Reg. No. : | | | | | | | | | | |

Question Paper Code: 49502

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Electronics and Communication Engineering

14UEI902-PRINCIPLES OF DIGITAL IMAGE PROCESSING

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

1. Images quantized with insufficient brightness levels will lead to the occurrence of _____ CO1- R

   (a) Pixillation (b) Blurring (c) False Contours (d) Sampling

2. In an image accentuating a specific range is called CO1- R

   (a) slicing (b) color slicing (c) cutting (d)color enhancement

3. The harmonic mean filter works well for salt noise, but fails for CO2- R

   (a) salt and pepper noise (b) salt noise

   (c) pepper noise (d) none of above

4. Identify the tool used in tasks such as zooming, shrinking, rotating, etc. CO2- R

   (a) Sampling (b) Interpolation (c) Filters (d) none of above

5. Restoration cannot be done using CO3- R

   (a) single projection (b) double projection

   (c) triple projection (d) octa projection

6. Degraded image is produced using degradation process and CO3- R

   (a) additive noise (b) destruction (c) pixels (d) coordinates

7. Blurred edges tend to be _____and sharp edges tend to be_____ CO4- R

   (a) thick, thin (b) thick, thick (c) thin, thin (d) none of above

8. One that is not a method of image segmentation is CO4- R

(a) Area (b) Line (c) Point (d) Edge

9. Shannons theorem is also called CO5- R

(a) noiseless coding theorem (b) noisy coding theorem

(c) coding theorem (d) noiseless theorem

10. Encoder is used for CO5- R

(a) image enhancement (b) image decompression

(c) image compression (d) image equalization

PART – B (5 x 2= 10Marks)

11. Indicate the different transforms used in DIP. CO1- R

12. Name the application of sharpening filters. CO2- R

13. Define Image Restoration CO3- R

14. Define region growing. CO4- R

15. Identify the need for data compression. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) (i) Illustrate the elements of digital image processing systems. CO1 -U (8)

(ii) State and explain the working principles Vidion and Digital Camera. CO1 -U (8)

Or

(b) Illustrate the RGB colour model and HIS color model in digital image processing. CO1 -U (16)

17. (a) Define histogram equalization. Obtain histogram equalization for the following image segment of size 5X5? Write the inference on image segment before and after equalization. CO2- App (16)

4 4 4 4 4

3 4 5 4 3

3 5 5 5 3

3 4 5 4 3

4 4 4 4 4 5X5 matrix

Or

	(b)	Explain homomorphic filtering in image processing and write short notes on Geometric mean filter, Harmonic filters, Contra harmonic mean filter.	CO2 -U	(16)
18.	(a)	Explain the wiener filtering process in digital image processing.	CO3 -U	(16)

Or

	(b)	Point out the steps involved in geometric transformation and spatial transformation in detail.	CO3 -U	(16)
19.	(a)	Examine region based segmentation and region growing with an example.	CO4 -U	(16)

Or

	(b)	Explain the process of dam construction along with the watershed segmentation algorithm.	CO4- U	(16)
20.	(a)	Describe the concept of Huffman and Run Length Encoding in image processing.	CO5- U	(16)

Or

	(b)	(i) Generate the tag for the sequence 1 3 2 1 for the probabilities P (1) = 0.8, P (2) = 0.02, P (3) = 0.18.	CO5 -E	(16)
		(ii) How an image is compressed used JPEG Image compression Standard?	CO5 -Ana	(16)