

Enroll No

Q.P. Code
UT2998

**Unit Test -I / H (2025-26)**  
 T.Y. B.Tech.- Electrical Engineering

**Course Code: EE3154**

**Course Name: PE-I: Electrical Utilization and Traction**

Day & Date: *Wednesday 13/08/2025*

Time: *10:30 To 12:30*

Max Marks- 25

- Instructions:**
- 1) All questions are compulsory.
  - 2) Figures in rounded ( ) brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
  - 3) CO is the index number of the Course Outcome statement.
  - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
  - 5) Assume suitable data if necessary.
  - 6) Use of non-programmable calculators is allowed

		Marks	BT Level	COs
Q.1	A Classify the electric resistance heating (1M) and write the various applications (5M) of resistance heating.	06	2	CO1

**OR**

Elaborate any four features electric furnace (4M) and write any two ways of controlling the temperature of resistance furnace (2M).

B	Estimate the power rating (6M) of an induction furnace used to melt <i>1400 kg</i> of zinc in <i>50 minutes</i> if it operates at an efficiency of <i>75%</i> . The specific heat of zinc is <i>0.1 kcal/kg°C</i> , latent heat of fusion of zinc is <i>26.67 kcal/kg</i> . Assume initial temperature to be <i>25 °C</i> , and melting point is <i>550°C</i> . (1kWh = 860.42 kcal).	06	3	CO1
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Q.2	A Write the drawbacks (3M) of direct core type induction furnace.	03	2	CO1
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**OR**

Explain the key advantages (3M) of dielectric heating

B	With neat diagram (2M) explain (4M) the seam welding to join metal sheets.	06	2	CO2
C	Demonstrate (4M) how upset butt welding would be used to join two metal rods end-to-end.	04	3	CO2

