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 **PRESIDENCY UNIVERSITY**

  **Bengaluru**

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| **Ph.D. Course Work End Term Examinations – JAN-FEB 2025** |
| **Date:** 31- 01- 2025 **Time:** 09:30 am – 12:30 pm |

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| **School:** SOE | **Program:** Ph.D. |
| **Course Code :**ECE842 | **Course Name :** Advanced Image Processing |
| **Semester**: | **Max Marks**:100 | **Weightage**:50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **20** | **20** | **60** |  |  |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

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| **Answer ALL the Questions. Each question carries 10 marks. 6Q x 10M=60Marks** |
| **1** | During a rainy season, some targets will be covered with rain drops because of which the satellite image will not be clear. What is the correction procedure applied during this time for image analysis, explain in detail  | **10Marks** | **L3** | **CO1** |
| **2** | There are many image transformation techniques available. Normally logarithms are used for image transformation. What is the advantage of using logarithms for image transformation. Bring out the area in satellite image processing, where log transformation is suitable. | **10Marks** | **L3** | **CO1** |
| **3** | Filtering is a technique in which unwanted pixels of background are removed. What is the necessity of filtering to satellite image? Discuss about a method of filtering suitable for satellite image  | **10Marks** | **L4** | **CO2** |
| **4** | Many open-source soft wares are available for image processing. QGIS is an open-source software by which the image processing and analysis can be done. Discuss in detail the features and applications of QGIS  | **10Marks** | **L3** | **CO2** |
| **5** | In-situ values are real ground truth values. For the validation of the predicted values, we need some ground truth values. If you are predicting the area of water bodies in Bangalore city, suggest the organizations where the ground truth values are available. Suggest in detail the way of extracting the relevant information  | **10marks** | **L4** | **CO3** |
| **6** | What is Image Enhancement? Explain Spatial Domain Method of Image Enhancement as applied to satellite image. | **10Marks** | **L4** | **CO3** |

**Part B**

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| **Answer the Questions. Each question carries 20 marks 2Q x 20 = 40 Marks** |
| **7.** |  | Restoring the old and damaged images is an important task. Image restoration is an important technique in Digital Image Processing wherein the damaged image is brought back to clarity. Explain how the Image restoration is done for satellite image | **20 Marks** | **L4** | **CO4** |
|  |
| **8.** |  | Graphical representation of data is a critical method of data storage. Histogram is a graphical representation of data which gives maximum information. With respect to image processing, explain the relevance of histogram with an example. | **20 Marks** | **L4** | **CO4** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***