

B.E DEGREE EXAMINATIONS: MAY/JUNE 2013

Seventh Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE115: Logic And Distributed Control System

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Decryption and encryption are the responsibility of ----- layer.
 - a) Transport
 - b) Session
 - c) Presentation
 - d) Application
2. What is the IEEE standard which defines Ethernet?
 - a) 802.1
 - b) 802.2
 - c) 802.3
 - d) 802.5
3. ----- acts as input switch to PLC.
 - a) relay
 - b) solenoids
 - c) push buttons
 - d) LED display
4. The first company to build PLCs was
 - a) Siemens
 - b) Allen Bradley
 - c) GE Fanuc
 - d) Modicon
5. Which of the following statements about a single pole double throw relay is true?
 - a) Insulators are used in the armature to isolate the electrical switching contacts from the rest of the relay components
 - b) NC contact and the pole are in contact when the relay is off
 - c) It has just one coil
 - d) All the above
6. The operation of logic one requires ----- voltage in PLC.
 - a) 5V
 - b) 12V
 - c) 240V
 - d) 120V
7. Which of the following device belongs to LLOI instrumentation?
 - a) Indicator station
 - b) Control station
 - c) Annunciators
 - d) All the above

8. In a LCU, the processor must reset ----- to indicate that the processor is operating properly.
- a) DAC
 - b) RAM
 - c) ADC
 - d) Watchdog Timer
9. HART protocol uses ----- technique for digital/analog modulation.
- a) alternating pulse modulation
 - b) Pulse modulation
 - c) Frequency shift keying
 - d) Manchester encoding
10. The access mechanism used in field bus is
- a) peer-to-peer
 - b) point to point
 - c) master –slave
 - d) Token-passing

PART B (10 x 2 = 20 Marks)

- 11. What is token passing mechanism?
- 12. What is the function of router?
- 13. Define SCADA.
- 14. What is master station controller?
- 15. Draw the ladder logic for Add and subtract instruction in PLC.
- 16. List the various programming languages in PLC?
- 17. Define LCU.
- 18. What are the various types of operator display?
- 19. Define interoperability.
- 20. List the different types of communication modes in HART protocol.

PART C (5 x 14 = 70 Marks)

21. a) Explain the different types of switching techniques
- (OR)**
- b) Describe the frame format, topology, cabling, and media access method used in Ethernet communication.
22. a) Explain the architecture of PLC with a neat diagram.
- (OR)**
- b) Discuss the architecture of SCADA.

23. a) Explain in detail about i) retentive timer and ii) cascading timer in PLC

(OR)

b) Write about various DATA compare Instruction with their ladder logic rung in PLC.

24. a) Explain in detail the requirements of engineering interfaces.

(OR)

b) Draw the block diagram of DCS and explain the building blocks in detail.

25. a) Describe the architecture, modes and message formats of HART communication protocol.

(OR)

b) Explain the architecture and topologies used in field bus communication.
