

MAHARASHTRA STATE BOARD OF SKILL DEVELOPMENT EXAMINATION, MUMBAI

Examination—July, 2020

CERTIFICATE COURSE IN LICENTIATE IN COMPUTER HARDWARE
MAINTENANCE (LCHM)

[**Ἐ**ύ—3 iέ°έ]

(BEÚÉ MÖÉ—100)

#9H0E0 <+É] ÆxÉCÓÉ + ð÷ÊbVÉ0] æÉ] ÎCxÉ0 (ÊÍÉ+®01)

NÍÐÉ

1. (+) $\text{E}^{\text{®}}\text{E}^{\text{®}}\text{a}^{\text{®}}\text{E}^{\text{®}} \text{VÉÉMÉE } | \text{E}^{\text{®}}\text{U}^{\text{®}} (\text{E}^{\text{®}}\text{E}^{\text{®}}\text{E}^{\text{®}}\text{E}^{\text{®}}) \{ \text{HÉSE} \} :-$

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- [illegible]

(၁၆) **SHILO** E00 **SHILO** uiēā °ÉÉÉÉ (E00hÉiÉā) (HÉÉ) :-

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- [illegible]

(Eò) JÉé+È Ònù+fà^afÉfÉfÉ f°iÉff®úÉ -úÉ °ÉÉÉÉ (EòÉñÉíÉzD {fÉfÉ} :-

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- (1) MOSFET (2) IC (3) LSI
(4) EHT (5) CRT (6) Op-Amp.

(b) ~~EXAMPLE~~ ~~VÉRÉ~~ ~~É~~ ~~VÉ~~ ~~ŸÉÉ~~. :-

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|--|---|
| (1) $\text{EzEx}^{\oplus}\text{ub}^{\text{af}}\text{fb}$ | (+) $\text{j}^{\oplus}\text{fbsfa Ex}^{\text{af}}\text{f}$ |
| (2) AND | (f) $<\text{bc}\eta\text{Ex}^{\text{af}}\text{ff}\text{f}^{\oplus}\text{u}$ |
| (3) $\text{ffa}] \text{bf} < \text{hb}^{\text{af}}\text{ff}$ | (Eo) $\text{xEx}^{\oplus}\text{u f}^{\circ}\text{o}] \text{of}$ |
| (4) $\text{ff}] \text{fu}$ | (b-) $\text{ff}] \text{bf o}] \text{ff} + \text{ff}^{\text{af}}\text{EzEx}^{\text{af}}$ |
| (5) $\text{ff}^{\text{af}}\text{Ex}^{\oplus}\text{f}$ | (<) $+ \text{ffffVEo M}^{\text{af}}\text{f}$ |

[illegible]

16

- [illegible]

[illegible]

16

- [illegible]

4. $J_{E \pm \epsilon_0 \pm \epsilon(E, \alpha)}^{(a)}(E) n_{E \pm \epsilon_0 \pm \epsilon(E, \alpha)}^{(a)} |E, \alpha\rangle = k_E^{(a)} \hat{E}_{\pm \epsilon_0 \pm \epsilon(E, \alpha)} : -$

16

- [illegible]

[illegible]

16

- (+) \mathbb{I}^{afE0} (Triac)
- (\mathbb{F}) MOSFET
- (E0) Half-Adder
- (b) Flip-Flop
- (\angle) SMPS.

6. $J_{E \in \{0,1\}^n} E \otimes a_i^{a_i/2} n! \int_{E \in \{0,1\}^n} = k! \otimes \hat{E} \in \{0,1\}^n : -$

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- (+) $\text{[bVfD]} \text{ aE } \text{EdE} = \text{A} \text{ ʔu} + \text{[EbiD}^{\text{0}}\text{E}^{\text{1}}\text{p}^{\text{2}} \text{ o}^{\text{3}}\text{[}^{\text{1}}\text{]o} \text{E}^{\text{0}}\text{ʔu}$.
- (E) $\text{o}^{\text{3}}\text{[aE}^{\text{1}} \text{ o}^{\text{3}}\text{[E}^{\text{1}} \text{ ʔa}^{\text{0}} \text{ ʔb}^{\text{0}}\text{[}^{\text{1}}\text{aE}^{\text{1}} + \text{[EbiD}^{\text{0}}\text{E}^{\text{1}}\text{p}^{\text{2}} \text{ o}^{\text{3}}\text{[}^{\text{1}}\text{]o} \text{E}^{\text{0}}\text{ʔu}$.
- (Eo) $\text{BxEEd}^{\text{0}}\text{b}^{\text{0}}\text{ʔu} + \text{[Eh}^{\text{1}} \text{ ʔb}^{\text{0}}\text{Ed}^{\text{0}}\text{b}^{\text{0}}\text{ʔu} + \text{[EbiD}^{\text{0}}\text{E}^{\text{1}}\text{p}^{\text{2}} \text{ o}^{\text{3}}\text{[}^{\text{1}}\text{]o} \text{E}^{\text{0}}\text{ʔu}$.
- (b) CMOS + $\text{[a}^{\text{1}}\text{o}^{\text{3}}\text{E}^{\text{0}} \text{ ʔbiE}^{\text{1}}\text{ʔ} \text{ ʔiE}^{\text{1}}\text{E}^{\text{1}} \text{ Ed}^{\text{0}}\text{h}^{\text{1}}\text{E}^{\text{0}} \text{ Ed}^{\text{3}}\text{VfD} \text{ PaE}^{\text{1}}\text{E}^{\text{0}} \text{ ?}$

(ENGLISH)

[TIME ALLOWED—3 HOURS]

(MARKS—100)

BASIC ELECTRONICS AND DIGITAL TECHNIQUE (THEORY-I)**Marks**1. (a) Fill in the blanks (*any five*) :—

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- (i) system Number uses Bits 1 and 0.
- (ii) Ohm's law shows relationship between current voltage and
- (iii) Nor and Gates are Universal Gates.
- (iv) Arithmetic and Logical Calculations done by
- (v) N-type of semiconductors contains majority Carrier.
- (vi) 69 decimals numbers has binary numbers .

(b) True or False (*any five*) :—

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- (i) One Common collector amplifier also called emitter follower.
- (ii) A multimeter used only for measuring current.
- (iii) For mathematical operations (Addition and Subtraction), op-Amp is used.
- (iv) For making counter, Flip-Flop is used.
- (v) Current flows in both directions in a diode.
- (vi) Capacitor stops D.C. and passed A.C.

(c) Write long forms (*any five*) :—

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- | | | |
|------------|---------|--------------|
| (i) MOSFET | (ii) IC | (iii) LSI |
| (iv) EHT | (v) CRT | (vi) OP-AMP. |

(d) Match the following pairs :—

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' A ' Group**' B ' Group**

- | | |
|----------------------|---------------------------|
| (i) Zener Diode | (a) Law of Faraday |
| (ii) AND | (b) Induction Motor |
| (iii) Voltage Induce | (c) Number System |
| (iv) Rotor | (d) Voltage Stabilization |
| (v) Binary | (e) Logic Gate |

2. Answer any *two* of the following :— 16
- (a) What is meant by Register in Digital Electronics ?
 - (b) State Multivibrator. State its types.
 - (c) What is a feedback in Amplifier ? State its advantages and disadvantages.
 - (d) What is LED ? State its Work, Draw circuit diagram, fault and uses.
3. Answer any *two* of the following :— 16
- (a) Write the short notes on operational Amplifier.
 - (b) State the work of a Transformer.
 - (c) Explain 3 Bit Ring Counter with help of D-Flip Flop.
 - (d) Explain Clock S-R Flip Flop with help of Logic Circuit.
4. Answer any *two* of the following :— 16
- (a) Draw the block Diagram and uses of CRO.
 - (b) Draw the Diagram and Explain the Operation of Bi-Directional Series Shift Register.
 - (c) Write the advantages of BCD code in comparison with any other number Code.
 - (d) Draw and Explain the N-P-N transistor Input-Output characteristic of C-B-C.
5. Write short notes (any *four*) :— 16
- (a) Triac
 - (b) MOSFET
 - (c) Half-Adder
 - (d) Flip-Flop
 - (e) SMPS.
6. Answer any *two* of the following :— 16
- (a) Draw diagram and explain digital counter.
 - (b) Explain and draw diagram of Seven Segment Display.
 - (c) Explain and draw diagram of encoder and decoder.
 - (d) What precautions should be taken while using CMOS IC.
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