

**Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University) Coimbatore-641043.**

Master's Degree Examination –November

2018

III-Semester

Class :II PG

Time: 3 Hours

Major : Information Technology

Max. Marks: 60

17MITC17 Digital Image Processing

Part A

(10 x ½ = 5)

Choose the correct answer

1. What is image?
a) Picture b) Matrix of pixel c) Collection of pixel d) All of above
2. First application of digital image was in the
a) Newspaper industry c) a & b
b) Communication system d) none of these
3. An image is converted to two-dimensional matrix of pixel values by
a) Masking b) Pixel grabber c) bough transform d) none
4. DFT stands for
a) Discrete Fourier transform c) digital frequency transform
b) Digital function transform design view d) none
5. Basic steps for filtering in the frequency domain:
a) Fourier transform b) Filter function. c) Inverse Fourier transform d) All of these
6. Smoothing spatial filters are used for:
a) Blurring b) Noise reduction c) a & b d) None
7. The spatial domain refers:
a) To the image phase itself, and approaches in this category are based on indirect manipulation of pixels in an image.
b) To the image phase itself, and approaches in this category are based on direct manipulation of pixels in an image.
c) a & b
d) None
8. Blurred edges tend to be _____ and sharp edges tend to be _____
a) Thick, thin b) Thick, thick c) thin, thin d) none of these
9. Laplacian combined with smoothing to find edges via
a) Two-crossing b) One-crossing c) zero-crossing d) none of above
10. The threshold used for each pixel depends on the location of the pixel in terms of the subimages, this type of thresholding is _____
a) Adaptive b) Static c) modern d) none of above

Part B

5 x 4 = 20

Answer the following

Answer should not exceed 200 words or one page

- 11.a Write in brief the various applications of digital image processing. (OR)
11.b. What is line scan CCD sensor? State its uses.
- 12.a .Explain in brief on Hotelling transform. (OR)
12.b. Highlight the importance of Slant and Haar transforms.
- 13.a. Briefly explain spatial averaging and smoothing. (OR)
13.b. What is degradation model? Explain.
- 14.a. Contrast Huffman coding and Transform coding. (OR)
14.b. Describe in brief on JPEG and MPEG coding.
- 15.a. Write in brief on Feature threshold. (OR)
15.b. Explain the threshold selecting method in brief.

Part C

5 x 7 = 35

Answer ALL question

Each answer should not exceed 600 words or three pages

- 16.a. Explain in detail in Display element perception. (OR)
16.b. Write in detail on various color models.
- 17.a. Contrast the difference between 2D DFT and DCT . (OR)
17.b. Explain Discrete wavelet transform and cite an example.
- 18.a. Enumerate the various enhancement techniques performed in spatial domain. (OR)
18.b. Write in detail on Median filtering and non-linear filters.
- 19.a. Describe in detail on truncated Huffman's coding. (OR)
19.b. Explain the following: (i) Binary codes (ii) Arithmetic coding (iii) Run length coding
- 20.a. Explain in detail on Optimum threshold. (OR)
20.b. Write the outcome of region based approach in Digital image processing.
