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**Question Paper Code: 37304**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Seventh Semester

Electrical and Electronics Engineering

01UEE704 - ELECTRIC POWER UTILIZATION AND ENERGY CONSERVATION

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What is an electrical drive? Why electric drive becoming very popular?
2. Define the term braking.
3. State Lambert's cosine law.
4. What is meant by luminance?
5. What are the essential properties of resistance heating element?
6. Compare DC welding and AC welding.
7. What is meant by solar collector? Mention its types?
8. What is meant by solar energy?
9. Define power coefficient in wind energy conversions.
10. What are the main environmental aspects due to wind turbine?

PART - B (5 x 16 = 80 Marks)

11. (a) Illustrate the four quadrant operation of an electric drive.

(16)

Or

- (b) (i) A suburban train has a maximum speed of 70 kmph. The schedule speed including a station stop of 30 seconds is 45 kmph. If the acceleration is 1.5 kmphs, Find the value of retardation when the average distance between stops is 4 km. (10)
- (ii) Discuss the various factors affecting the scheduled speed. (6)
12. (a) (i) Discuss the various methods of lighting calculations. (8)
- (ii) Explain the principle of operation of fluorescent tube. (8)
- Or
- (b) Explain the principle of operation and working of a mercury vapour lamp. (16)
13. (a) Discuss in details about any two types of resistance welding. (16)
- Or
- (b) With neat sketch, explain the process of resistance heating. (16)
14. (a) Write short notes on different types of solar energy collectors with neat diagrams. (16)
- Or
- (b) Explain with neat sketch, solar radiation geometry. (16)
15. (a) With a neat diagram, explain how wind energy can be converted into electrical energy. (16)
- Or
- (b) (i) Discuss the various types of wind turbine with neat sketch. (8)
- (ii) Explain how to select the site for the wind energy systems. (8)
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