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Question Paper Code : X65638

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Seventh/ Eighth Semester
Electrical and Electronics Engineering
080280079 – ELECTRIC POWER UTILISATION AND ENERGY AUDITING
(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Define the terms :
 - a) Lumen.
 - b) Lux.
2. State the merits of gaseous discharge lamps over filament lamps.
3. Define specific energy consumption.
4. How does coefficient of adhesion vary with increase in speed ?
5. What is meant by load equalization ?
6. Which type of motor is suitable for refrigerator and lift ? Give reasons.
7. Define polarization factor.
8. What is meant by throwing power ?
9. Draw a typical dairy load curve.
10. Define the term power quality.

PART – B

(5×16=80 Marks)

11. a) You are required to provide an illumination of 100 LUX in a seminar hall $40 \times 10\text{m}$ and efficiency of lamp is 14 Lumens/watt. Assume that DF-0.8 and UF-0.8. Calculate the number of lamps and rating and their position when trusses are provided at mutual distance of 5 m. (16)
(OR)
 - b) Explain the process of dielectric heating and derive an expression for power loss. (16)



12. a) i) Indicate the general trend in adaptation of traction systems for city road transport. (8)
- ii) Two traction motors run at a speed of 600 and 700 r.p.m. respectively when taking a current of 60 amps from 400 volts mains. Each motor has an effective resistance of 0.25 ohm. Calculate the speed and potential difference across each machine when both the motors are connected in series and are mechanically coupled and taking a current of 60 amps from 400 V mains. (8)
- (OR)
- b) i) State the principle of regenerative braking. Explain regenerative braking. (8)
- ii) Discuss the various arrangement of current collection used in electric traction. (8)
13. a) i) Classify various types of electric drives and discuss their merits and demerits. (8)
- ii) Discuss various factors which affect the selection of motor for a particular drive. (8)
- (OR)
- b) What is meant by steady state and transient state characteristics of an electric drive ? Explain clearly why it is desirable to study the transient behaviour of the drive. (16)
14. a) i) What is 'electrolytic processes' ? What is their basic principle ? (4)
- ii) Describe the extraction of metals, refining of metals and electroplating. (12)
- (OR)
- b) Discuss methods of charging and maintenance of batteries. (16)
15. a) i) What are the factors to be considered for fixing a tariff ? Write the types of tariff. (8)
- ii) Write short notes on energy auditing and energy conservation in utility and industries. (8)
- (OR)
- b) i) Explain in detail about the energy auditing in the college campus. (8)
- ii) Discuss the various methods to improve power factor. (8)
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