APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Scheme for Valuation/Answer Key

Scheme of evaluation (marks in brackets) and answers of problems/key

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: EC370

Course Name:Digital Image Processing

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks Marks

1 a) Discuss the terms: (8)

(i) Brightness – 2 marks (ii) Hue – 2 marks (ii)Saturation- 2 marks and (iv) Contrast-2 marks .

b) Transform matrix-2 marks (4)

DFT result- 2 marks

Answer: [17 3
-3 -1]

c) 1 mark each (3)

2 a) Describe the construction and working of a Vidicon camera tube with a neat diagram. (10)

Diagram-3 marks

Construction-3 marks

Working -4 marks

b) Equation- 1 mark; DCT steps and result-4 marks (5)

3 a) RGB (3 marks) + CMY (2 marks) + HIS (3 marks) (8)

b) Equation-1 mark, Kernel-2 marks, Transform-4 marks (7)

Answer: [4 2
-1 3]

PART B

Answer any two full questions, each carries 15 marks

4 a) Block diagram(4 marks) Explanation(4 marks) (8)

b) Explanation-4 marks,Types-3 marks (7)

5 a) Histogram equalisation(2 marks) How it is done(2 marks) Mathematical details(6 marks) (10)

b) Explanation(2 marks) Diagram(3 marks) (5)

6 a) Box filter or averaging filter=3 (5marks) (5)

b) Derivation-6 marks, Advantages -2 marks, Disadvantages-2 marks (10)

PART C

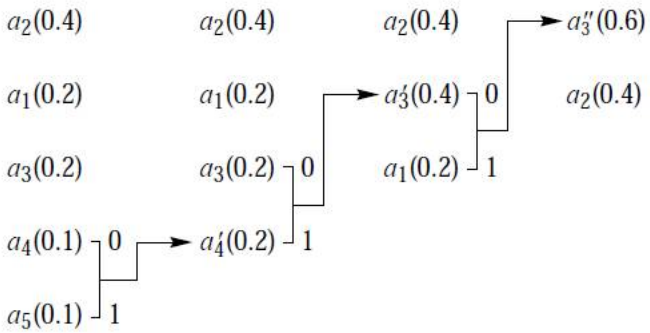
Answer any two full questions, each carries 20 marks

7 a) Explanation: 3 marks, Mathematical model of transformation: 4 marks (7)

b) Description of detection method: 3 marks (3)

c) Design a Huffman code for a source that puts out letters from an alphabet $A = \{a_1, a_2, a_3, a_4, a_5\}$ with $P(a_1) = P(a_3) = 0.2$, $P(a_2) = 0.4$ and $P(a_4) = P(a_5) = 0.1$ (10)

.



8 a) Description: 5 marks, Diagrams: 5 marks (10)

b) Types of Redundancy (2 marks) + Explanation of Each (8 marks) (10)

9 a) Description: 4 marks, Algorithm: 6 marks (10)

b) Diagram (4 marks) + Explanation (6 marks) (10)

****