Reg. No. :

Question Paper Code : X86437

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2021

Second Semester

Applied Electronics

AP5292 – DIGITAL IMAGE PROCESSING

(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions.

PART – A **(10×2=20 Marks)**

1. Mention the difference between binary, gray and color images.
2. What is medical axis ? Given an example.
3. What is SVD transform ? Mention its use.
4. Specify the main difference between discrete Fourier, cosine and sine transforms.
5. Mention the first and second order edge operators used for detecting the edges in an image.
6. What is histogram equalization ? Mention its use.
7. Mention any two spatial filters used for image enhancement.
8. What is multi-spectral image ? Mention its use.
9. Mention the difference between lossless and lossy compression schemes.
10. Specify the principle of fractal image compression method.

PART – B **(5×13=65 Marks)**

11. a) Explain the types of sensors used in image acquisition systems.

(OR)

b) Explain different types of morphological operations in image processing with necessary equations.

12. a) Explain one dimensional and two dimensional Fourier transforms with necessary equations.

(OR)

b) Explain two dimensional discrete cosine transform and its use with an example.

13. a) Explain the method of detecting lines and curves using Hough transform with necessary equations.

(OR)

b) Explain canny edge detection algorithm and its advantage compared to other edge detection methods.

14. a) Explain any three frequency domain methods used for image enhancement.

(OR)

b) Explain any three color models and a method for enhancing the color image with an algorithm

15. a) Explain any two lossless image compression methods used in image compression.

(OR)

b) Explain the steps in JPEG compression method with a block diagram.

PART – C **(1×15=15 Marks)**

16. a) Explain the method of reducing the dimension of feature vectors using KL Transform with an example.

(OR)

b) Explain any one wavelet based encoding and decoding schemes with necessary algorithms.

———————