Code No.: R22EC57103PE | R22 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
I–M.TECH–I–Semester End Examinations (Regular) - March- 2025
COMMUNICATIONS BUSES & INTERFACE (PE-I)
(VLSISD)

[Time: 3 Hours] **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(10 Marks)**

1. a) What is the full form of RS232? [1M]
   b) List two applications of the I2C bus. [1M]
   c) Define the purpose of arbitration in CAN. [1M]
   d) Explain how a node in CAN determines if it has won arbitration. [1M]
   e) Identify the primary advantage of PCIe over PCI. [1M]
   f) Illustrate the function of the PCIe Configuration Space. [1M]
   g) Define the term 'enumeration' in USB communication. [1M]
   h) Illustrate the purpose of a USB descriptor. [1M]
   i) What does SFPDP stand for? [1M]
   j) What is the role of the front panel in SFPDP? [1M]

PART-B **(50 Marks)**

2. Explain the physical interface and data transmission process of RS232. [10M]

OR

3. Discuss the interface of an SPI-bus with a microcontroller. [10M]

4. Describe the architecture of the CAN protocol. [10M]

OR

5. Examine the role of bit-stuffing and error-checking mechanisms in CAN. [10M]

6. Explain the evolution of PCIe from PCI and discuss their data transfer performance. [10M]

OR

7. Examine the PCIe hardware protocols and their role in maintaining high-speed data communication. [10M]

8. Explain the USB communication process, including device e [10M]

numeration.

OR

9. Discuss the structure and contents of USB descriptors. [10M]

10. Explain the working principle of SFPDP using fiber optic cables. [10M]

OR

11. Discuss the applications of SFPDP in modern communication systems. [10M]

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