Exam.Code:0936
Sub. Code: 6989

1058

B.E. (Electrical and Electronics Engineering)
Sixth Semester
EE-613: Energy Management and Auditing

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I (Part-A) which is compulsory and selecting two questions each from Part B.C. Assume and specify any missing data.

x-x-x

Part- A

I Explain the following terms and give their importance: 10x1 =(10)

a) Contract demand
b) Prediction of load
c) Time of day Tariff
d) Calorific value
e) Reactive power
f) Give one advantage and limitation of availability based tariff?
g) What is difference between monitoring and targeting?
h) What are benefits of benchmarking for better energy performance?
i) What is the principle of electronic soft starters?
j) What are the benefits of Maximum demand controller?

Part- B

II Write a detailed note on the important features of the Energy Conservation Act, 2001. (10)

III (a) What do you understand by 'plant energy performance' (PEP)? What are the base line data that an audit team should collect while conducting detailed energy audit? (5)

(b) Distinguish between 'preliminary energy audit' and 'detailed energy audit' in terms of steps involved and purpose. Illustrate with an example. (5)

IV (a) Write ten key steps in "Monitoring and targeting" that an energy manager has to undertake in a plant. (5)

(b) Give steps for CUSUM analysis. (5)

P.T.O

Part- C

V (a) What are the effects of harmonics on motor operation and performance? How these can be reduced. (5)

(b) During April-2003, the plant has recorded a maximum demand of 600 kVA and average PF is observed to be 0.82 lag, The minimum average PF to be maintained is 0.92 lag as per the independent utility supplier and every 1 % dip in PF attracts a penalty of Rs 10,000/- in each month. (5)

i) Calculate the improvement in PF for May-2003 by installing 100kVAr capacitors.

ii) Calculate penalty to be paid if any during May-2003.

VI (a) Give in details good practices of lighting. Explain how electronic ballast saves energy. (5)

(b) Write a detailed note on working, construction, applications and advantages and limitations of Automatic Power Factor Controller. (5)

VII(a) List all the possible energy conservation measures in lighting system? (5)

(b) How variable speed drives are useful as energy efficient technology. Explain its working and applications. (5)

x-x-x