

# **Vocational Practical Question Bank**

**First & Second Year**

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**Electrical Technician**

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**Course Code : 313**



**State Institute of Vocational Education**

**O/o the Commissioner of Intermediate Education**

**Andhra Pradesh, Hyderabad**

**&**

**Board of Intermediate Education,**

**Andhra Pradesh, Hyderabad**

# First Year

**ELECTRICAL TECHNICIAN****First Year (P.C. 313/21)****Subject : Elements of Electrical Lab****Paper - I****Time : 3 Hours****Max. Marks : 50****Section - I****1 x 40 = 40 Marks**

1. Verify the ohms law by using ammeter, voltmeter in dc circuit or low voltage ac (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
2. Verify the characteristics of DC series circuit (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
3. Verify the characteristics of DC parallel circuit (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
4. Verify the laws of resistance by ohm meter, series test lamp by using different materials and loads (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
5. Verify the Kirchhoff's by laws by using series parallel circuit (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
6. Perform the testing of accumulator / battery by hydrometer and tongue tester on charging and discharging (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
7. Perform the measurement of power by wattmeter (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
8. Perform the measurement of power in resistive load by voltmeter and ammeter (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)

9. Perform the measurement of power factor by voltmeter, Ammeter and Wattmeter (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
10. Perform the measurement of power factor by power factor meter (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
11. Perform the testing of energy meter (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
12. Perform the measurement of energy by energy meter (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions).
13. Trace the magnetic lines for
  - (a) Bar magnet
  - (b) U Magnet.(Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)

## Section - II

Record : 5 Marks  
Viva : 5 Marks

**ELECTRICAL TECHNICIAN****First Year**

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**MODEL QUESTION PAPER**

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**Subject : Elements of Electrical Lab****Paper - I**

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**Time : 3 hours****Max. Marks : 50**

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**Section - I****1 x 40 = 40 Marks**

5. Verify the Kirchhoff's by laws by using series parallel circuit (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)

**Section - II**

Record

**5 Marks**

Viva

**5 Marks**

**Note :** The serial numbers of the questions mentioned in are the serial numbers in question bank. In practical examination only the serial number of the questions will given, the examiner shall decode it with question bank and give the questions.

\* A batch of Students will be allotted four or five different questions

**ELECTRICAL TECHNICIAN****First Year****PRACTICAL SCHEME OF VALUATION****Subject : Elements of Electrical Lab****Paper - I****Time : 3 hours****Max. Marks : 50****Section - I**

|                                      |   |         |
|--------------------------------------|---|---------|
| Aim, Tools, Materials and Equipments | : | 5 Marks |
| Circuit diagram                      | : | 5 Marks |
| Order of performing the experiment   | : | 8 Marks |
| Handling of tools                    | : | 5 Marks |
| Utilization of materials             | : | 5 Marks |
| Procedure                            | : | 5 Marks |
| Precautions                          | : | 2 Marks |

**Section - II**

|                                |   |         |
|--------------------------------|---|---------|
| Result/Appearance/Presentation | : | 5 Marks |
| Record                         | : | 5 Marks |
| Viva                           | : | 5 Marks |

**ELECTRICAL TECHNICIAN****First Year (P.C. 313/22)****Subject : Electrical Wiring and Workshop****Paper - II****Time : 3 Hours****Max. Marks : 50****Section - I****1 x 40 = 40 Marks**

1. (a) Prepare a straight joint by using 3/20 copper cable (Only practical)  
(b) Make a wiring installation for one lamp controlled by one switch in surface conduit wiring. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
2. (a) Prepare a T. joint with 1/8 wire. (Only practical)  
(b) Make a stair case wiring circuit by using surface conduit wiring. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions) (Only practical)
3. (a) Prepare a married joint by using 14/0.3 (1<sup>sq</sup> mm) copper cable.  
(b) Make two lamps controlled by two switches by using conduit wiring. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions) (Only practical)
4. (a) Prepare a T. joint with 7/20 wire.  
(b) Install wiring for control of one lamp and one socket outlet by separate switches. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions) (Only practical)
5. (a) Prepare a pig tail joint by using single strand aluminum cable  
(b) Make a wiring for a three chamber godown. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions) (Only practical)
6. (a) Prepare a straight joint by using GI wire  
(b) Install a series-parallel wiring circuit for control of two lamps by one switch in surface conduit wiring. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)

7. Install and bed room wiring circuit by using surface conduit wiring. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
8. (a) Prepare a married joint by using 2-sqmm copper cable (Only practical)  
(b) Make Flourescent lamp circuit cable. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
9. (a) Prepare a Tee joint with 7/20 wire. (Only practical)  
(b) Install pipe earthing and test with test lamp. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
10. Install a conduit wiring for making the connection of new ceiling fan with regulator. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions)
11. Install a surface conduit wiring for MASTER ON CIRCUIT for 3 lamps (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions).
12. Install corridor wiring for 3 lamps. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions).

## Section - II

- Record : **5 Marks**  
Viva : **5 Marks**



**ELECTRICAL TECHNICIAN****First Year**

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**MODEL QUESTION PAPER**

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**Subject : Electrical Wiring and Workshop****Paper - II**

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**Time : 3 hours****Max. Marks : 50**

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**Section - I****1 x 40 = 40 Marks**

3. (a) Prepare a married joint by using 14/0.3 (1<sup>sq</sup> mm) copper cable  
(Only practical).
- (b) Make two lamps controlled by two switches by using conduit wiring. (Aim, Tools and Materials, Circuit Diagram, Procedure, Observations, and Precautions).

**Section - II**

Record

**5 Marks**

Viva

**5 Marks**

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**ELECTRICAL TECHNICIAN****First Year****PRACTICAL SCHEME OF VALUATION****Subject : Electrical Wiring and Workshop****Paper - II****Time : 3 hours****Max. Marks : 50****Section - I**

|                                      |   |         |
|--------------------------------------|---|---------|
| Aim, Tools, Materials and Equipments | : | 5 Marks |
| Circuit diagram                      | : | 5 Marks |
| Order of performing the experiment   | : | 8 Marks |
| Handling of tools                    | : | 5 Marks |
| Utilization of materials             | : | 5 Marks |
| Procedure                            | : | 5 Marks |
| Precautions                          | : | 2 Marks |

**Section - II**

|                                |   |         |
|--------------------------------|---|---------|
| Result/Appearance/Presentation | : | 5 Marks |
| Record                         | : | 5 Marks |
| Viva Voce                      | : | 5 Marks |

**ELECTRICAL TECHNICIAN****First Year (P.C. 313/23)****Subject : Engineering Drawing  
Paper - III****Time : 3 Hours****Max. Marks : 50****Section - I****2 x 5 = 10 Marks**

1. Print the following with normal lettering of size 15mm

**VOCATIONAL COURSE**

2. Divide a 8cm line into 10 equal parts.
3. Show the aligned system of dimensioning on a simple object.
4. Print the following with normal lettering of size 15mm

**ELECTRICAL ENGINEERING**

5. Bisect a line of 9cm length.
6. Show the uni-directional system of dimensioning on a simple object.
7. Divide a rectangle of 8cm x 4cm in 8 parts.
8. Construct a equilateral triangle of 5cm side.
9. Draw a perpendicular line to straight line of 6cm.
10. Construct a Concentric circle for a equilateral triangle of 5mm side.

**Section - II****2 x 5 = 10 Marks**

11. Draw a tangent for a circle of 25mm radius.
12. Draw a Hexagon for a circle of 50mm radius.
13. Draw common internal tangents for two circles of 50mm radius.
14. Draw a Pentagon of side 40mm
15. Draw a OCTAGON given a square of 60mm side.
16. Draw a Heptagon of side 40mm.
17. Draw a OCTAGON with a side of 40mm.
18. Draw a PENTAGON for a circle of 50mm radius.

19. Draw a HEXAGON inside the circle of 60mm radius.
20. Draw a Hexagon outside the circle of 60mm radius.

**Section - III****1 x 10 = Marks**

21. Draw a parabola of 40mm base, 70mm height by tangent method.
22. Draw an Ellipse of 40mm base, 80mm height by rectangle method.
23. Draw a Hyperbola given the positions of point.
24. Draw a Parabola of 100mm base, 80mm height by rectangle method.
25. Draw the projections of a square prism of 20mm side and 60 mm length (Resting on horizontal plane).
26. Draw a Parabola of 100mm base, 80mm height by rectangle method.
27. Draw the projections of a hexagonal prism of 25mm side and 50 mm length (Axis parallel to vertical plane)
28. Draw a Ellipse of 40mm minor, 80mm major axis by rectangle method.
29. Draw a developed view of Cylinder of 20mm radius and 60mm height.
30. Draw an ellipse of 80mm major axis and 40mm minor axis by trammel method.

**Section - IV****1 x 10 = 10 Marks**

31. Draw PIPE EARTHING.
32. Draw plate earthing.
33. Draw the internal connections of DOL Starter.
34. Draw the internal connections of Star/Delta starter.
35. Draw the internal connections of 3 point starter.
36. Draw the internal connections of 4 point starter.
37. Draw the internal connections and constructional details of 1 ph energy board.
38. Draw the connection diagram of 1 ph energy meter with 4 way distribution board.
39. Draw the electrical symbols for One way switch, two way switch, DPIC, TPIC, Bell , Batten holder, Fuse, Earth, Aerial, MCB.
40. Draw symbols for Cell, Battery, AC generator, Transformer, Fan regulator, Lamp, Socket, LED, Capacitor, Resistor.

Record

**5 Marks**

Viva Voce

**5 Marks**

**ELECTRICAL TECHNICIAN****First Year****MODEL QUESTION PAPER****Subject : Engineering Drawing****Paper - III****Time : 3 hours****Max. Marks : 50****Section - I****2 x 5 = 10 Marks**

7. Divide a rectangle of 8cm x 4cm in 8 parts.
9. Draw a perpendicular line to straight line of 6cm.

**Section - II****2 x 5 = 10 Marks**

15. Draw a OCTAGON given a square of 60mm side.
19. Draw a HEXAGON inside the circle of 40mm side.

**Section - III****1 x 10 = 10 Marks**

25. Draw the projections of a square prism of 20mm side and 60 mm length (Resting on horizontal plane).

**Section - IV****1 x 10 = 10 Marks**

38. Draw the connection diagram of 1 ph energy meter with 4 way distribution board.

**Section - V**

Record

**5 Marks**

Viva Voce

**5 Marks**

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**ELECTRICAL TECHNICIAN****First Year****PRACTICAL SCHEME OF VALUATION****Subject : Engineering Drawing****Paper - III****Time : 3 hours****Max. Marks : 50****Section I**

Alloted questions from Section - I, II, III, IV : 40 Marks

**Section V**

Record : 5 Marks

Viva : 5 Marks