

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

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

**SEMESTER: V
SESSION: MO/2022**

SUBJECT: EC303 MICROPROCESSOR & MICROCONTROLLER

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates may attempt for all 25 marks.
 3. Before attempting the question paper, be sure that you have got the correct question paper.
 4. The missing data, if any, may be assumed suitably.
 5. Tables/Data handbook/Graph paper etc. to be supplied to the candidates in the examination hall.
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	CO	BL
Q1 (a) What is meant by variable machine cycle? How is it achieved?	[2] CO1	L2
Q1 (b) Write an 8085 based program to implement the function $F = 8 \times Y + X/4$ Where, X and Y are the upper and lower nibbles of the byte stored at location 'DATA'. The Function (F) is to be stored from location 'RESULT' (space two bytes).	[3] CO2	L4
Q2 (a) Write an 8085 μ p based program to clear all the flags of 8085 μ p without affecting the contents of accumulator.	[2] CO2	L4
Q2 (b) Write down the addressing modes of 8085 μ p with suitable examples. Explain the stack operation while executing the following instructions assuming the stack pointer is initialised to 27FFH i) PUSH PSW, ii) CZ 3000H	[3] CO2	L1, L2
Q3 (a) Explain the following pins of 8085 μ p with their brief description, \overline{RD} , \overline{WR} , ALE, IO/\overline{M}	[2] CO1	L1
Q3 (b) What is meant by folded memory? How it could be avoided in a reliable microprocessor system? Interface the following with the 8085 μ p and use decoder in your design i) 2K X 8 ROM chip 1 No. (Starting address 0000H) ii) 256 X 8 RAM Chip 2 Nos. (Starting address 2000H)	[3] CO3	L2, L4
Q4 (a) Write an 8085 based assembly language programme to generate square wave of 50 Hz frequency from the SOD (serial output data) pin of 8085 μ p. Assume a delay subroutine 'ONEMILLISECOND' is available already.	[2] CO2, CO3	L4
Q4 (b) Differentiate between Hardware and Software interrupts by clearly mentioning the applications of both. Write down all the steps taken by the 8085 μ p if an interrupt is received at RST 6.5 pin.	[3] CO1	L2, L3
Q5 (a) Why is an EI instruction always written before the RET command of an Interrupt Service Routine (ISR)? Write down the four different ways of disabling any interrupt.	[2] CO1	L2, L3
Q5 (b) Using RST 7.5 interrupt, input 10 bytes (in BCD) through port number 10H. write an ISR to input each byte, divide it by 8 and store it in locations starting from DIVIDE (space one byte only). Ensure that interrupts are disabled after receiving 10 bytes.	[3] CO2, CO3	L5

::: 27/09/2022 M :::