

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

B.Tech IV Year I Semester Regular Examinations February-2024

APPLICATION OF ELECTRICAL POWER

(Open Elective – IV)

Time: 3 Hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- | | | | | |
|---|--|-----|----|----|
| 1 | a Explain about polar curves. | CO1 | L2 | 6M |
| | b A 350 CP lamp is hung 5m above the center of a circular area of 8m diameter. Calculate the illumination at the
(i) Centre of area. (ii) Periphery of the area. (iii) Average illumination | CO1 | L3 | 6M |

OR

- | | | | | |
|---|--|-----|----|----|
| 2 | a Explain with sketch the principle and operation of fluorescent lamp. | CO1 | L3 | 6M |
| | b A room measuring 20m×10m is to be illuminated by 5 lamps and the average illumination is to be 100 lux. Determine the MSCP of each lamp if the utilization and depreciation factors are 0.4 and 0.8 respectively | CO1 | L3 | 6M |

UNIT-II

- | | | | | |
|---|---|-----|----|----|
| 3 | a Classify the different types of heating? Write advantages of electric heating. | CO2 | L2 | 6M |
| | b A slab of insulating material 250 sq cm in area and 1 cm thick is to be heated by dielectric heating. The power required is 300 W at 30 × 106 cps. Materials has permittivity of 5 and power factor of 0.05. Determine voltage necessary. | CO2 | L3 | 6M |

OR

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|---|--|-----|----|----|
| 4 | a Discuss briefly about induction heating process. | CO2 | L2 | 6M |
| | b Determine the amount of energy required to melt brass at the rate of one ton per hour in a single phase Ajax Wyatt furnace. Specific heat of brass is 0.084 Kcal/ Kg/°C. Latent heat of fusion is 50 Kcal/Kg, initial temperature is 24°C, melting point of brass is 920° C. Assume efficiency to be 65 %. | CO2 | L3 | 6M |

UNIT-III

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|---|---|-----|----|-----|
| 5 | Explain in detail about the following with respect to Welding:
i) Spot welding ii) Seam welding iii) Butt welding iv) projection welding | CO3 | L2 | 12M |
|---|---|-----|----|-----|

OR

- | | | | | |
|---|--|-----|----|----|
| 6 | a Explain briefly about flash welding. | CO3 | L2 | 6M |
| | b What are the qualities of a good weld? | CO3 | L2 | 6M |

UNIT-IV

- | | | | | |
|---|--|-----|----|----|
| 7 | a Discuss about the process of electro plating. | CO4 | L2 | 6M |
| | b Explain the widely used areas of electrolysis. | CO4 | L2 | 6M |

OR

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|---|---|-----|----|----|
| 8 | a Explain Electrodeposition of rubber in detail. | CO4 | L2 | 6M |
| | b Identify and write the various operations involved in electroplating. | CO4 | L2 | 6M |

UNIT-V

- 9 a What are the mechanical features of traction motors? **CO5 L3 6M**
b A train has schedule speed of 50 km/hr over a level track distance **CO5 L3 6M**
between stations being 2 km. Duration of stop is 40 sec. Assuming
braking retardation of 3 km/hr/sec and maximum speed 25% greater
than average speed, calculate acceleration required to run the service.

OR

- 10 a Compare A.C traction with D.C traction. **CO5 L2 6M**
b Discuss the speed-time curves for urban service. **CO5 L2 6M**

*** END ***

