

Faculty of Engineering Technology
Term-Test 1 Question Paper – B.Tech

Department : Computer Science and Engineering
Programme : B.Tech
Semester / Batch : Seventh
Date of Test : 21-11-2020
Course Code : CSE308A
Course Title : Computer Vision

Term Test - 1

INSTRUCTIONS TO STUDENTS:

1. Answer all the questions
2. Use only SI units
3. Use of non-programmable scientific calculator is permitted
4. Use of data handbook permitted wherever applicable
5. Missing data may be appropriately assumed
6. Notations used have usual meaning

Maximum Duration: 1 Hour 15 Minutes

Maximum Marks: 25

IMPORTANT:

You may retain the question paper for future reference

Q. No.	Question	Marks
1.	I. 1024x1024 image has resolution (a) 1048576 (b) 1148576 (c) 1248576 (d) none of these II. Density of an object can be imaged using (a) Visible light (b) X-Rays (c) Infrared (d) None of these III. The number of bits used to represent 256 gray levels is (a) 4 (b) 6 (c) 8 (d) 10. IV. Each element in an image is called (a) Dot (b) coordinates (c) Pixels (d) none of these. V. For coordinate p(2,3) the 4 neighbors of pixel p are (a)(3,3)(2,3)(1,3)(1,3) (b)(3,3)(2,3)(1,1)(2,2) (c)(3,3)(2,4)(1,3)(2,2) (d)(3,3)(2,4)(1,3)(2,1) VI. The type of Interpolation where for each new location the intensity of the immediate pixel is assigned is _____ a)Bicubic b) Cubic c) Bilinear d) Nearest neighbour VII. Dynamic range of imaging system is a ratio where the upper limit is determined by a) Saturation b) Noise	5

c) Brightness

d) Contrast

VIII. Which of the following expression is used to denote spatial domain process?

a) $g(x,y)=T[f(x,y)]$

b) $f(x+y)=T[g(x+y)]$

c) $g(x*y)=T[f(x*y)]$

d) $g(x-y)=T[f(x-y)]$

IX. Median filter belongs to category of filters.

a) Linear spatial

b) Frequency domain

c) Order static

d) Sharpening

X. If r be the gray-level of image before processing and s after processing then which expression defines the negative transformation, for the gray-level in the range $[0, L-1]$?

a) $s = L - 1 - r$.

b) $s = cr^v$, c and v are positive constants.

c) $s = c \log(1 + r)$, c is a constant and $r \geq 0$.

d) none of the above.

2. Discuss the components of the Computer Vision with a block diagram. 5

3. Discuss image zooming (image interpolation) techniques. 5

4. Perform histogram equalization for the 8X8, eight level image described in the given table and write the resultant histogram. 5

rk	0	1	2	3	4	5	6	7
nk	10	25	15	10	4	0	0	0

5. Perform Median Filtering on the given image by considering Zero padding and 3X3 Window 5

$$\begin{pmatrix} 5 & 2 & 2 \\ 1 & 2 & 1 \\ 1 & 1 & 1 \end{pmatrix}$$