Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

B.Tech. Summer 2018 - 19 Examination

Semester: 7 **Date: 15/05/2019**
Subject Code: 03106431 **Time: 10:30am to 01:00pm**
Subject Name: Electrical Energy conservation &Audit **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (All are compulsory) (Each of one mark) **(15)**

1.Lux Meter is used to measure_____

2. The ratio of average load over a designated period to the peak load demand occurring in that period is known as
a. power factor b. ratchet rate c. load factor d. production factor

3. Power factor is the ratio of
a. Active power to the reactive power b. Active power to the apparent power
c. Apparent power to the active power d. Reactive power to the apparent power

4.Defination :- Energy Audit

5. The energy strategies of companies have the principle of
a. restoring and preserving the environment b. reducing wastes and pollutants
c. educating the people about energy conservation d. all of these

6.Defination:- Energy Management

7. The production factor is defined as the ratio of
a. current year production to the reference year production
b. current year production to the reference month production
c. reference month production to the current month production
d. reference year production to the current year production

8. The main objective of energy management is to
a. Minimize energy cost b. Minimum environmental effects
c. Maintain optimum energy procurement and utilization d. Only A and B
e. All of these

9. The basic function of electronic ballast is
a. To ignite the lamp b. To stabilize the gas discharge
c. To supply the power to the lamp d. All of these

10. Demand Side Management is required to
a. Reduce overall cost of installed capacity b. Reduce needs for peaking stations
c. Ensure quality and equity of supply d. Only B and C e. All of these

11. A conventional incandescent lamp has a luminous efficiency of
a. 10 lumens / watt b.12 lumens/watt c. 14 lumens / watt d. 14.6 lumens / watt

12. The capital cost of generating equipment, transmission system and distribution system comes under
a. Fixed capital b. Running capital c. Both fixed and running capital d. All of these
e. None of these

13. The pay period is defined as the ratio of
a. Net investment to the net annual cash flow b. Net investment to the capital cost
c. Net annual cash flow to the capital cost d. Net annual savings to the capital cost

14. If power factor is less than unity then it will result in.
a. Large kVA rating of equipment b. Greater conductor size c. Large copper losses
d. Only A and C e. All of these
15. Energy management is a key component of
a. Environmental management b. Carbon management
c. Nitrogen management d. Water management

Q.2 Answer the following questions. (Attempt any three) **(15)**

A)Explain Losses in Induction Motor

B) What is Harmonics? Explain Harmonic Distortion.

C) Explain soft starter and its working. How does it save energy?

D) What are the needs and objectives of energy management?

Q.3 A) Explain FBC Boiler. Also Explain Types of FBC Boiler **(07)**

B) Describe the importance of LED Lighting and electronic lighting ballasts for energy conservation **(08)**

OR

B) What is Variable Frequency Drives? Also Explain Working of Variable Frequency Drives. **(08)**

Q.4 A) Explain types of energy audit in detail. **(07)**

OR

A) List down the responsibilities and duties of an energy manager in an industry. **(07)**

B) Explain importance of power factor improvement and methods to implement it. **(08)**