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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **End - Term Examinations –JANUARY 2025** |
| **Date:** 04 - 01- 2025 **Time:** 9:30 am – 12:30 pm |

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| **School:** SOE | **Program:** B.Tech Civil Engineering | |
| **Course Code :**CIV3042 | **Course Name :**IOT in Construction | |
| **Semester**: VII | **Max Marks**:100 | **Weightage**:50 |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **20** | **-** | **30** | **50** | **-** |

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 2marks. 10Q x 2M=20M** | | | | |
| **1** | What are the technical challenges in implementing IoT systems, and how are they addressed? | **2 Marks** | **L2** | **CO1** |
| **2** | How does IoT enhance security and privacy in construction sites? | **2 Marks** | **L2** | **CO1** |
| **3** | Define fleet management and its relevance to IoT in construction. | **2 Marks** | **L2** | **CO1** |
| **4** | How does IoT contribute to urban mobility in smart cities? | **2 Marks** | **L2** | **CO1** |
| **5** | What is predictive maintenance, and how is it applied in IoT-enabled machinery? | **2 Marks** | **L2** | **CO1** |
| **6** | List two ways IoT enhances sanitation and solid waste management in cities. | **2 Marks** | **L2** | **CO1** |
| **7** | List and describe two hardware architectures commonly used in IoT systems. | **2 Marks** | **L2** | **CO1** |
| **8** | What is Building Information Modeling (BIM) in the context of IoT? | **2 Marks** | **L2** | **CO1** |
| **9** | How does IoT contribute to structural health monitoring? | **2 Marks** | **L2** | **CO1** |
| **10** | Define the concept of a digital twin and its relevance to IoT-based project management. | **2 Marks** | **L2** | **CO1** |

**Part B**

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| **Answer the Questions. Total Marks 80** | | | | | |
| **11.** | **a.** | Based on the case study assignment allotted to you on live problems of Bengaluru City (e.g., Water Supply, Sanitation, Drainage Systems, Traffic Congestion, E-Governance, Metro Railway Systems—Past, Present, and Future, Tourism, Smart Traffic Management, etc.), provide a comprehensive analysis of the IoT applications you have explored.  Your answer should include:  1. A detailed description of the specific problem and its relevance to Bengaluru City.  2. The IoT technologies and frameworks applied to address the problem.  3. Well-structured flow diagrams illustrating the IoT-enabled solution.  4. Data collected or assumed for the case study, along with analysis and visualization.  5. Key inferences, outcomes, and potential future advancements in addressing the issue using IoT.  Ensure clarity in explaining the IoT implementation and its impact on enhancing the quality of urban living in Bengaluru. | **25 Marks** | **L3** | **CO4** |
| **or** | | | | | |
| **12.** | **a.** | Analyze the role of IoT in efficient water and electricity supply management in urban areas. | **25 Marks** | **L3** | **CO4** |
|  |  |  |  |  |  |
| **13.** | **a.** | Discuss in detail the evolution of IoT technology and its impact on various domains, especially Construction Industry, supported by relevant examples. | **25 Marks** | **L3** | **CO4** |
| **or** | | | | | |
| **14.** | **a.** | Describe how IoT-based frameworks improve situational awareness in the construction industry. Include examples. | **25 Marks** | **L3** | **CO4** |

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| **15.** | **a.** | How does IoT contribute to enhancing productivity and efficiency in industry-specific applications? | **15**  **Marks** | **L3** | **CO3** |
| **Or** | | | | | |
| **16.** | **a.** | Discuss how IoT aids in budget optimization and scheduling for large-scale construction projects. | **15 Marks** | **L3** | **CO3** |

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| **17.** | **a.** | Discuss the use of IoT in equipment handling and monitoring for construction projects. | **15**  **Marks** | **L3** | **CO3** |
| **Or** | | | | | |
| **18.** | **a.** | Evaluate the use of IoT in solid waste management and sanitation in urban areas. | **15**  **Marks** | **L3** | **CO3** |

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