**THIRD SEMESTER SERIES TEST 1 ( October -2023)**

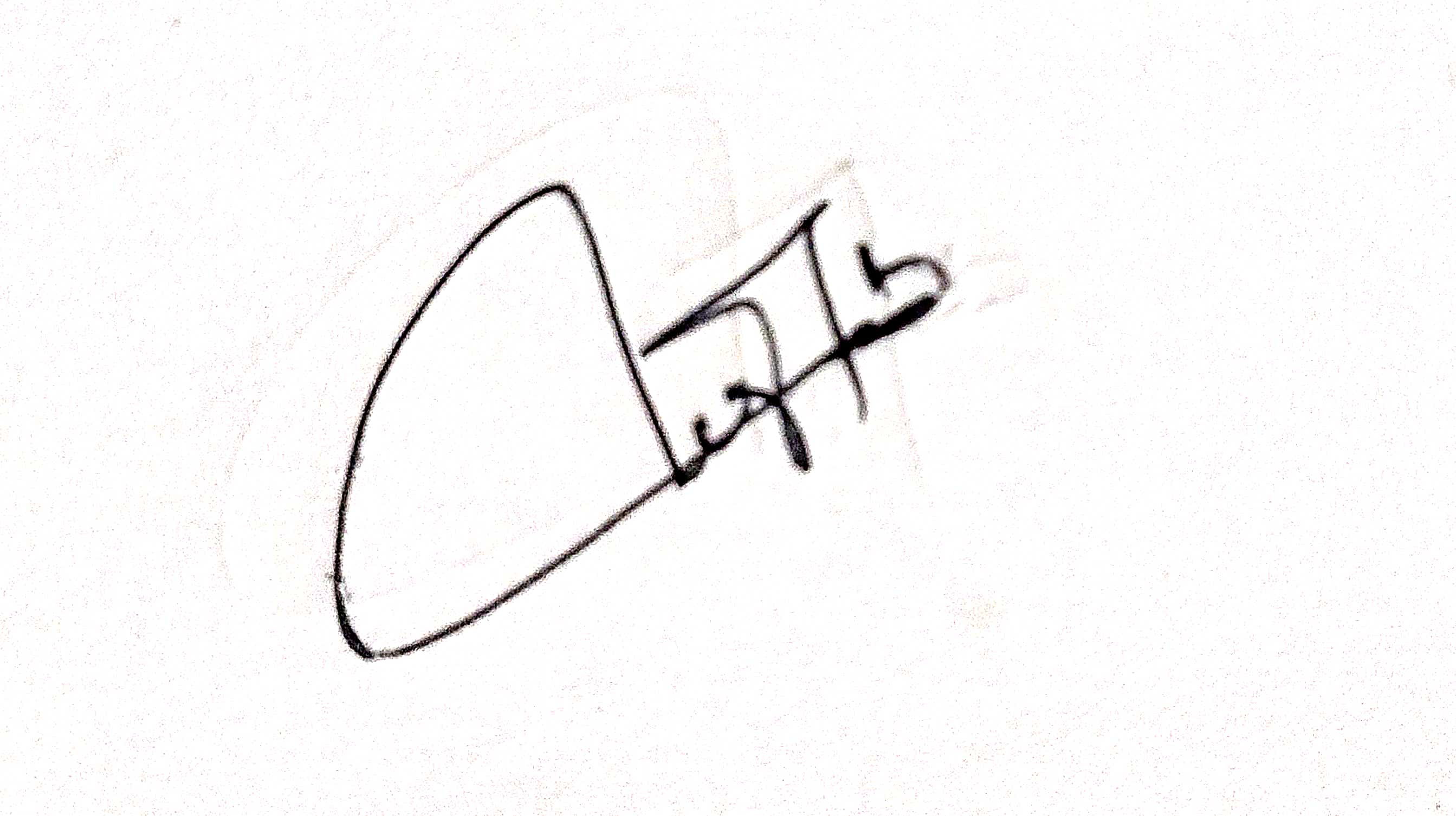
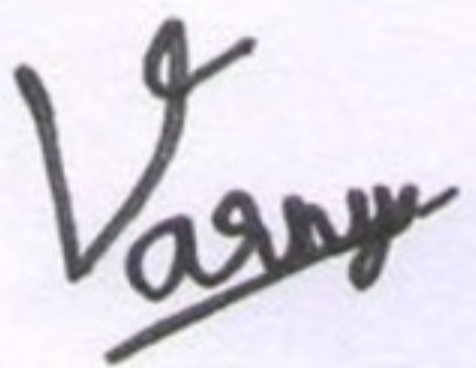
**ECT 283** ANALOG COMMUNICATION

**Time: 1.5 hours Maximum Marks : 50**

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| **PART - A** | | | | | |
| **Answer full questions, each carries 3 marks** | | | | | |
| **Q.No.** | **QUESTION** | **MARKS** | **CO** | **LEVEL** | |
| 1 | Explain the need for modulation | 3 | CO 1 | 1 | |
| 2 | Explain flicker noise | 3 | CO 1 | 1 | |
| 3 | Explain shot noise | 3 | CO 1 | 2 | |
| 4 | Plot the signal x(t)=u(t+1)+2u(t)-u(t-3) | 3 | CO 2 | 2 | |
| 5 | Find convolution of signal x[n] = [1,-1, 1, 1] with itself | 3 | CO 2 | | 1 |
| 6 | Define unit step function and unit impulse function | 3 | CO 2 | | 1 |
|  | **PART - B** |  |  | |  |
|  | ***Answer one question from each section. Each question carries 16 mark.*** |  |  | |  |
| 7 | (a) Explain Thermal noise in details (8 marks)  (b) Explain the elements of communication systems in detail? (8 marks) | 16 | CO 1 | | 2 |
|  | OR |  |  | |  |
| 8 | (a) Define the signal to noise ratio and noise and noise figure of a receiver? How noise temperature related to noise figure? (8 marks)  b)A mixer stage has a noise figure of 20 dB and this is proceeded by an amplifier that has a noise figure of 9 dB and an available power gain of 15 dB. Calculate overall nose figure (8 marks) | 16 | CO 1 | | 2 |
| 9 | State and prove any 4 properties of FT | 16 | CO 2 | | 1 |
|  | OR | 16 | CO 2 | | 1 |
| 10 | a Distinguish between energy & power signals. Give an example for each category? (8 marks)  b. (b) Explain shifting operation of the signal |  |  | | 1 |

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| Course Outcomes | |
| CO 1 | Explain various components of communication Systems |
| CO 2 | Explain various sources of noises and its effects in communication sytems |

Levels - 1.Remember 2. Understand 3. Apply 4.Analyse 5. Evaluate 6.Create

Signature of Faculty In charge Signature of Scrutiny Committee Member

**EIGHTH SEMESTER SERIES TEST II (MAY 2023)**

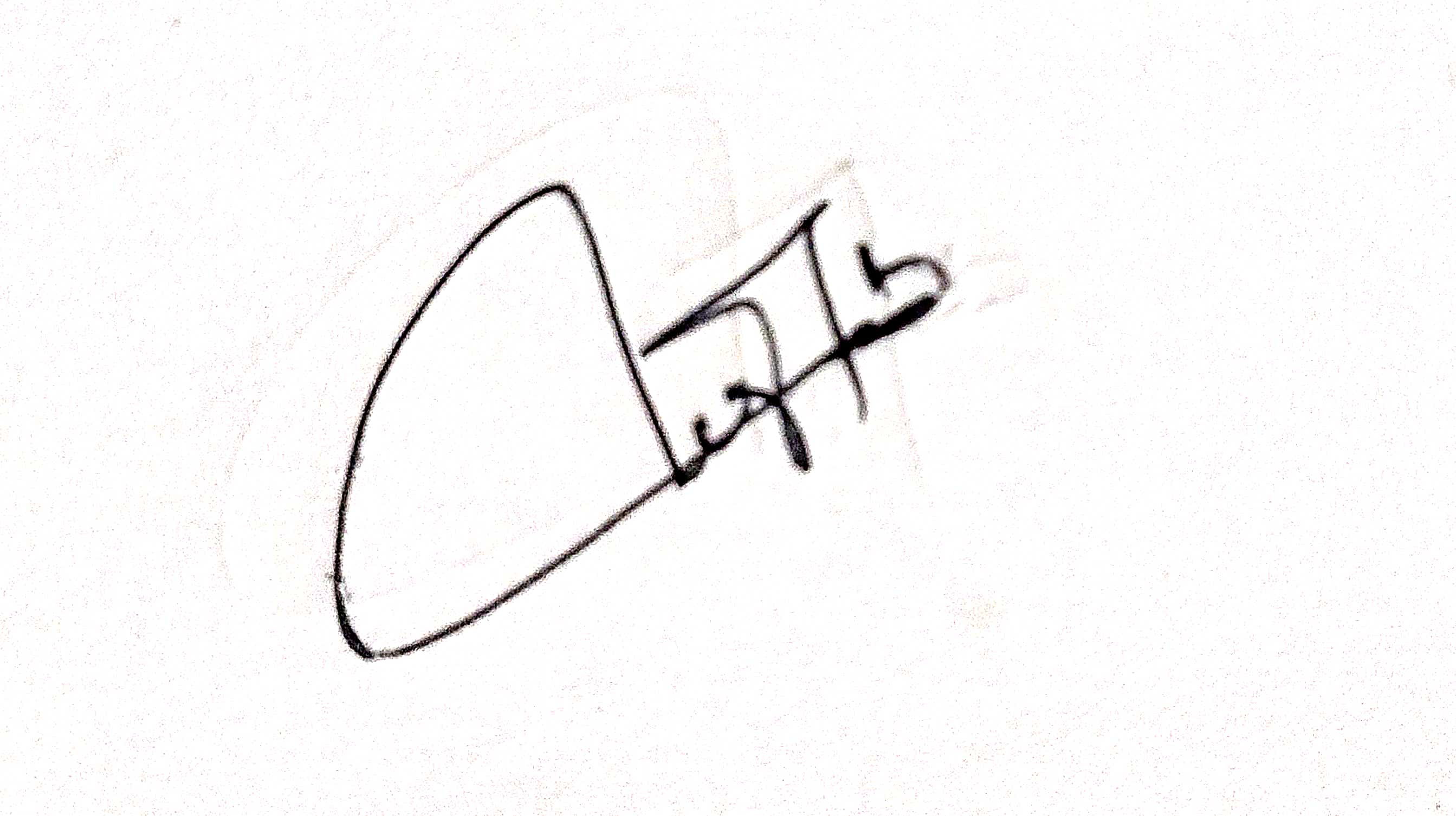
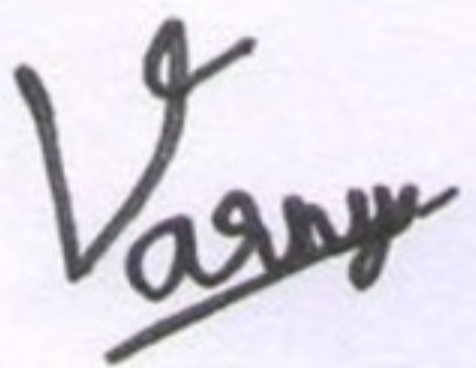
**ECT 458 INTERNET OF THINGS**

**Time: 1.5 hours Maximum Marks : 50**

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| **PART - A** | | | | | |
| **Answer full questions, each carries 3 marks** | | | | | |
| **Q.No.** | **QUESTION** | **MARKS** | **CO** | **LEVEL** | |
| 1 | Explain the need for IP optimization in IoTs? | 3 | CO 3 | 1 | |
| 2 | What are the transmission modes used in Modbus? | 3 | CO 3 | 1 | |
| 3 | Interface and control the status of an LED in GPIO 20 in Raspberry Pi | 3 | CO 3 | 2 | |
| 4 | What are the 4 different cloud deployment models? | 3 | CO 4 | 2 | |
| 5 | What is cloud computing | 3 | CO 4 | | 1 |
| 6 | Draw and discuss the layered structure of the LoRaWAN network | 3 | CO 4 | | 1 |
|  | **PART - B** |  |  | |  |
|  | ***Answer one question from each section. Each question carries 16 mark.*** |  |  | |  |
| 7 | Explain the differences between Narrowband-Internet of Things (NBIoT) and Long-Term Evolution for Machines (LTE M).  b.What are the modifications included in IEEE 802.15.4 e and g versions as compared to IEEE 802.15.4? | 16 | CO 3 | | 2 |
|  | OR |  |  | |  |
| 8 | With the help of a diagram explain the Zigbee protocol architecture. [8 ] (b) Explain LoraWAN architecture. Give a detailed description of the physical layer and MAC layer of LoraWAN | 16 | CO 3 | | 2 |
| 9 | Explain different cloud service models ([12] (b) Explain cloud based data collection, storage and computing services provided by XIVELY cloud platform | 16 | CO 4 | | 1 |
|  | OR |  |  | |  |
| 10 | Explain different Raspberry-Pi Interfaces .Also, Explain NIMBITS cloud platform | 16 | CO 4 | | 1 |

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| Course Outcomes | |
| CO 3 | To understand the communication networks and protocols used in IoT. (K2) |
| CO 4 | To understand the cloud resources, data analysis and applications. (K3) |

Levels - 1.Remember 2. Understand 3. Apply 4.Analyse 5. Evaluate 6.Create

Signature of Faculty In charge Signature of Scrutiny Committee Member