

AJ-1340

B.C.A. (Part-II) Term End Examination, 2021-22

DIGITAL ELECTRONICS and MICROPROCESSOR

Paper-IV

Time : 3 hours]

[Maximum Marks : 100

Note : Answer all questions. The figures in the right-hand margin indicate marks.

1.(A) Answer the following questions :—

10×2=20

- (i) Define digital signal.
- (ii) What is AND Gate ?
- (iii) Define TTL.
- (iv) What is gray code ?
- (v) What is difference between flip-flop and latch ?
- (vi) Define microprocessor.
- (vii) What do you mean by register ?
- (viii) What is don't care condition ?
- (ix) Define logic gate.
- (x) Define 2's complement with example.

(B) Write short answer of the following questions :—

5×1=5

- (xi) Write truth table for NOR.
- (xii) Define truth table.
- (xiii) Write de-Morgan theorem.
- (xiv) Draw SR flip flop diagram.
- (xv) Write the definition of instruction cycle.

Unit-I

2. Perform the following :—

15

- (i) $(450)_2 = ()_{10}$
- (ii) $(BE58)_{16} = ()_2$
- (iii) $(485)_8 = ()_{10}$
- (iv) $(110010100010100110)_2 = ()_{16}$
- (v) $101101101 + 10101011 = ?$

[P.T.O.]

OR

- (a) Define number system and explain their types.
- (b) Explain one's and two's complement using addition and subtraction.

Unit-II

3. Define logic. Explain different types of logic families. **15**

OR

Explain the following :-

- (i) Diode and transistor characteristics.
- (ii) Emitter Coupled Logic (ECL).

Unit-III

- 4.(a) Explain laws of boolean algebra in detail. **15**
- (b) Describe POS and SOP with suitable example.

OR

Define K-map. Explain minimization techniques of boolean expression using K-map.

Unit-IV

5. Explain the following :- **15**
- (i) Multiplexer
 - (ii) J-K flip flop
 - (iii) Counter

OR

Differentiate between sequential and combinational circuits with suitable example.

Unit-V

6. Explain addressing modes of Intel 8085 & 8086 microprocessor. Also explain the need of addressing modes. **15**

OR

Explain pin diagram and pin functions of Intel 8085 microprocessor.