Question Paper

Exam Date & Time: 27-Nov-2018 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF INFORMATION SCIENCES

FIRST SEMESTER MASTER OF ENGINEERING - ME (MEDICAL SOFTWARE)

Medical Imaging [MMS 611]

Marks: 100 **Duration: 180 mins.**

END SEMESTER DEGREE EXAMINATION NOVEMBER 2018

Answer all the questions.

1) Describe the following image processing operations and mention one application corresponding to each. (10)
(5+5 marks)
(i) Logical operations (ii) Blending

2) What is meant by Pseudo color image processing? Describe application of any one of the pseudo color image processing techniques and highlight its benefits. (10)

3) Explain Prewitts, Sobels and Laplacian edge detectors along with the basis of their designs. Also provide a comparison between them. (8+2 marks) (10)

4) What are the three basic data redundancies in a digital image? Briefly explain how each of them can be eliminated. (4+6 marks) (10)

5) Describe Beam restrictors, collimators and Photomultiplying tubes in connection with Xray imaging. (10)

6) What is meant by projections and Sinograms. Describe the Simple and Filtered backprojection techniques used in CT Reconstruction. (2 +8 marks) (10)

7) Write short notes on (a) Spin echo and (b) Free induction decay in connection with MRI. (5 +5 marks) (10)

8) Describe the different modes of operation in ultrasound imaging. (10)

9) In connection with PET imaging write short notes on PET equipment and Coincidence detection. (10)

(5+5 marks)

10) Find out the De, D4, D8 and Dm distances between p and q in the image I given below, considering the connectivity set as {100, 101,....., 160} (10)

(4 x2.5 marks)

	210	211	101	121	157	149 q
	209	210	111	120	149	149
	100	160	161	130	150	150
	179	128	130	181	182	151
	100	104	210	182	182	152
p	100	103	212	180	181	151

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