Code No.: 3185

FACULTY OF ENGINEERING

B.E. IV/IV Year (E&EE) II Semester (Main) Examination, May/June 2011

UTILIZATION

Time : 3 Hours] [Max. Marks : 75

Answer **all** *questions of Part A.*
Answer **five** *questions from Part B.*

Part A — (Marks : 25)

1. Mention the requirements of good heating element. 3
2. Mention the advantages of electric heating over other forms of heating. 2
3. Write short notes on starting of synchronous motor. 3
4. What do you understand by push button? 2
5. Define co–efficient of utilization. 2
6. What is meant by glare. 3
7. What is meant by coasting. 2
8. Define scheduled speed and what are the factors affecting on it. 3
9. Mention desirable characteristics of fraction motors. 2
10. Write short notes on maintenance of lead acid batteries. 3

Part B — (Marks : 50)

11. (a) Explain the function of Ajan Wyatt induction furnace with neat schematic diagram. 5

    (b) Determine the energy required to melt brass at the rate of one tonne per hour in a single phase Ajan Wyatt furnace. Specific heat of brass is 0.094, Latent heat of fusion is 40k cal/kg, initial temperature 24°c, Melting point of brass 920°C, Assume efficiency to be 71%. 5

12. Explain the following motor control circuit with neat schematic diagrams.

    (a) Two supply sources of 3– phase induction motor.

    (b) Direct reversing of 3– phase induction motor. 5+5

13. (a) Explain Fluorescent lamp with neat schematic diagram. 5

    (b) Design the ultimination scheme for a hall 20 × 10 metres in size, 5 metres high level of ultimination to be provided is 60 lux. Coefficient of utilization is 60%. Incandescent layers of 100 watt, 13.4 lomens per watt to be used. 5

14. Derive expressions for tractive effort and specific energy consumption from basis. 10

15. (a) Explain with energy diagrams for being parallel operations of two and four motors derive necessary equations. 6

    (b) Explain in brief active materials of lead acid batteries. 4

16. (a) A train of dead weight 200 tonnes is to be accelerated on level track at the rate of 1km phps. Find the tractive effort needed for the same assuming that the effective weight of the train is 10% more than its dead weight. The train resistance is 10 kg per tonne. 5

    (b) Explain laws of ultimination and derive its necessary equations. 5

17. Write short notes on the following:

    (a) Electric arc welding

    (b) Push buttons

    (c) Coefficient of adhesion. (10)