

**B.TECH. SEM -VII ELECTRICAL 2014 COURSE (CBCS) :
SUMMER - 2018**

SUBJECT: UTILIZATION OF ELECTRICAL ENERGY

Day: **Thursday**
Date: **24/05/2018**

S-2018-2497

Time: **02.30 PM TO 05.30 PM**
Max. Marks : 60

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Draw neat and labeled diagram **WHEREVER** necessary.
- 3) Assume suitable data, if required.

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- Q.1** a) Explain the construction and working of direct arc heating furnace. (05)
b) What are the advantages and disadvantages of high frequency heating. (05)

OR

- Q.1** a) Explain coreless furnace and give its advantage. (05)
b) Draw a neat diagram of Tama furnace and explain. (05)

- Q.2** a) Explain term tariff, write its objective and explain principle factors affecting framing of tariff. (05)
b) Differentiate between fixed and operating cost of power plants. List the items which contribute to the fixed and operating cost. (05)

OR

- Q.2** a) Explain depreciation and discuss any method of depreciation. (05)
b) What are the disadvantages of Low power factor. What is the effect of power factor on tariff? (05)

- Q.3** a) State and explain the inverse square law of illumination. State its Limitations. (05)
b) 20 lamps of 200Watts each are used to illuminate a room of 45ft×25ft. The M.S.C.P of each lamp is 250. Find the average illumination produced on the floor. Assume depreciation factor to be 6.2 and utilization factor to be 0.6 (05)

OR

- Q.3** a) Define the following terms: (05)
i) Candle Power ii) Luminous intensity iii) Illumination
iv) Luminous Flux v) Radiant efficiency.
b) Explain 'point to point' method of lighting calculations. (05)

- Q.4** a) Write a note on application of Faraday's Law in electro deposition. (05)
b) Write a short note on process of Anodizing (05)

OR

- Q.4** Describe electroplating process with its equipments used, accessories and applications in detail. (10)

- Q.5** Write a short note on different accessories for track electrification. (10)

OR

- Q.5** a) Explain single phase Low frequency AC system (05)
b) Explain the concept of battery powered traction. (05)

- Q.6** a) Explain desired electrical characteristics of electric motors for traction work. (05)
b) What is speed time curve in electric traction? Draw and explain trapezoidal speed time curve. (05)

OR

- Q.6** An electric train is to have acceleration and braking retardation of 0.8 kmphps and 3.4 kmphps respectively. If the ratio of maximum to average speed is 1.2 and time for stop is 24 seconds. Find the schedule speed for a run of 2.0 km. Assuming simplified trapezoidal speed time curve. (10)

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