KUMARAGURU college of technology
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Register Number: …….

B.E DEGREE EXAMINATIONS: APRIL/MAY 2016

(Regulation 2013)

Sixth Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

U13EIT603:Advanced Industrial Controller

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The Combination of EEPROM and RAM is called
   a) NOVEROM b) EEPRAM
   c) NOVRAM d) NOVRRAM
2. ----------is the main brain of PLC system.
3. Which of the following is the output instruction that can be used to set accumulated value of timer or counter to zero
   a) CLR b) SKIP
   c) CTU d) CTR
4. ---------- must be inserted at the end of the rung.
5. The programming terminal with its own built-in-memory and microprocessor unit is
   a) Smart terminal b) DUMB terminal
   c) Short terminal d) CPU terminal
6. ---------- accepts analog voltage or current from analog field devices.
7. Which of the following is the JUMP instruction?
   a) Skip b) Return
   c) NEG d) ZCL
8. ----------instruction can be programmed to control an entire circuit or to control only selected rungs of the circuit.
9. The process of scanning the channels to read the data by the microprocessor is called
   a) Data acquisition b) Supervising
   c) Polling d) Logging
10. ----------converts the assembly language program into machine level language.

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

11. What is fixed PLC?
12. Write the general types of I/O modules of PLC.
13. List out the programming languages of PLC.
14. Define ON-DELAY timer.
15. What is meant by shrinking device?
16. Name the types of analog input module.
17. List the different applications of PLC.
18. Mention the types of sequencer instructions.
19. What is data processing in SCADA?
20. Define Data acquisition system.

PART C (5 x 14 = 70 Marks)
(Answer not more than 400 words)

Q.No. 21 is Compulsory

21. With neat block diagram, explain the components of PLC.

22. (a) (i) Write a short note on PLC operational cycle. (7)

(ii) List out the rules for constructing ladder logic program in PLC. (7)

(OR)

(b) (i) Draw the ladder logic diagram for the Boolean function ,X=A*(B+C'+D)*(E'+F) (7)

(ii) There are four inputs: R, S, T and U.R starts immediately when an input is energized. S starts 5 seconds later. T starts 15 seconds later than S.U goes on 2 seconds after T.One switch turns all outputs OFF. (7)

23. (a) With neat diagram, describe the operation of PID controller using PLC in detail.

(OR)

(b) Explain how hardware-to-program interface and program-to-hardware interface are established in a PLC.

24. (a) Discuss in detail about the program control instruction and math instruction in PLC.

(OR)

(b) Construct a ladder logic program for automatic bottle filling system using PLC.

25. (a) With neat block diagram, describe the operation of SCADA in detail.

(OR)

(b) Discuss in detail about the human machine interface used in SCADA.

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