

Total No. of Printed Pages—4

HS/XII/A.Sc.Com/EH/26

2 0 2 6

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) How many symbolic representations does an LED light have?

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

(b) A protecting device used in an electric circuit to protect against electric shock is

- (i) TPS
- (ii) PROFIBUS
- (iii) GFCI
- (iv) GMI

(2)

- (c) Which one of the following materials is not used to make casing of a fuse?
- (i) Ceramic
 - (ii) Glass
 - (iii) Silver
 - (iv) Plastic
- (d) The amount of voltage drop across the load is measured by a/an
- (i) multimeter
 - (ii) ammeter
 - (iii) voltmeter
 - (iv) energy meter
- (e) What is the primary function of an AC drive?
- (i) To convert AC power to DC power
 - (ii) To convert fixed-frequency AC power to variable-frequency AC power
 - (iii) To convert mechanical energy into electrical energy
 - (iv) To convert electrical energy into mechanical energy
- (f) Which component is considered the 'brain' of a PLC system?
- (i) Power supply
 - (ii) Input/output (I/O) module
 - (iii) Central Processing Unit (CPU)
 - (iv) Programming device

(3)

(g) Which of the following is used to connect the wire winding of a motor into star and delta form?

- (i) Thread
- (ii) Rubber
- (iii) Copper wire
- (iv) Metal strip

(h) Which of the following is not a control key on the VFD panel?

- (i) Start reverse run
- (ii) Stop/Reset
- (iii) Start forward run
- (iv) Forward-reverse run

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

- (a) What is an electrical hazard?
- (b) On which principle does transformer work?
- (c) Define switchgear in electrical network.
- (d) Define motor.
- (e) What is rectifier?
- (f) Write a short note on rewirable fuse.

(4)

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

2×3=6

- (a) What are the basic input/output systems in PLC?
- (b) State squirrel cage induction motor.
- (c) What are the control schemes of the VFD?
- (d) What is a potential transformer?
- (e) What first aid measure should be taken in case of electric shock?

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

4×3=12

- (a) What is testing? Explain the construction and working principle of a current transformer.
- (b) What is a motor? Describe various electrical power distribution systems.
- (c) What is a transformer? Explain different parts of a transformer.
- (d) State the different applications of electric drive. Explain the construction, parts and function of an AC generator.
- (e) Write short notes on the following :
 - (i) Circuit breaker
 - (ii) Busway
 - (iii) Load centre
 - (iv) Surge arrester

★ ★ ★