

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: B. TECH
BRANCH: ECE**

**SEMESTER: VII
SESSION: MO/2023**

SUBJECT: EC421 REAL TIME EMBEDDED SYSTEM

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data handbook/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Write and explain the different levels of abstraction in VHDL.	[5] 1	2
Q.1(b)	Develop VHDL code to make the first eight LEDS glow in a downward direction while the other eight glow in an upward direction.	[5] 2	4
Q.2(a)	What is signal conditioning? How temperature can be measured using LM35?	[5] 2	2
Q.2(b)	Explain the working of ADC 0808/0809 with proper block diagram.	[5] 2	3
Q.3(a)	Explain with proper example, how the relay and solenoid valve can be used as a control device?	[5] 4	3
Q.3(b)	Design and develop VHDL code for a digital system to operate the motor in the clockwise directions and stop it for the predetermined period.	[5] 4	4
Q.4(a)	Describe various functional blocks of IoT.	[5] 4	2
Q.4(b)	Discuss various application areas of IoT. Explain reasons of shifting from M2M to IoT.	[5] 3	2
Q.5(a)	Discuss the role of communication protocols and embedded systems in IoT.	[5] 4	3
Q.5(b)	Explain the working of an Accelerometer. Also write the applications of an Accelerometer.	[5] 3	3

:::24/11/2023 M:::