Nptel Online Certification Course
Indian Institute of Technology Kharagpur
Computer Vision
Assignment - Week 11

Number of questions: 10 **Total marks: 10x2=20**

QUESTION 1: **Type: MCQ**

OMP is

a) Brute force

b) Dynamic Programming Algorithm

c) Divide and Conquer Algorithm

d) None of these

Correct Answer: d)
Detailed Solution: It is Greedy Algorithm

QUESTION 2: **Type: True or False**

Dominant principal component is any eigen vector corresponding to minimum eigen value of Covariance matrix.

a) True

b) False

Correct Answer: b

Detailed Solution: Dominant principal component is the eigen vector corresponding to maximum eigen value of Covariance matrix.

QUESTION 3: **Type: True or False**

For dimension reduction using PCA, eigenvectors corresponding large eigen values of Covariance matrix are ignored.

a) True

b) False

Correct Answer: b

QUESTION 4: **Type: MCQ**

Which of the following uses the class information?

a) PCA

b) All of these

c) k-Means

d) None of these

Correct Answer: d

QUESTION 5: **Type: MSQ**

Which of the following is/are false about dominant component of PCA?

a) Maximizes variance

b) Maximizes mean

c) Minimizes variance

d) Minimizes mean

Correct Answer: b,c,d

QUESTION 6: **Type: MCQ**

Let $X = \begin{bmatrix} 4 & 3 \\ 1 & 8 \\ 4 & 1 \\ 1 & 4 \end{bmatrix}$. Compute the explained variance ratio of the principal component of X.

a) None of these

b) 0.92

c) 0.07

d) 0.85

Correct Answer: b

QUESTION 7: **Type: MCQ**

LDA is a parametric method

a) True

b) False

Correct Answer: a

QUESTION 8: **Type: MCQ**

What is the last step of K-SVD algorithm.

a) Sparse coding.

b) None of these.

c) Dictionary update.

d) Initialisation of dictionary.

Correct Answer: c)

QUESTION 9: **Type: MCQ**

Let $X = \begin{bmatrix} 4 & 3 \\ 1 & 8 \\ 4 & 1 \\ 1 & 4 \end{bmatrix}$. Compute the unit vector along the direction of the principal component of X.

a) $\begin{bmatrix} 0.707 \\ 0.707 \end{bmatrix}, \begin{bmatrix} 0.707 \\ 0.707 \end{bmatrix}$

b) $\begin{bmatrix} -0.459 \\ 0.888 \end{bmatrix}, \begin{bmatrix} 0.888 \\ 0.459 \end{bmatrix}$

c) $\begin{bmatrix} 1.414 \\ 0.707 \end{bmatrix}, \begin{bmatrix} 0.707 \\ 0.707 \end{bmatrix}$

d) None of these

Correct Answer: b

QUESTION 10: **Type: MSQ**

Which of the following is/are not applications of K-SVD

a) Denoising

b) Super-resolution

c) Decompression

d) Inpainting

Correct Answer: c
