

Paper VI — DIGITAL ELECTRONICS AND
MICROPROCESSORS

(For those who joined in July 2003 and after)

Time : Three hours

Maximum : 100 marks

Answer ALL questions, choosing either (a) or (b) in each question.

All questions carry equal marks.

(5 × 20 = 100)

1. (a) What are Karnaugh maps? Explain how Karnaugh maps are constructed for :
- (i) two variables
 - (ii) three variables and
 - (iii) four variables.

Or

- (b) Describe the Octal and Hexadecimal number systems. Explain with example how a number in these systems can be converted into a decimal number and vice versa.

2. (a) Describe the construction and working of clocked RS flip flop and D flip flop.

Or

- (b) Analyse clocked sequential circuits with state table, state diagram and state equations.

3. (a) Explain the internal architecture of INTEL 8085 microprocessor with a neat diagram.

Or

- (b) Explain memory organization and the types of memory.

4. (a) Explain the uses of stack in the microprocessor based system with examples.

Or

- (b) What is an assembler? Explain the assembly language format in an assembler. Mention some of the assembler directives with example. What are the advantages of the assembler?

5. (a) Explain the basic concept of A/D converter. Describe successive approximation A/D converter with a neat circuit diagram.

Or

- (b) Describe the interfacing of push-button keyboard with the microprocessor using the circuit diagram, flow chart and programme.