

Enroll No

K.E.Society's  
**Rajarambapu Institute of Technology, Rajaramnagar**  
(An Empowered Autonomous Institute, affiliated to SUK)  
**Unit Test - II (2025-26)**

Q.P. Code
UT 3157

T.Y. B.Tech.- Electrical Engineering

**Course Code: EE3154**

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

Day & Date: Friday 15/09/2025

Time: 2:30 To 3:30

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 Draw electric circuit diagram (2M) of room air-conditioner and write major components with their significance (4M).	06	2	CO3
	<b>OR</b>			
	With neat electric circuit diagram (2M) used for refrigerator, explain the components (4M).			
	B With the help of a neat block diagram (2M), explain the working principle (2M) of a window Air Conditioner (AC). Identify its major components (1M) and write its applications (1M).	06	3	CO3
Q.2	A A control room need to be conditioned consisting of server system and control system. The volume of the control room is $3200 \text{ m}^3$ of air per hour from a temperature of $8^\circ\text{C}$ to $18^\circ\text{C}$ . Furthermore, to control the humidity of the office, it is necessary to evaporate $4 \text{ kg}$ of moisture per $1000 \text{ m}^3$ of air per hour. Estimate the power required (4M) if heat required to raise the temperature of $1 \text{ m}^3$ of air through $1^\circ\text{C}$ is $1220 \text{ J}$ and latent heat of evaporation is $2450 \times 10^3 \text{ J/kg}$ .	04	2	CO1
	B Write the need of electro-deposition (2M) and define Faraday's laws of electrolysis (2M).	04	2	CO4
	C In a jewelry manufacturing unit, a spherical silver glittering ornament of radius $8 \text{ cm}$ needs to be electroplated with a uniform silver coating of $0.06 \text{ mm}$ thickness to improve its surface finish and corrosion resistance. If the electrochemical equivalent of silver is $0.00120 \text{ g/C}$ and density of silver is $10.5 \text{ g/cm}^3$ , calculate (5M) the ampere-hours (A·h) required for this electroplating process.	05	3	CO4

