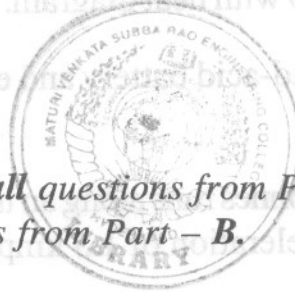




FACULTY OF ENGINEERING  
B.E. 4/4 (E & EE) II Sem. ((New) (Main) Examination, June 2010  
UTILIZATION

Time: 3 Hours]

[Max. Marks: 75



*Note : Answer all questions from Part – A. Answer any five questions from Part – B.*

## PART – A

(25 Marks)

1. Give the classification of various electric heating. 2
2. Write the expression for Stefan's law of heat radiation. 3
3. Draw schematic diagram for starting of synchronous motor. 3
4. What is meant by limit switches ? 2
5. Draw polar curve for horizontal plane. 2
6. Define candle power and luminous intensity. 3
7. Write short notes on Kando system. 3
8. What are the factors affecting on schedule speed ? 2
9. Why d.c. shunt motor not preferable for traction purpose ? Explain. 2
10. What are the active materials used in lead acid cell ? 3

## PART – B

(50 Marks)

11. Explain Ajax Wyatt type induction furnace in detail with neat schematic diagram. 10
12. a) Explain operation of float switches with neat diagram. 5  
b) Explain Jogging operation of induction motor with neat schematic diagram. 5



13. a) A room of size  $15 \times 6$  metres is to be illuminated by twenty 200 W lamps. The MSCP of each lamp is 250. Assume a depreciation factor 1.2 and utilization factor 0.6. Calculate the average illumination produced on the floor. **5**
- b) Explain sodium vapour lamp with neat diagram. **5**
14. Mention the various parts of lead-acid battery and explain function of each part in detail. **10**
15. The electric train weighing 400 tonnes runs along an up gradient of 1% with following speed-time curve: Uniform acceleration of 1.5 kmphs for 30 secs.  
Free-running for 36 secs.  
Coasting for 25 secs.  
Braking at 2.6 kmphs to rest.  
If tractive resistance is 45 N/ tonne, rotational inertia effect 10% overall efficiency of transmission and motor 75%. Determine the specific energy consumption. **10**
16. a) Explain in brief about dielectric heating. Mention its applications. **5**
- b) Explain float switches with neat schematic diagram. **5**
17. Write brief notes on the following : **(3+4+3)**
- a) Stroboscopic effects.
- b) Coefficient of adhesion.
- c) Welding transformer.