

8E1812	Roll No. _____	[Total No. of Pages : 2]
	<div style="border: 1px solid black; display: inline-block; padding: 5px; margin-bottom: 10px;">8E1812</div> B.Tech. VIII - Sem. (Back) Examination, April/May - 2024 Electronics and Communication Engineering 8EC5-12 Digital Image and Video Processing	

Time : 3 Hours

Maximum Marks : 120

Min. Passing Marks : 42

Instructions to Candidates:

Attempt all Ten questions from Part A, Five questions out of Seven from Part B and Four questions out of Five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answer should be given up to 25 words only)

All questions are compulsory. (10×2=20)

1. Describe pixels in a digital image. (2)
2. What are the applications of digital image processing? (2)
3. Explain gray level in an image. (2)
4. What do you understand by histogram equalization? (2)
5. Define image smoothing and sharpening. (2)
6. What is the need of image transformation? (2)
7. What is entropy of an image? (2)
8. Name the video coding standards. (2)
9. What is JPEG? (2)
10. Define hard - cuts and soft - cuts in relation to video. (2)

350

PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions.

(5×8=40)

1. Draw and explain RGB color model in color image processing. (8)
2. Describe image sensing and acquisition process. (8)
3. What is histogram equalization? Explain its need and applications. (8)
4. Discuss the image sampling and quantization. (8)
5. Elaborate the neat diagram of Image compression model. (8)
6. Explain the elements of video encoder. (8)
7. Discuss the basic elements of video decoder. (8)

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Four** questions.

(4×15=60)

1. Enlist various fundamental steps involved in the process of the digital image processing with neat block diagram and state the need of image transformations. (15)
2. Explain the concept of full color image processing and briefly explain any three color models used in colour image processing. (15)
3. What short note on :
 - a) Video coding standards.
 - b) Video object detection and tracking. (15)
4. Distinguish between color image sharpening and smoothing. (15)
5. Write short notes on any two :
 - a) Image compression standards.
 - b) Lossy compression.
 - c) Video coding standards.
 - d) Digital image processing steps. (15)