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18CC1103

M. Tech. EXAMINATION, 2020

(Third Semester)

(C Scheme) (Re-appear Only)

EE(PS)

MPS605C

INDUSTRIAL LOAD MODELING AND CONTROL

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit, however, Question No **9** is compulsory. All questions carry equal marks. Draw neat diagrams wherever applicable.

Unit I

1. (a) Explain the classification of industrial loads. **5**

(b) Differentiate between continuous and batch process with the help of suitable examples. **3**

(c) Describe load modelling process in electric energy sector. **7**

Or

2. (a) What do you mean by load curves ? Explain their significance. **5**

(b) Why is demand side management required ? **3**

(c) Discuss the present scenario of electric energy sector and the challenges faced in industrial load management. **7**

Unit II

3. (a) Explain the models used for dynamic and spot pricing. **8**

(b) Describe, how scheduling is done using bottom-up approach. **7**

Or

4. (a) Explain the difference between direct load control and interruptible load control. **8**

(b) Discuss, how optimal power flow is achieved using optimisation and control algorithms. **7**

Unit III

5. (a) What is the significance of filters in reactive power management ? **5**

(b) What aspects are considered in designing industrial cooling and heating loads ? **5**

(c) Explain the process of load profiling. **5**

Or

6. (a) Discuss the adverse effects of power quality issues and how are they mitigated. **5**

(b) Explain different ways of energy saving adopted in industries. **5**

(c) What do you mean by optimal operation and which control strategies are used to maintain the optimal operation ? **5**

Unit IV

7. (a) Describe the operation models used for power pooling. **8**

(b) Explain the process of industrial cogeneration. **7**

Or

8. (a) With the help of suitable example, discuss how constraints problems are formulated. **8**

(b) Explain the significance and strategy of integrated load management in industries. **7**

Unit V

9. (a) Why is load shaping required and how is it done ? **3**

(b) What is the role of demand side management ? **3**

(c) What is the significance of captive power units ? **3**

(d) Why is it necessary to maintain proper reactive power in the system ? **3**

(e) Briefly explain the process of peak load shaving. **3**