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

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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 : **1×8=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

(2)

- (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

(3)

(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) : 1×4=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?

(4)

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

2×3=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*)

4×3=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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