

**M.Sc. 4th Semester Examination, 2025**

**ELECTRONICS**

*( Microprocessor and Microcontrollers )*

PAPER — ELC-401

*Full Marks : 50*

*Time : 2 hours*

Answer any **four** questions each from Group-A and Group-B and **two** questions from Group-C

*The figures in the right hand margin indicate marks*

*Candidates are required to give their answers in their own words as far as practicable*

**GROUP—A**

Answer any **four** questions :  $2 \times 4$

1. The address capability of 8085 $\mu$ P is 64 kB.  
Explain. 2

*( Turn Over )*

( 2 )

2. List the sequence of events that occurs when the 8085 $\mu$ P reads from memory. 2
3. What are the maximum memory addressing and I/O addressing capacity of 8086 $\mu$ P ? 1 + 1
4. How many ports are there in 8255 and what are they ? 1 + 1
5. Write a summary of synchronous and asynchronous transmission. 2
6. What are the advantages of microcontrollers ? 2

**GROUP-B**

Answer any four questions : 4  $\times$  4

7. Draw the diagram of 8085 demultiplexed address and data bus with control signals. 4

8. Write an assembly language program for :  
Sixteen bytes of data are stored in memory  
locations at FF50H to FF5FH. Transfer the  
entire block of data to new memory  
location starting at FF70H. 4
9. Explain the flag register of 8086  $\mu$ P. 4
10. Draw the functional block diagram of PIC  
8259. 4
11. (a) What logic convention is followed in  
RS 232C and indicate the corresponding  
voltage levels also.
- (b) Draw the RS232C circuit model.  
(1 + 1) + 2
12. Explain the Program Status Word (PSW)  
register of Intel 8051. 4

GROUP-C

Answer any two questions: 8 × 2

13. Draw the architecture of 8085  $\mu$ P and mention its various functional blocks. 5 + 3

14. (a) How does the 8086 $\mu$ P differ from 8085 $\mu$ P ?

(b) Explain the concept of segmented memory.

(c) Explain the function of the following signals of 8086 :

(i)  $\overline{\text{BHE}}$  and

(ii)  $\text{MN}/\overline{\text{MX}}$ .

$$2 + 3 + \left(1\frac{1}{2} + 1\frac{1}{2}\right)$$

15. (a) Show the control word format for I/O mode operation of PPI 8255.

(b) Write down the mode O control words for the following two cases :

( 5 )

- (i) Port A = Input port, Port B = Not used,  
Port C<sub>U</sub> = Input port and Port C<sub>L</sub> =  
Output port.
- (ii) Port A = Output port, Port B = Input  
port, Port C = Output port. 4 + (2 + 2)

16. (a) Draw the architecture of Intel 8051.

- (b) Mention different addressing modes of  
Intel 8051. 6 + 2

**[ Internal Assessment – 10 Marks ]**

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