

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

**CLASS: BTECH  
BRANCH: EEE**

**SEMESTER : IV<sup>TH</sup>  
SESSION : SP/2025**

**SUBJECT: EE303 INTRODUCTION TO MICROPROCESSOR AND MICROCONTROLLER**

**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 hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Explain the process of demultiplexing of address and data bus in 8085 microprocessor using a suitable block diagram.	[5] 1	1
Q.1(b)	Draw the Architecture Functional Diagram of 8086 microprocessor.	[5] 1	1
Q.2(a)	Explain the role of each Bit of flag registers in 8086 microprocessor.	[5] 2	2
Q.2(b)	Write a delay program to create a time delay of 120ms, assuming 12MHz clock is used.	[5] 2	2
Q.3(a)	Apply a programmable peripheral interfacing technique for data communication between 8255 and 8086 in MODE 0, with PORT A as output, PORT B as input, and PORT C also as input. Explain with the help of a block diagram and a suitable 8086 initialization program required to program the 8255 with the above configuration.	[5] 3	3
Q.3(b)	Apply 8259A interfacing connections with 8086 for interrupt control and explain with the help of a block diagram.	[5] 3	3
Q.4(a)	Analyze the role of different blocks in the architecture of 8051 microcontroller and explain briefly.	[5] 4	4
Q.4(b)	Analyze the role of TCON and TMOD special function registers of 8051 microcontroller for time measurement applications.	[5] 4	4
Q.5(a)	Write a program for 8051 such that, when falling edge occurs on a train of pulses, then the microcontroller will toggle the P1.0 pin.	[5] 5	5
Q.5(b)	Design a pulse generator using 8051 microcontroller producing a pulse of 10kHz with 50% ON-TIME and 50% OFF-TIME. Design should consist of block diagram and a suitable program.	[5] 5	5

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