

No. of Printed Pages—4

**HS/XII/A.Sc.Com/EH/24**

**2 0 2 4**

**ELECTRONICS AND HARDWARE**

**( Installation Technician Computing and Peripherals )**

*Full Marks : 30*

*Time : 1 hour*

*The figures in the margin indicate full marks for the questions*

**1.** Choose the correct answer :  $1 \times 8 = 8$

**(a)** Which of the following unit acts as a medium for transmitting electrical signal from one machine to another?

- (i) Transformer
- (ii) Load centre
- (iii) Busway
- (iv) Circuit breaker

**(b)** Which of the following is used to hang the busway?

- (i) End closers
- (ii) Service heads
- (iii) Hanger
- (iv) Flanged ends

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(c) The most commonly used fuse in house-wiring is \_\_\_\_\_.

- (i) rewirable fuse
- (ii) d-type cartridge fuse
- (iii) drop-out fuse
- (iv) link-type cartridge

(d) How many metals are used to form a bimetallic strip?

- (i) One metal
- (ii) Two metals
- (iii) Three metals
- (iv) Four metals

(e) Which of the following is reason for over-current in a system?

- (i) Overload
- (ii) Short circuit
- (iii) Ground fault
- (iv) All of the above

(f) The role of a capacitor filter in the rectifier is to

- (i) convert AC to DC
- (ii) remove the noise
- (iii) remove the DC component in the signal
- (iv) smoothen the pulsating DC into pure DC

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(g) The rotating part of a motor is the

- (i) starter
- (ii) carbon brush
- (iii) armature
- (iv) stator

(h) Which of the following is known as the brain of PLC?

- (i) Input
- (ii) Output
- (iii) Processor
- (iv) Memory

2. Answer the following in 1 word or 1 sentence each (any four) :  $1 \times 4 = 4$

(a) What is armature?

(b) What is motor?

(c) What is short circuit?

(d) What is energy meter?

(e) What is soft starter?

(f) What is high-voltage HRC fuse?

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3. Answer the following in 3 or 4 sentences each (any *three*) :

$$2 \times 3 = 6$$

- (a) What is service entrance?
- (b) What is circuit breaker?
- (c) State Fleming's Right Hand Rule.
- (d) What is 3-phase system? Draw the star and delta configuration.
- (e) What is the role of HMI?

4. Answer the following essay-type questions (any *three*)

$$4 \times 3 = 12$$

- (a) What is a transformer? Explain briefly the various parts of a transformer.
- (b) What is a rectifier? Explain the working of centre tapped full-wave rectifier.
- (c) What are AC drives? Why electrical drive are needed? Draw the block diagram of AC electrical drives.
- (d) What is a fuse? Explain briefly the construction and working of a fuse.
- (e) What is an AC generator? Explain its working principle.

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