

(Time: 2 $\frac{1}{2}$ hours)

[Total Marks: 60]

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculator is **allowed**.

1. **Attempt any two of the following:** 12
- List and explain different steps in Digital Image Processing.
 - Write a note on Histogram equalization.
 - Explain the concept of image filtering in spatial domain. Also explain Spatial Filters used in the process of Image Smoothing.
 - Perform the following operations on the given sub image of size 3x3
 - Image negative
 - Image Thresholding [Thresholding Point (T) = 4]
 - Bit Plane Slicing
 - Gray Level Slicing with and without background (r1=2 and r2=6)

3	3	2
7	1	0
6	2	2

2. **Attempt any two of the following:** 12
- Write a note on types of noise.
 - What are the three methods of estimating the degradation function? Explain in detail.
 - Explain Image Sharpening Filter with its model in the frequency domain.
 - Explain the basic steps of filtering in the frequency domain.

3. **Attempt any two of the following:** 12
- Write a note on Walsh-Hadamard transform.
 - Explain different types of redundancies in the image.
 - What is Pseudocolor image processing? Explain different techniques used in Pseudocolor image processing.
 - Explain in detail: Lossless Predictive Coding.

4. **Attempt any two of the following:** 12
- Explain closing and opening morphological image processing operations.
 - Write a note on following morphological algorithms
 - Skeletons
 - Thinning
 - Explain Point, Line and edge detection in Image Segmentation.
 - Discuss in detail Region based segmentation

5. **Attempt any two of the following:** 12
- Explain boundary descriptors in detail.
 - What are Active Contours? Why they are needed? How does it work?.
 - List different region feature descriptors. Explain them in detail.
 - Write a note on Harris-Stephens Corner Detector.

Q. 4. B) State whether the following statements are True or False. (05)

- 1) Competitive parity method considers the competitors' advertising activities and costs for setting advertising budget.
- 2) Indian Broadcasting Foundation is one of the self-regulatory bodies for advertising.
- 3) University of Mumbai provides professional courses in the field of Advertising.
- 4) Sales Management is a process that involves various steps or techniques that makes a sale or increase in sales.
- 5) Delphi Technique contains a panel of experts for sales forecasting.

Q. 4. C) Match the Column. (05)

Group A	Group B
1) Animator	a) Sound Health
2) AIDA Model	b) qualitative technique of Sales Forecasting
3) Physical characteristics	c) Logical conclusion of sales call
4) Closing sales	d) Career in the field of advertising
5) Consumer Survey Method	e) E. K. Strong

OR

Q4. Write Short notes on (Any Three) (15)

- 1) Sales Forecasting
- 2) Types of Sales Quota
- 3) Factors Determining of Sales Territory
- 4) Importance of Customer Feedback
- 5) Sales Management
