Reg. No. :

Question Paper Code: 39304

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Elective

Electrical and Electronics Engineering

01UEE904 - PROGRAMMABLE LOGIC CONTROLLER AND SCADA

(Regulation 2013)

Duration: 1.15 hrs   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Out of the following which one is conventional sources of energy

    (a) Wind energy   (b) fossil fuels   (c) solar energy   (d)biomass energy

2. Which of the following is a disadvantage of most of the renewable energy sources

    (a) Highly polluting   (b) high waste disposal costs

    (c) unreliable supply   (d) high running costs

3. The solar PV cells convert the incident solar light energy directly to

    (a) Thermal energy   (b) electrical energy in DC form

    (c) electrical energy in AC form   (d) chemical energy

4. By definition the term " solar irradiation" denotes

    (a) Energy radiated by the sun

    (b) radiated energy received on earth surface

    (c) solar radiation received on a flat horizontal surface on earth

    (d) none of the above

5. Wind power is proportional to

   (a) Wind velocity   (b) square of wind velocity

   (c) cube of wind velocity   (d) four times wind velocity

6. The horizontal shaft wind-turbine generator units are mounted on

   (a) Tall tower   (b) ground level   (c) both a and b   (d) none of the above

7. Out of the following which one is a bio-mass fuel

   (a) Coal   (b) diesel   (c) cow dung   (d) none of the above

8. The advantage of bio-gas plant is/ are

   (a) Rural development   (b) waste disposal

   (c) environmental balance   (d) all the above

9. A fuel cell is a device that continuously converts

   (a) Chemical energy to electrical energy   (b) kinetic energy to chemical energy

   (a) Chemical energy to thermal energy   (b) thermal energy to chemical energy

10. The tidal energy produced is directly proportional to

    (a) Square of the tidal range at the locations of the dam

    (b) cube of the tidal range at the locations of the dam

    (c) 1.75 times of the tidal range at the locations of the dam

    (d) 1.25 times of the tidal range at the locations of the dam

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Describe how the I/O modules connect to the processor in a modular type PLC configuration. (8)

12. Discuss the use of math instructions of PLC for automatic control of upper and lower set point limits. (8)

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13. Illustrate the functions, benefits and shortcomings of common communications technologies used in SCADA systems. (8)

14. Elaborate in detail about the IEC 61850 SCADA system architecture. (8)

15. Create a ladder diagram for speed control application using PLC. (8)

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