

# VOCATIONAL PRACTICALS QUESTION BANK

*(With Effect from the Academic year 2018-19)*

## ELECTRICAL TECHNICIAN (COURSE CODE:321)



**State Institute of Vocational Education**

**O/o the Commissioner of Intermediate Education,  
Telangana State, Hyderabad**

**&**

**Board of Intermediate Education**

**Telangana State, Hyderabad**

<b>List of Participants</b>	
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**ELECTRICAL TECHNICIAN  
FIRST YEAR  
QUESTION BANK  
PAPER I: BASIC ELECTRICAL LAB[321/21]**

**Time: 3hrs**

**Max.Marks: 50**

**SECTION-I**

**1X20=20 Marks**

1. Verify characteristics of DC series circuit.
2. Measure the power of given load by voltmeter and ammeter.
3. Measure the power factor of given load by voltmeter, ammeter and wattmeter.
4. Measure the energy consumed by a load using energy meter.
5. Test the given battery.

**SECTION-II**

**1X10=10 Marks**

6. Draw the circuit diagram to prove Ohms law.
7. Connect two loads in parallel and measure voltage using 220V ac supply (use two 100W bulbs)
8. State the importance of power factor improvement.
9. Draw the internal connections of energy meter.
10. Connect the energy meter to a given load.

**SECTION-III**

**1X10=10 Marks**

11. Identify given two electrical measuring instruments and mention its applications.
- 12 (a) Name the type of connections used in series/decoration bulbs.  
(b) Name the type of resistance used in fan regulator.
- 13 (a) Write the names of instruments used in testing of battery.  
(b) Calculate the energy consumed by an electric iron of 1250W, 250V AC Supply when used for TWO hours.
- 14 (a) Which type of magnet is used in ceiling fan and toys?  
(b) Convert 2 HP into watts; 2 KW into watts.

15 (a) What type of batteries is used in two wheelers?

(b) State maintenance methods of battery.

**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

**ELECTRICAL TECHNICIAN  
FIRST YEAR  
MODEL QUESTION PAPER  
Paper I: Basic Electrical Lab[321/21]**

**Time: 3hrs**

**Max.Marks: 50**

**2, 8, 14**

**Note: The serial numbers of the questions mentioned above are the serial number in question bank. In practical examination only the serial number of the question will be given and for forty (40) marks. The examiner shall decode it with the question bank and give the questions.**

**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

**ELECTRICAL TECHNICIAN**  
**FIRST YEAR**  
**QUESTION BANK**  
**Paper II: Engineering Drawing[321/22]**

**Time: 3hrs**

**Max.Marks: 50**

**SECTION-I**

**1X20=20 Marks**

1. Draw the connection diagram of 1ph energy meter with 4 way distribution board
2. Draw a parabola of 40mm base, 70mm height by tangent method
3. Draw HYPERBOLA at a given the position of point
4. Draw the projections of a rectangular cube of 70mm x 50mm x 30mm
5. Draw an ellipse of 80mm major axis and 40mm minor axis.

**SECTION-II**

**1X10=10 Marks**

6. Draw a Hexagon for a circle of 50mm radius
7. Draw a common tangent for two circles of 50mm radius
8. Draw a Pentagon of side 40mm
9. Draw an OCTAGON given a side of 80mm
10. Draw a Heptagon for a circle of 60mm radius

**SECTION-III**

**5X2=10 Marks**

- 11 (a) Print the following with normal lettering of size 15mm

VOCATIONAL COURSE

(b) Divide a 8cm line into 10 equal parts

12 (a) Print the following with normal lettering of size 15mm

ELECTRICAL ENGINEERING

(b) Bisect a line of 9cm length

13. Draw a tangent for a circle of 50mm dia.

14 (a) Divide a rectangle of 8cm x 4cm in 8 parts.

(b) Construct a equilateral triangle of 5cm side.

15 (a) Draw a perpendicular line to a straight line of 6cm.

(b) State the list of drawing instruments.

**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

**ELECTRICAL TECHNICIAN**  
**FIRST YEAR**  
**MODEL QUESTION PAPER**  
**Paper II: Engineering Drawing[321/22]**

**Time: 3hrs**

**Max.Marks: 50**

**1, 6, 11**

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**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

# ELECTRICAL TECHNICIAN

## FIRST YEAR

### QUESTION BANK

#### Paper III: Electrical Wiring and Workshop[321/23]

**Time: 3hrs**

**Max.Marks: 50**

#### SECTION-I

**1X20=20 Marks**

1. Install a surface conduit wiring for one lamp controlled by one switch.
2. Connect two lamps in series in conduit wiring.
3. Install a stair case wiring in surface conduit wiring.
4. Install a pipe earthing.
5. Make connections for a fluorescent lamp.

#### SECTION-II

**1X10=10 Marks**

6. Prepare a straight joint by using 1/18 or 3/20 or 7/20 copper cable
7. Prepare a T- joint with 1/18 or 3/20 or 7/20 wire.
8. Fix the three switches and one socket on a given switch board.
- 9 (a) Prepare a pig tail joint by using single strand aluminium cable  
(b) Prepare a test lamp.
10. Fix a fan regulator on a switch board and make proper connections.

#### SECTION-III

**5X2=10 Marks**

- 11 (a) Measure the size of given wire by using SWG  
(b) Identify the given cables/wires and write their applications.
- 12 (a) What are the tools used by an electrician?  
(b) What is Earthing?

- 13 (a) Name the terminals in the given cable/3-pin plug top.  
(b) List the main materials and accessories for conduit wiring.
- 14 (a) What is the purpose of fuse?  
(b) Draw the soldering iron.
- 15 (a) What are the advantages of LED lamps?  
(b) Give examples for light load and power load.

**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

**ELECTRICAL TECHNICIAN**

**FIRST YEAR**

**MODEL QUESTION PAPER**

**Paper III:Electrical Wiring and Workshop[321/23]**

**Time: 3hrs**

**Max.Marks: 50**

**4, 8, 15**

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**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

# ELECTRICAL TECHNICIAN

## SECOND YEAR

### QUESTION BANK

#### Paper I: Electrical Machines Lab[321/71]

**Time: 3hrs**

**Max.Marks: 50**

#### SECTION-I

**1X20=20 Marks**

1. Measure the Power by using Two Watt meter method in a 3-Ph circuit or load.
2. Identify the various parts and connect 3-Ph Induction motor by DOL starter.
3. Connect, start, run and reverse the direction of rotation of 1-ph capacitor start motor. And observe the current and speed at different loads.
4. Connect, start, run the universal motor (mixer grinder motor). And observe the current and speed at different loads.
5. Measure the power in RLC circuits (Use filament lamp, ceiling fan and capacitor).

#### SECTION-II

**1X10=10 Marks**

6. Draw the speed control methods of a DC motor.
7. State the losses in a transformer. Draw the circuit diagram for OC or SC test of a single phase transformer.
8. Identify the terminals in 3-phase induction motor.
9. Connect and run the 1-ph permanent capacitor motor (ceiling fan/tablefan).
10. Measure the power consumed by an Universal Motor by using Voltmeter and Ammeter.

**SECTION-III**

**5X2=10 Marks**

11. State the applications of DC motors.
- 12 (a) What is step up and step down transformer.  
(b) Mention the 1-phase and 3-phase voltages in India.
13. What are the applications of 3 – phase induction motors?
- 14 a) State the types of starters used in AC motor  
(b) Name the types of power stations
- 15 (a) What is Substation?  
(b) Why transformer becomes hot while working?

**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

**ELECTRICAL TECHNICIAN**

**SECOND YEAR**

**MODEL QUESTION PAPER**

**Paper I: Electrical Machines Lab[321/71]**

**Time: 3hrs**

**Max.Marks: 50**

**5, 7 ,12**

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**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

# **ELECTRICAL TECHNICIAN**

## **SECOND YEAR**

### **QUESTION BANK**

#### **Paper II: Domestic Appliances Lab[321/72]**

**Time: 3hrs**

**Max.Marks: 50**

#### **SECTION-I**

**1X20=20 Marks**

1. Dismantling, re-assembling and troubleshooting of electric room heater/Electric stove
2. Dismantling, re-assembling and troubleshooting of ordinary OR automatic electric iron
3. Dismantling, re-assembling and troubleshooting of electric stove
4. Dismantling, re-assembling and troubleshooting of Table fan OR Ceiling fan
5. Dismantling, re-assembling and troubleshooting of Florescent Tube

#### **SECTION-II**

**1X10=10 Marks**

6. State general faults and testing methods in domestic appliances.
7. Identify the parts in given electric iron and name possible faults.
8. Identify the parts in given rice cooker and name possible faults
9. Dismantle and assemble ceiling fan
10. Collect name plate details of given appliances (any two)

#### **SECTION-III**

**5X2=10 Marks**

11. Identify the ten tools required for repair of domestic appliances.
12. Mention any FIVE domestic appliances and write their applications.
13. State the function of a Thermostat and draw the diagram.

14. Write the purpose of series testing board and draw the connection diagram

15 (a) Draw the ceiling fan and label the parts.

(b) What is the use of Inverter and UPS?

**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

**ELECTRICAL TECHNICIAN**  
**SECOND YEAR**  
**MODEL QUESTION PAPER**  
**Paper II: Domestic Appliances Lab[321/72]**

**Time: 3hrs**

**Max.Marks: 50**

**4, 9, 15**

**Note: The serial numbers of the questions mentioned above are the serial number in question bank. In practical examination only the serial number of the question will be given and for forty (40) marks. The examiner shall decode it with the question bank and give the questions**

**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

**ELECTRICAL TECHNICIAN  
SECOND YEAR  
QUESTION BANK**

**Paper III: Electrical Estimation and Utilization Lab[321/73]**

**Time: 3hrs**

**Max.Marks: 50**

**SECTION-I**

**1X20=20 Marks**

1. Take the measurements of residential building and prepare wiring layout.
2. Prepare an estimate in standard proforma for installation of 5-HP motor in a small work shop.
3. Prepare a detailed schedule of material, layout to install an OH distribution line about 2 km along with street lights (use nearby street light/distribution line).
4. Prepare detailed list of materials and accessories (schedule) of plinth mounted transformer.
5. Prepare detail schedule of material for Plate Earthing?

**SECTION-II**

**1X10=10 Marks**

6. Make connections of 1-ph service mains, main board (load 1000W)
7. Prepare of detailed list of materials and accessories (schedule) of pole mounted transformer.
8. List the material required for Pipe earthing.
9. Make a neon sign to display ELECTRICAL
10. Draw the layout diagram of (a) Auditorium (b) PA-System

**SECTION-III**

**5X2=10 Marks**

11. Identify the wiring accessories and materials in wiring of your examination hall or laboratory.
12. Observe the given Main Board and Distribution Board and draw the connections.
- 13 (a) Write the format of estimate?  
(b) What is the purpose of earthing?
- 14 (a) Draw the single line diagram of power wiring  
(b) Expand MCB, MCP, MB.
- 15 (a) Name different lighting methods in auditorium.  
(b) Name the parts of a Refrigerator.

**Record**

**5 marks**

**Viva- Voice**

**5 Marks**

**ELECTRICAL TECHNICIAN  
SECOND YEAR  
MODEL QUESTION PAPER**

**Paper III: Electrical Estimation and Utilization Lab[321/73]**

**Time: 3hrs**

**Max.Marks: 50**

**1, 6, 14**

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**Record**

**5 marks**

**Viva- Voice**

**5 Marks**