Centre for Open and Distance Learning
TEZPUR UNIVERSITY
DRE 201: Energy Management and Auditing
Assignments
Full Marks: 30

(Answer all questions; Start answering each question on a new page)

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1. (a) Write down the reporting format of an *Energy Conservation Recommendation* in Detailed Energy Auditing Report.
   (b) Draw the flow chart of the *energy auditing programme*.
   (c) How the *power factor improvement* is related with the energy conservation programme?
   (d) How do you establish the *baseline data of energy consumption* in an industry?
   (e) Explain the meaning of *fuel substitution* and *energy substitution* with examples.

4×4=16

2. A plant is using 4 tons/day of coal to generate steam. The calorific value of the coal is 4000 kcal/kg. The cost of coal is Rs. 2000/tone. The plant substitute coal with rice husks, as a boiler fuel, which has a calorific value of 3000 kcal/kg and cost Rs. 700/tone. Calculate the annual cost savings at 300 days of operation, assuming the boiler efficiency decreases from 78% on coal to 72% on rice husks.

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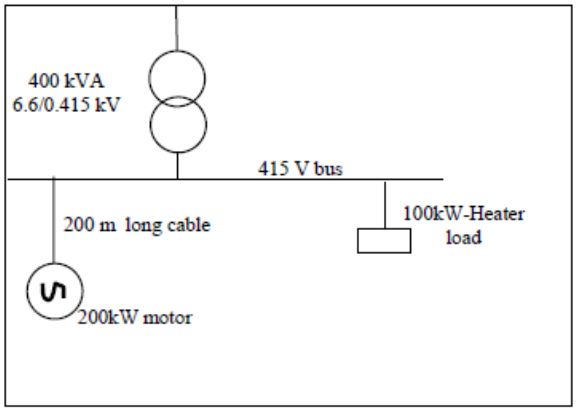
3. The following single line diagram explain the location of 100 kW heater load and 200 kW motor, which is at 200 m away from 415V, LT bus using suitable cable. The power factor of the network is 0.85 lag. The minimum power factor to be maintained is 0.92 lag as per the utility regulations and every one % dip (or decimal) in power factor attracts a penalty of Rs 10,000 per month. Calculate the improvement in PF by installation of 100 kVAr equivalent capacitor bank and also the difference in penalty paid after installation of the capacitor bank.



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