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| PRN No. | |
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| PAPER CODE | U315-215-B (ESE) |
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**(AY:2024-25) December 2024 (ENDSEM) EXAM
TY (SEMESTER - I)**

**COURSE NAME: Image Processing Branch: AI&DS COURSE CODE: ADUA31205(B)
(T.Y.PATTERN 2020 R1)**

Time: [1Hr 30 Min]

[Max. Marks: 40]

(*) Instructions to candidates:

- 1) Figures to the right indicate full marks. Use of scientific calculator is allowed
- 2) Use suitable data wherever required
- 3) All questions are compulsory. Solve any two sub question each from Questions 1 and 2
- 4) Solve any one sub question (2 marks) from Questions 3 ,4 ,5 and 6 and sub question of 4 marks is compulsory from questions 3,4,5,and 6

| Q. No. | Question Description | Max. Marks | CO mapped | BT Level |
|--------|--|------------|-----------|------------|
| Q.1 | a) State Components of image processing. | [4] | CO1 | Understand |
| | b) Difference between Image Sampling and Image Quantization? | [4] | CO1 | Understand |
| | c) Discuss Histogram Equalization technique. | [4] | CO1 | Understand |
| Q2 | a) What are different Image Color Models. | [4] | CO2 | Understand |
| | b) How Pseudo Color Image Processing is useful in image processing? | [4] | CO2 | Understand |
| | c) Enlist various Smoothing and Sharpening filters and Explain in brief. | [4] | CO2 | Understand |
| Q3 | a) Discuss Image Restoration technique in brief OR | [2] | CO3 | Understand |
| | b) Discuss Image Reconstruction technique in brief | [2] | CO3 | Understand |
| | c) Which are different Noise Models in Image Processing? | [4] | CO3 | Understand |
| Q4 | a) How redundancy is useful in Compression? OR | [2] | CO4 | Analyze |
| | b) Why and which different Image formats are in use? | [2] | CO4 | Analyze |
| | c) Explain with example i)Run Length Coding ii) Binary Run Length Coding | [4] | CO4 | Apply |

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| Q.5 | <p>a) Evaluate Erosion and Dilation, opening & closing operations in brief.</p> <p style="text-align: center;">OR</p> <p>b) State applications of Line and Edge segmentation.</p> <p>c) State Applications of segmentation techniques in Image processing.</p> | [2] | CO5 | Analyze |
| | | [2] | CO5 | Analyze |
| | | [4] | CO5 | Analyze |
| Q.6 | <p>a) Explain the different learning techniques in Artificial Neural Network?</p> <p style="text-align: center;">OR</p> <p>b) State various applications of Artificial Neural Networks in Image Processing?</p> <p>c) State use of matching Shape, Numbers, Strings in Image Processing.</p> | [2] | CO6 | Understand |
| | | [2] | CO6 | Understand |
| | | [4] | CO6 | Analyze |