

Subject Code: BEE-108

**B. TECH**  
**Year: 1<sup>st</sup> Semester: Odd**  
**MINOR TEST (EXAMINATION): 2024-25**  
**Title of Subject: Electrical Wiring & Estimation**

Time: 2 Hr.

Max Marks: 20

Note: Answer all questions.

Q1.	Attempt any Two parts of the following. (Unit-1 & Unit-2)	Marks	CO	BL	PO	PI Code
a)	Explain various types of electrical tools with proper diagrams.	4	4	1, 2	1, 5	1.3.1
b)	Explain the various electrical properties of the resistor and inductor.	4	1, 4	1, 2	1	1.3.1
c)	What are the various safety aspects of electrical systems? Explain each of them.	4	2, 5	1, 2	1	1.3.1
Q2.	Attempt any Two parts of the following. (Unit-1)					
a)	Derive an equation for resistances for star to delta conversion. Also, draw its proper diagram.	3	1, 6	1, 2	1	1.3.1
b)	Explain the various electrical properties of the Capacitor.	3	1, 4	1, 2	1	1.3.1
c)	Explain different types of conductors with proper diagrams.	3	4	1, 2	1	1.3.1
Q3.	Attempt any Two parts of the following. (Unit-2)					
a)	Explain different types of earthing methods with proper diagrams.	3	5	1, 2	1	1.3.1
b)	Explain different types of electrical isolators with proper diagrams.	3	4	1, 2	1	1.3.1
c)	Explain electrical fuse & fuse carriers with proper diagrams.	3	4, 5	1, 2	1	1.3.1

BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes

PO – Program Outcomes

PI Code – Performance Indicator Code

**B. Tech (04 Credit Subject)**  
**Year: 1<sup>st</sup> Semester: Odd**  
**Major Examination: 2024-25**  
**Electrical Wiring & Estimation**

Time: 3 Hr.

Max Marks: 50

Note: Attempt ALL questions. ALL questions carry equal marks.

Q1.	Attempt any <b>Five parts</b> of the following. (Unit-I, Unit-II)	Marks	CO	BL	PO	PI Code
a)	Explain the various electrical properties of the inductor.	2	1, 4	1, 2	1	1.3.1
b)	Explain the various electrical properties of the Capacitor.	2	1, 4	1, 2	1	1.3.1
c)	Explain different types of conductors with proper diagrams.	2	4	1, 2	1	1.3.1
d)	Explain electrical fuse & fuse carriers with proper diagrams.	2	4, 5	1, 2	1	1.3.1
e)	Derive an equation for resistances for star to delta conversion. Also, draw its proper diagram.	2	1, 6	1, 2	1	1.3.1
f)	Explain different types of earthing methods with proper diagrams.	2	5	1, 2	1	1.3.1
g)	What are the various safety aspects of electrical systems?	2	2, 5	1, 2	1	1.3.1
Q2.	Attempt any <b>Two parts</b> of the following. (Unit-III)					
a)	Explain the working of the Wattmeter with proper circuit diagram.	5	3, 4	1, 2	1	1.3.1
b)	Explain the working of the AC Ammeter with proper circuit diagram. Also, draw its characteristics plot.	5	3, 4	1, 2	1	1.3.1
c)	The current coil of wattmeter is connected in series with ammeter and inductive load. A voltmeter and voltage coil is connected across 100 Hz supply. The readings of ammeter, voltmeter and wattmeter are 4.5 A, 240 V, and 23 W respectively. The inductance of voltage coil circuit is 10 mH and its resistance is 2000 $\Omega$ . Neglect voltage drop across ammeter and current coil. Calculate the percentage error in wattmeter reading.	5	3, 4	3, 4, 5	1, 2	1.3.1

Q3.	Attempt any <b>Two parts</b> of the following. (Unit-III)					
a)	Explain the working of the Energy meter with proper diagram.	5	3,4	1,2	1	1.3.1
b)	An energy-meter having a meter constant of 1200 rev per kWh is found to make 5 revolutions in 75 s. Calculate the load power.	5	3,4	3,4,5	1,2	1.3.1
c)	The meter constant of a 230 V, 10 A watthour meter is 1800 revolutions per kWh. The meter is tested at half load and rated voltage and unity-power factor. The meter is found to make 80 rev. in 138 seconds. Calculate the meter % error at half load.	5	3,4	3,4,5	1,2	1.3.1
Q4.	Attempt any <b>Two parts</b> of the following. (Unit-IV)					
a)	Explain the working of the uninterruptible power supply with proper diagram.	5	2,4,6	1,2	1	1.3.1
b)	Explain the basic repairing process of electric fan with proper diagram.	5	2,4,6	1,2,3	1	1.3.1
c)	Explain the basic repairing process of electric iron with proper diagram.	5	2,4,5	1,2,3	1	1.3.1
Q5.	Attempt any <b>Two parts</b> of the following. (Unit-IV)					
a)	Explain different types of electric tariff.	5	1,2,3	1,2,4	1	1.3.1
b)	A consumer has a maximum demand of 200 kW at 40% load factor. If the tariff is Rs. 100 per kW of maximum demand plus 10 paise per kWh, find the overall cost per kWh.	5	1,2,3	3,4,5	1,2	1.3.1
c)	The maximum demand of a consumer is 20 A at 220 V and his total energy consumption is 8760 kWh. If the energy is charged at the rate of 20 paise per unit for 500 hours use of the maximum demand per annum plus 10 paise per unit for additional units, calculate: (i) annual bill (ii) equivalent flat rate.	5	1,2,3	3,4,5	1,2	1.3.1

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