Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
A Constituent Institution of MAHE

SIXTH SEMESTER B. TECH DEGREE (PME) END SEMESTER EXAMINATION
APRIL 2018
SUBJECT: VIDEO PROCESSING (PME - 3202)

TIME: 3 HOURS **MAX. MARKS: 50**

Instructions to candidates
- Answer **ALL** questions.
- Missing data may be suitably assumed.

1A. With a block diagram, explain Video Communication system. Discuss about factors effecting delay in end to end video transmission.

1B. How Television system function? With a block diagram, explain.

1C. Discuss features of MPEG -1.

(5+3+2)

2A. Describe Video coding system with necessary diagram. Compare different source models, parameter sets and coding techniques used.

2B. What are the different components of Image Processing system? Briefly explain each one.

2C. Explain image acquisition using a single sensor.

(5+3+2)

3A. Narrate simple image formation model. Discuss sampling and quantization using plots.

3B. Define 4 adjacency and 8 adjacency.

Consider the image segment shown.

a) Let V = { 0,1 } and compute the lengths of shortest 4 , 8 paths between ‘P ‘ and ‘ Q’. If particular path does not exist between these two points, explain why?

3 1 2 1 (Q)
2 2 0 2
1 2 1 1
(P)1 0 1 2

3C. Describe enhancement using arithmetic and logical operations.

(5+3+2)

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4A. Explain linear, logarithmic and power law gray level transformations used in Image enhancement, with necessary equations and plots.

4B. Discuss basics of spatial filtering. Describe smoothing filter with box filtering and weighted average, with examples.

4C. How Ideal low pass filtering used for smoothing operation in frequency domain. Give equations, diagram / plot.

(5+3+2)

5A. For the given gray level matrix, find the path that correspond to significant edge using Graph theory technique.

5 6 1
6 7 0
7 1 3

5B. Explain region splitting and merging in segmentation.

5C. In segmentation, define single and multiple threshold.

(5+3+2)