

M.Sc.(Physics) (NEP Pattern) - Semester-III  
**03MSCPH4.4 - Major Elective Paper-IV :**  
**Digital Electronics and Microprocessors**

P. Pages : 2

Time : Two Hours



**GUG/W/24/16029**

Max. Marks : 40

- 
- Notes : 1. All questions carry equal marks.  
2. All questions are compulsory.

**Either:**

1. a) Explain Laws of Boolean algebra? 4  
b) Define Multiplexer? Give the logic diagram and truth table for 4:1 Multiplexers. 4

**OR**

- e) What are k-maps? Apply k-maps to half adder. 4  
f) Define demultiplexer give logic diagram and truth table for 1:4 demultiplexer. 4

**Either:**

2. a) Explain microprocessor evolution and types. 4  
b) Discuss architecture of IC 8086? 4

**OR**

- e) Draw a schematic diagram of a microprocessor (8085) and discuss the function of each components. 4  
f) Explain microcomputer organization and its operation. 4

**Either:**

3. a) Write a note on immediate conditional jump-shift. 4  
b) Explain stack and program counter. 4

**OR**

- e) Write a notes on Subroutines. 4  
f) Explain flow charts in microprocessor. 4

**Either:**

- |           |    |                                              |          |
|-----------|----|----------------------------------------------|----------|
| <b>4.</b> | a) | Write a note on internet and world wide web? | <b>4</b> |
|           | b) | Explain the term Local Area Network.         | <b>4</b> |

**OR**

- |           |    |                                                      |          |
|-----------|----|------------------------------------------------------|----------|
|           | e) | Write a note on Data transfer and data manipulation. | <b>4</b> |
|           | f) | Explain Assembly language format.                    | <b>4</b> |
| <b>5.</b> |    | Answer all the followings.                           |          |
|           | a) | State and prove De-Morgan's theorem.                 | <b>2</b> |
|           | b) | Explain the term status flags.                       | <b>2</b> |
|           | c) | Explain microprocessor instructions.                 | <b>2</b> |
|           | d) | Explain need for communication network.              | <b>2</b> |

\*\*\*\*\*