

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

**CLASS: BTECH  
BRANCH: CSE**

**SEMESTER: IV  
SESSION: SP/2023**

**TIME: 3 Hours**

**SUBJECT: EC261 DIGITAL COMPUTER ELECTRONICS**

**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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Q.1(a)	Design a full-subtractor using 2-input NOR gates. State the difference between Serial and parallel adders.	[5]	CO1	BL3
Q.1(b)	Realize BCD to seven segment decoders.	[5]	CO 1	BL2
Q.2(a)	State the difference between excitation table and characteristics table. Construct JK flip flop with NAND gates and obtain its characteristics equations.	[5]	CO 2	BL1
Q.2(b)	Design of a synchronous modulo-10 up/down counter.	[5]	CO 2	BL3
Q.3(a)	Design 16x8 memory using 16x4 memory RAM chips.	[5]	CO 3	BL3
Q.3(b)	How are ROMs and RAMs classified? Explain function of a various pins in 2Kx8 SRAM with suitable diagram.	[5]	CO 3	BL1
Q.4(a)	Explain and construct Block diagram of SAP-1.	[5]	CO 4	BL2
Q.4(b)	Differentiate between Microinstructions and Macroinstructions. Explain various memory reference instructions of SAP-1.	[5]	CO 4	
Q.5(a)	Explain Data acquisition system and Data logger in detail.	[5]	CO 5	BL1
Q.5(b)	Explain the followings: (i) Difference between Microprocessor and Microcontrollers (ii) Op-code fetch and Execution Cycle	[5]	CO	BL1

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