KUMARAGURU college of technology
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Register Number:……..….

M.E DEGREE EXAMINATIONS: JAN 2015

(Regulation 2014)

First Semester

EMBEDDED SYSTEM TECHNOLOGIES

P14ESTE01: Industrial Automation and Control

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

Answer all the Questions:-
PART A (10 x 1 = 10 Marks)

1. The automation process is used to increase [K_1]

   a) Labour work b) Production

   c) Cost d) Large machines

2. Match the appropriate item from the RHS with those on the LHS. [K_2]

   (A) Transducer (P)Max well

   (B) Op-Amp (Q) Poynting's vector

   (C) Displacement current (R) Comparator

   (D) Power flow (S) Signal conversion

   (T) Gauss's law

   a) A-S,B-R,C-P,D-T b) A-T,B-S,C-P,D-Q

   c) A-S,B-R,C-P,D-Q d) A-T,B-S,C-P,D-R

3. Ladder instruction used to control the status of an external or internal discreet output [K_2]

   a) normally closed contact b) energized output

   c) examine-OFF d) condition instruction

4. Main PLC component that enables the electronic circuitry of the other main components to operate? [K_3]

   a) Solid state components b) Microcontroller

   c) Input/Output system d) System power supply.

5. In a typical NC system the motion and machining instructions and the related numerical data, together called as [K_2]

   a) Part program b) Syntax information

   c) Segment length d) Coolant flow

6. Disadvantages of CNC [K_3]

A. Relatively higher cost compared to manual versions

B. Due to the fact that several machines are fused into one.

C. Need for skilled part programmers.

a) A,B&C are correct b) A&C are correct

c) B&C are correct d) A&B are correct except C

7. One of the following equipment is used for material transportation system [K_1]

a) Lathe b) Pipe lines

c) Cranes d) Both a & b

8. Match the appropriate item from the RHS with those on the LHS. [K_2]

(A) Trolley	(P) Material storage
(B) Tractor	(Q) Easy Process
(C) Automation	(R) Material handling/moving
(D) yard	(S) Carry Small components

a) A-S,B-R,C-P,D-Q b) A-P,B-S,C-R,D-Q

c) A-S,B-R,C-Q,D-P d) A-Q,B-S,C-P,D-R

9. (i)The main drawback of a digital factory, process monitoring is difficult. [K_2]

(ii) Increase the Production in automated Industry .the above two statements are

a) Both are relevant and true b) Both are relevant (i) true and (ii) false

c) Both are relevant (i) false and (ii) true d) Both are irrelevant and false

10. A typical steel industry product life cycle as follows,(i) Raw material Collection (ii) Molding [K_2]

(iii) Melding the raw materials (iv) Quality checking.

a) i-ii-iii-iv b) i-iii-ii-iv

c) ii-i-iv-iii d) iv-iii-ii-i

PART B (10 x 2 = 20 Marks)

11. Give the various process/actions to involve in the term control. [K_1]
12. Combine the merits of digital controllers? [K_2]
13. Distinguish between Logic Control and Analog Control. [K_4]
14. Employ the major functions performed by a PLC. [K_3]
15. List the major classifications of CNC systems. [K_1]
16. Define a numeric control system. [K_1]
17. Give the various equipments used for material handling process. [K_1]
18. How the modern industries were digitally controlled? [K_2]

19. Conclude the main process in paper industry [K_4]

20. How the process of automation involved in irrigation cannel management? [K_2]

PART C (6 x 5 = 30 Marks)

21. Categorize the various types of Transducers and its applications. [K_4]

22. Discuss the role of smart sensors in automation process. [K_2]

23. Explain the intelligent system monitoring and supervision control. [K_2]

24. Conclude the difference between cranes and hoists. [K_4]

25. Describe the role automation in material storage process. [K_2]

26. Diagnose the process steps in a steel plant. [K_4]

PART D (4 x 10 = 40 Marks)

27. Illustrate the equipments involved in material Transportation system. [K_3]

28. Describe the open loop and closed loop CNC system. [K_2]

29. Explain the ladder logic and I/O processing of PLC system. [K_2]

30. Explain the industrial control electronics applicable in a cement plant. [K_2]

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