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Assignment 5

The due date for submitting this assignment has passed.

Due on 2021-02-24, 23:59 IST.

Assignment submitted on 2021-02-24, 22:36 IST

1) The largest(dominant) Eigen value of a stochastic matrix is _____ ***1 point***

- 0
- 1
- -1
- 2

Yes, the answer is correct.
Score: 1

Accepted Answers:
1

2) The set of vectors R_n is called a basis, if they are linearly dependent and every vector R_n can be expressed as a linear combination of these vectors. State whether the above statement is true or false? ***1 point***

- True
- False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

3) Eigen value which is _____ all other Eigen value is called as Dominant Eigenvalue. ***1 point***

- (•) Greater than
- ( ) Lesser than
- ( ) Equal to
- ( ) Either lesser or greater than

No, the answer is incorrect.
Score: 0
Accepted Answers:
Lesser than

4) The Eigen vectors of a square symmetric matrix are _____. ***1 point***

- (•) Orthogonal.
- ( ) Diagonal.
- ( ) Symmetric.
- ( ) None of these.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Orthogonal.

5) If X is a matrix such that its columns have zero mean and if $\hat{X} = XP$, then the columns of $\hat{X}$ will also have zero mean. ***1 point***

- (•) True
- ( ) False

Yes, the answer is correct.
Score: 1
Accepted Answers:
True

6) Related to the Eigen vector of a matrix $A \in R^{nxn}$, which of the following is true? ***1 point***

- ( ) Distinct Eigen values are linearly dependent.
- (•) Distinct Eigen values are linearly independent.
- ( ) Distinct Eigen values are non-linearly independent.
- ( ) None of these.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Distinct Eigen values are linearly independent.

7) S_1 and S_2 are two statements related to the Principal component analysis for transforming a data to a new basis. ***1 point***

S_1: The dimensions are non-redundant(low covariance).
S_2: The dimensions are not noisy(high variance).

- ( ) Only S_1 is true.
- ( ) Only S_2 is true.
- (•) Both S_1 and S_2 are true.

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Both S_1 and S_2 are false.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Both S_1 and S_2 are true.

8) Rectangular matrices $A \in R^{m \times n}$ have Eigen vectors. State whether it is true or false. ***1 point***

True

False

Yes, the answer is correct.
Score: 1
Accepted Answers:
False

9) Does Eigen decomposition always exist for a square matrix? ***1 point***

True

False

No, the answer is incorrect.
Score: 0
Accepted Answers:
True

10) A set of n vectors $v_1, v_2, v_3, \ldots, v_n$ is linearly independent, if no vector in the set can be expressed as a linear combination of the remaining n+1 vectors. State whether the above statement is true or false. ***1 point***

True

False

No, the answer is incorrect.
Score: 0
Accepted Answers:
False