

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BTECH
BRANCH: ECE

SEMESTER: VII/ADD
SESSION: MO/2025

SUBJECT: EC421 REAL TIME EMBEDDED SYSTEM

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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		CO	BL
Q.1(a)	What is a real-time embedded system? Describe the importance of real time embedded system.	[2] 1	2
Q.1(b)	Define abstraction in the VHDL. Write the names of different abstraction levels.	[3] 1	2
Q.2(a)	Write the difference between ASIC and FPGA.	[2] 1	2
Q.2(b)	Design & write the VHDL code for 16-1 Mux using structural architecture method.	[3] 2	4
Q.3(a)	What is RTL Design and why is it important?	[2] 2	2
Q.3(b)	Explain the design flow of FPGA?	[3] 2	3
Q.4(a)	What is the function of configurable Logic blocks in FPGA? Explain with proper diagram.	[2] 1	2
Q.4(b)	Draw & explains the diagram of Signal Conditioning circuit for Sensor Interfacing.	[3] 2	2
Q.5(a)	What is the role of start, parity, and stop bits in UART?	[2] 1	2
Q.5(b)	Write & explain the control byte register format for ADC Max 1112 serial interface.	[3] 2	4

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