Total No. of Questions : 12]

SEAT No. : [ ]

P3605

[Total No. of Pages : 3

[4959] - 1084
B.E. (E & TC)
Digital Image Processing
(2012 Pattern) (Elective - I(a))

Time :2.30 Hours] ***[Max. Marks :70***

Instructions to the candidates:-

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***Your are advised to attempt not more than 6 questions.***
4) ***Your answer will be valued as a whole.***
5) ***Assume suitable data, if necessary.***
6) ***Use of logarithmic table slide rule, mollier charts electronic pocket calculator is allowed.***

Q1) a) Explain scaling, rotation & translation operation of an image. **[3]**

b) Explain the effect of image sampling & quantization. **[4]**

OR

Q2) a) What is the need of image file format? Explain any one file format in detail. **[4]**

b) Explain Image formation in Human visual system in detail. **[3]**

Q3) Explain any two in detail. **[7]**

a) Homomorphic filtering.

b) Median filtering.

c) Log transformation.

OR

Q4) a) Explain restoration of images using Inverse filtering. **[4]**

b) Explain spatial domain image sharpening in detail. **[3]**

P.T.O.

Q5) a) What is loss - less & lossy compression? Explain need & application of each. **[3]**

b) Explain wavelet based compression in detail. **[3]**

OR

Q6) a) Explain concept of MPEG encoder. **[3]**

b) Explain Huffman coding algorithm in detail. **[3]**

Q7) a) Explain any two in detail. **[10]**

i) LOG

ii) DOG

iii) Canny Edge detector

b) What is skeleton? Explain the algorithm to obtain skeleton of an object in a digital image. **[8]**

OR

Q8) a) Explain basic operations of morphology & hence explain hit or miss transform & its application. **[10]**

b) Explain Global & local thresholding in image segmentation. **[8]**

Q9) a) What is chain code? How it is obtained? Obtain the object shape represented by 8 - directional chain code 466001225642. Obtain the circular chain code for the same. **[8]**

b) Explain how polygonal approximation and signatures are used for shape representation? **[8]**

OR

Q10) a) What is moments? Explain different statistical moments used for shape representation. **[8]**

b) What is Texture & texture primitive? What are the different properties of texture used for region representation? **[8]**

Q11) a) Explain pattern & different types of pattern classes. Explain representation of pattern classes. **[8]**

b) Explain the algorithm of character recognition in image processing. **[8]**

OR

Q12) a) Explain Bayes clssifier in detail. **[8]**

b) Explain biometric authentication using image processing. consider any biometric e.g. finger, face etc. & explain in detail feature extraction & matching process. **[8]**

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