

- (4) $\neg(A \vee B) \equiv \neg A \wedge \neg B$:— 10

(1) $B \vee \neg B$ (6) $B \vee \neg B \equiv \text{True}$

(2) $\neg(\neg A) \equiv A$ (7) $B \vee \neg B \equiv \text{True}$

(3) $\neg(\neg A) \equiv A$ (8) $B \vee \neg B \equiv \text{True}$

(4) $B \vee \neg B \equiv \text{True}$ (9) $\neg(\neg A) \equiv A$

(5) $\neg(\neg A) \equiv A$ (10) $\neg(\neg A) \equiv A$

2. $\neg(A \vee B) \equiv \neg A \wedge \neg B$:— 16

(+) $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(4) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 741 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(E) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 741 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

3. $\neg(A \vee B) \equiv \neg A \wedge \neg B$:— 16

(+) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

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4. $\neg(A \vee B) \equiv \neg A \wedge \neg B$:— 16

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(4) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(1) S-R Flip Flop (2) D Flip Flop (3) T Flip-Flop

(E) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

5. $\neg(A \vee B) \equiv \neg A \wedge \neg B$:— 16

(+) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(1) 1011 + 1100 (2) 0101 + 1111

(3) 1101 + 0110 (4) 1100 + 0111

(4) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(E) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

6. $\neg(A \vee B) \equiv \neg A \wedge \neg B$:— 16

(+) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(4) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(E) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(b) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(c) $\neg(A \vee B) \equiv \neg A \wedge \neg B$ 8085 $\neg(A \vee B) \equiv \neg A \wedge \neg B$.

(ENGLISH)

[TIME ALLOWED—3 HOURS]

(MARKS—100)

**ELECTRONIC MATERIAL, COMPONENTS MICRO PROCESSOR AND
DIGITAL ELECTRONICS (THEORY-I)**

- Instructions:—* (1) All questions are *compulsory*.
 (2) Answer each next main Question on a new page.
 (3) Figures to the right indicate *full* marks.
 (4) Assume suitable additional data if *necessary*.

Marks

1. (a) Fill in the blanks :—

10

- (i) The expansion of ALE is.....
 (a) address latch enable (b) address lock enable
 (c) address line enable (d) address layer enable
- (ii) 8085 is bit microprocessor.
 (a) 4 (b) 8
 (c) 12 (d) 16.
- (iii) capacitors have the highest values of capacitance.
 (a) Electrolytic (b) Ceramic
 (c) Mica (d) Plastic film.
- (iv) IC 741 is
 (a) transistor (b) operational amplifier
 (c) timer (d) counter.
- (v) The step up transformer is used to.....voltage.
 (a) increase (b) decrease
 (c) constant (d) null.
- (vi) OP-Amp is designed to amplify.....voltage.
 (a) a.c.voltage (b) d.c. voltage
 (c) both a.c and d.c voltage (d) pulse signal.
- (vii) The relative permeability of iron is.....
 (a) 5000 (b) 7000
 (c) 3000 (d) 1000.
- (viii) The function of a diode can be compared with.....
 (a) fuse (b) relay
 (c) coil (d) switch
- (ix)is used to oppose the flow of current.
 (a) resistor (b) capacitor
 (c) transistor (d) diode.
- (x) The gates gives high output when all its inputs high.
 (a) NOT (b) NOR (c) OR (d) AND

[turn over

CON 442

Marks

- (b) State long form of the following :— 10
- | | |
|-----------|------------|
| (i) ADC | (vi) SSI |
| (ii) EMF | (vii) MSI |
| (iii) VDR | (viii) LSI |
| (iv) LDR | (ix) TTL |
| (v) CMRR | (x) ROM. |
2. Attempt any *two* of the following :— 16
- (a) State and explain ohms law.
- (b) Write down the simple application of 741
- (c) Compare AC with DC
3. Answer any *two* of the following :— 16
- (a) Draw the internal architecture of 8085 microprocessor
- (b) What are the Basic logic gates? Write down the symbols and truth table of it
- (c) Briefly discuss step up and step down transformer.
4. Solve any *two* of the following :— 16
- (a) What is electromagnetism? Write down the Faradays law in detail
- (b) Draw the symbol of the following Flip-Flop with truth table
- (i) S-R Flip Flop (ii) D Flip Flop (iii) T Flip-Flop
- (c) List the different types of Shift registers .Explain any one.
5. Solve any *two* of the following :— 16
- (a) Add the binary numbers
- | | |
|---------------------|--------------------|
| (i) 1011 and 1100 | (ii) 0101 and 1111 |
| (iii) 1101 and 0110 | (iv) 1100 and 0111 |
- (b) Write in detail about relays.
- (c) Write down the different types of logic families and explain any one in detail.
6. Write a short note on the following (any *four*) :— 16
- (a) Transformer
- (b) Digital to Analog converter
- (c) Memory
- (d) Coulomb's Law
- (e) Multiplexer.
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