x)$ at worst point (N) then the new point is obtained by
Option A:	Contraction
Option B:	Multiple Reflection
Option C:	Expansion
Option D:	Multiple contraction

☒ A

☐ B

☐ C

☐ D

Q5 *

5.	In classical Newton's Method, having Hessian Matrix H, Gradient G, X_{K+1} is computed using
Option A:	$X_{K+1} = X_K + H_K^{-1} * G_K$
Option B:	$X_{K+1} = X_K - H_K^{-1} * G_K$
Option C:	$X_{K+1} = X_K - H_K * G_K$
Option D:	$X_{K+1} = X_K + H_K * G_K$

☒ A

☐ B

☐ C

☐ D



Q6 *

6.	Which of the following is not true about the derivative free techniques?
Option A:	They use evolutionary concepts.
Option B:	The objective function has to be differentiable
Option C:	These methods use an empirical approach for analysis.
Option D:	Random search and Downhill Simplex are examples of Derivative free techniques.

☐ A

☒ B

☐ C

☐ D

Q7 *

7.	Given $X=[1 \ 2 \ 3 \ 4]$ $W=[1 \ 1 \ -1 \ -1]$ compute $f(\text{net})$ given $\lambda = 0.5$ using i. Bipolar continuous ii. Unipolar continuous activation function	
Option A:	i. 0.7615	ii. 0.880
Option B:	i. 0.880	ii. 0.7615
Option C:	i. -0.7615	ii. 0.1192
Option D:	i. 0.119	ii. -0.7615

☐ A

☐ B

☒ C

☐ D



Q8 *

8.	Hebbian learning is an example of _____ and perceptron learning is an example of _____
Option A:	Feedforward supervised learning, supervised binary response
Option B:	Feedforward unsupervised learning, supervised binary response
Option C:	Feedback supervised learning, unsupervised binary response
Option D:	Feedback unsupervised learning, supervised multivariate response

- ☐ A
- ☒ B
- ☐ C
- ☐ D

Q9 *

9.	_____ is a type of learning rule which works with a layer of neurons.
Option A:	Perceptron
Option B:	Hebbian
Option C:	Widrow Hoff
Option D:	Winner takes all

- ☒ A
- ☐ B
- ☐ C
- ☐ D



Q10 *

10.	Which of these statements are false with respect to the metrics in linear regression? a. For a strong linear regression R^2 value should be high b. Multiple R value of 1 represents perfect positive relationship c. Karl pearson value of -1 indicates total negative linear correlation d. High value of Sum of Squared Errors(SSE) indicates perfect fit
Option A:	Both A and B are false
Option B:	Both A and C are false
Option C:	Both B and C are false
Option D:	Only D is false

☐ A

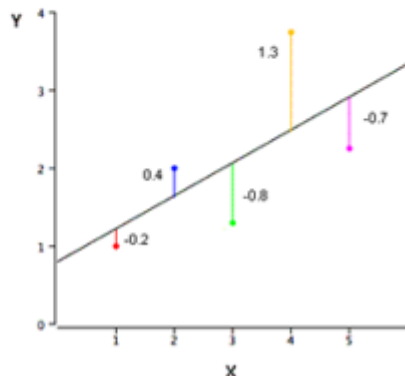
☐ B

☐ C

☒ D



Q11 *

11.	<p>The graph below represents a regression line predicting Y from X. The values on the graph shows the residuals for each predicted value. Use this information to compute the Sum of squared errors (SSE)</p>  <table><tr><th>X</th><th>Y</th><th>Residual</th></tr><tr><td>1</td><td>1.0</td><td>-0.2</td></tr><tr><td>2</td><td>1.8</td><td>0.4</td></tr><tr><td>3</td><td>1.4</td><td>-0.8</td></tr><tr><td>4</td><td>3.7</td><td>1.3</td></tr><tr><td>5</td><td>2.3</td><td>-0.7</td></tr></table>	X	Y	Residual	1	1.0	-0.2	2	1.8	0.4	3	1.4	-0.8	4	3.7	1.3	5	2.3	-0.7
X	Y	Residual																	
1	1.0	-0.2																	
2	1.8	0.4																	
3	1.4	-0.8																	
4	3.7	1.3																	
5	2.3	-0.7																	
Option A:	4.02																		
Option B:	3.02																		
Option C:	1.01																		
Option D:	0																		

☐ A☒ B☐ C☐ D

Q12 *

12.		Actual True	Actual False
	Predicted True	156	20
	Predicted False	14	50
Compute the specificity and the precision?			
Option A:	Specificity = 88.6%	Precision = 71.4%	
Option B:	Specificity = 71.4 %	Precision = 88.6%	
Option C:	Specificity = 28.5%	Precision = 11.36%	
Option D:	Specificity = 71.4%	Precision = 11.36%	

- ☐ A
- ☒ B
- ☐ C
- ☐ D

Q13 *

13.	Which is not true statement about Kernel Trick
Option A:	A Kernel Trick is a method where a Non Linear data is projected onto a higher dimension space so as to make it easier to classify the data where it could be linearly divided by a plane.
Option B:	A Kernel Trick is a method of <u>transforming</u> the original (non-linear) input data into a higher dimensional space (as a linear representation of data).
Option C:	The Kernel Trick allows us to take linear Support Vector Machines and extend their functionality to classify non-linear data sets.
Option D:	A Kernel Trick is a method which can easily separates the data points in a lower dimensionality space

- ☐ A
- ☐ B
- ☐ C
- ☒ D

Q14 *

14.	The difference between naïve Bayesian classifier and Bayesian belief networks is
Option A:	The joint conditional probability distributions are considered in Bayesian Belief networks
Option B:	The joint conditional probability distribution is not considered in Bayesian Belief networks
Option C:	Class conditional independence is always considered in Bayesian Belief networks
Option D:	Class conditional independence is sometimes considered in Bayesian Belief Networks

☐ A

☐ B

☒ C

☐ D

Q15 *

15.

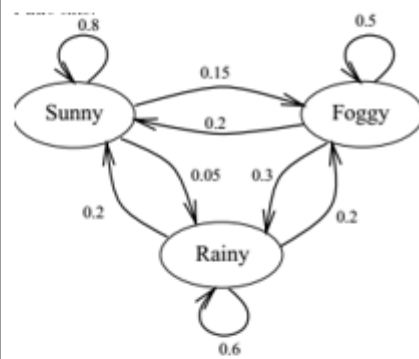
Today's weather | Tomorrow's weather

Initial Probability values

Sunny 0.25

Rainy 0.75

Foggy 0.30



Given that today is sunny what is the probability that tomorrow is sunny and the day after is rainy

Option A:	0.01
Option B:	0.004
Option C:	0.04
Option D:	0.32

☐ A

☐ B

☒ C

☐ D

Q16 *

16.	<p>What is true about Markov Property</p> <ul style="list-style-type: none"> I. Markov Property is very useful for explaining events, and it cannot be the true model of the underlying situation in most cases. II. The state of the system at time $t+1$ depends only on the state of the system at time t III. The advantages of Markov property are complexity and forecasting accuracy. IV. Markov property is used to forecast the value of a variable whose predicted value is influenced only by its current state
Option A:	i and ii
Option B:	ii and iii
Option C:	ii and iv
Option D:	iii and iv

☐ A

☒ B

☐ C

☐ D

Q17 *

17.	A square matrix is _____ if all <u>eigen</u> values are _____ Positive definite, Positive Negative definite, Negative Positive definite, Negative Negative definite, positive
Option A:	Both ii and i are correct
Option B:	Both iii and iv are correct
Option C:	All four options are wrong
Option D:	Either iii or iv is right

☒ A

☐ B

☐ C

☐ D

Q18 *

18.	Identify the correct options regarding Principal Component Analysis (a) Principal component analysis (PCA) can be used with variables of any mathematical types: quantitative, qualitative, or a mixture of these types (b) The major principal component axis has dimensions having the maximum variance. (c) The major principal component axis has dimensions having the minimum variance (d) The most information is retained among the top few principal axes.
Option A:	Both a and b
Option B:	Both b and d
Option C:	Both a and d
Option D:	Both c and d

☐ A

☐ B

☐ C



☒ D

Q19 *

19.	Compute the <u>eigen</u> values for matrix $A = \begin{bmatrix} 7 & 3 \\ 3 & -1 \end{bmatrix}$
Option A:	$\lambda_1 = 8; \lambda_2 = -2$
Option B:	$\lambda_1 = -8; \lambda_2 = 2$
Option C:	$\lambda_1 = 4; \lambda_2 = -4$
Option D:	$\lambda_1 = -4; \lambda_2 = 4$

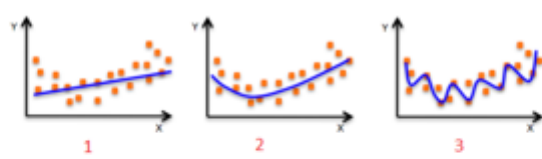
☒ A

☐ B

☐ C

☐ D

Q20 *

20.	 In the graphs 1, 2 and 3 which is best fitted and which is <u>overfitted</u> ?
Option A:	2 is best-fitted and 1 is over-fitted
Option B:	1 is best-fitted and 2 is over-fitted
Option C:	2 is best-fitted and 3 is over-fitted
Option D:	1 is best-fitted and 3 is over-fitted

☐ A

☐ B

☒ C

☐ D

Back

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