

**MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION,
MUMBAI-51**

1	Name of Syllabus	C. C. In ELECTRICIAN MECHANIC (302106)																																								
2	Max.Nos of Student	25 Students																																								
3	Duration	6 Month																																								
4	Type	Part Time																																								
5	Nos Of Days / Week	6 Days																																								
6	Nos Of Hours /Days	4 Hrs																																								
7	Space Required	Workshop = 400 Sq feet Class Room = 200 Sq feet TOTAL = 600 Sq feet																																								
8	Entry Qualification	8 th Pass																																								
9	Objective Of Syllabus/ introduction	1. Trainees should be able to check & repair house wiring & electrical appliances.2)Wiring installation & maintenance. 3)Take contract of wiring installation. 2. Trainees should be able to run electrical shop of sale & maintenance.																																								
10	Employment Opportunity	1.To start his own electrical repair shop.2. To work as electrician in electric shop & small scale industry as helper.3) To start his own sale & spare shop																																								
11	Teacher’s Qualification	ITI / N.C.T.V.T. in Electrician Trade OR Vocational Technician in the Trade of MREDA																																								
12	Training System	Training System Per Week <table><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>6 Hours</td><td>18 Hours</td><td>24 Hours</td></tr></table>						Theory	Practical	Total	6 Hours	18 Hours	24 Hours																													
Theory	Practical	Total																																								
6 Hours	18 Hours	24 Hours																																								
13	Exam. System	<table><tr><td>Sr. No.</td><td>Paper Code</td><td>Name of Subject</td><td>TH/PR</td><td>Hours</td><td>Max. Marks</td><td>Min. Marks</td></tr><tr><td>1</td><td>30210611</td><td>THEORY OF ELECTRICITY</td><td>TH-I</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>2</td><td>30210621</td><td>BASIC ELECTRICITY</td><td>PR-I</td><td>3 hrs</td><td>100</td><td>50</td></tr><tr><td>3</td><td>30210622</td><td>ELECTRICAL MACHINE</td><td>PR-II</td><td>6 hrs</td><td>200</td><td>100</td></tr><tr><td></td><td></td><td>TOTAL</td><td></td><td></td><td>400</td><td>185</td></tr></table>						Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks	1	30210611	THEORY OF ELECTRICITY	TH-I	3 hrs	100	35	2	30210621	BASIC ELECTRICITY	PR-I	3 hrs	100	50	3	30210622	ELECTRICAL MACHINE	PR-II	6 hrs	200	100			TOTAL			400	185
Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks																																				
1	30210611	THEORY OF ELECTRICITY	TH-I	3 hrs	100	35																																				
2	30210621	BASIC ELECTRICITY	PR-I	3 hrs	100	50																																				
3	30210622	ELECTRICAL MACHINE	PR-II	6 hrs	200	100																																				
		TOTAL			400	185																																				

THEORY PAPER – I, THEORY OF ELECTRICITY

1. Introduction to the Trade. Scope for training.
2. Safety precautions. Elementary First Aid.
3. Description. Specification, general care & maintenance of Common Hand Tools and their Uses & maintenance.
4. Quality of good conductor. & Insulator. their Uses & Maintenance.
5. Wires & cables Different types of wires & cables. Voltage current capacity.
6. Soldering & its purpose Different types of & their uses solders.
7. Common Electrical Accessories their specifications and uses.
8. Electrical circuit. ohms Law and its applications. Series connection Of applications of resistance
9. Parallel Circuit its characteristics and series and parallel circuits.
10. Protective Devices Like fuses, Earthing . etc. Main switch I.C.T.P. ICDP Distribution Box.
11. Destination of Work –power & energy & their units intern relation and calculation.
12. effects of electric current and its application.
13. Supply system. Single phase & three phase. Their Testing.
14. Wiring System. Tree & Looping system. Use their Advantages.
15. Study of Transformer.
16. Transmission system. Over head system. Underground system. General material use. Advantage and disadvantage.
17. Purpose of ear thing . Different method. Plate ear thing. Pipe ear thing
18. Firing System .(1) Cleat wiring 2) C.T.S. OR P. V.C. wiring. 3) P.V.C. casing capping. 4) Conduct wiring mental & P.V.C.
19. Concealed wiring.
20. Single phase & three phase motors.
21. P.V.C. casing capping wiring P.V.C. Conduct wiring.
22. Power wiring :- Industrial Lighting firing & power. 3 & 4 wire system.
23. Domestic Lighting & Domestic power supply.
24. Measuring Instrument. Voltmeter. Am-meter. Watt-meter megger.
25. Energy meter connection & Reading. Electric Bill calculations.
26. Installation Testing. Different megger test. Energy meter connection & Reading Electric Bill calculation.

PRACTICAL – I - BASIC ELECTRICITY

1. Shop Introduction. To make the trainee familiar with shop
2. Practice in using common Carpentry and electrical hand tools.
3. Conductor Jointing practice with single, stranded conductor
4. Different types of joints such as Britannia, straight Tee. Western Union etc.
5. Soldering Practice for Bare Insulator conductor.
6. Wiring practice using Different Electrical Accessories. Switches.
7. Study of series circuits using resistance of lamps.
8. Study of parallel circuit . Using resistance. Lamp.etc.
9. Study of different types of uses.
10. Simple connection of volt meter Am-meter, Wattmeter and Am-meter, wattmeter and energy meter and its reading .
11. Different types of wiring circuits series parallel
12. Wiring practice, Hospital, Go down, tunnel. stair case .
13. Use of Distribution Box. Tree system Looping system.
14. Domestic Appliances. (1) Electric Iron. 2) Electric bell Buzzer. 3) Bell indicator 4) Mixer grinder. 5) Soldering Iron.
15. Repairing of Domestic appliances. Iron, Bell, shagged, toaster, oven etc.
16. Power wiring circuits. Power supply connection with main devices
17. House wiring using Distribution Box.
18. Soldering with Lug. Use of crimping Tools.
19. Testing :- Single phase & Three phase circuits. Single Lamp method
20. Testing ceiling Fan. With regulator .

PRACTICAL – II - Electrical Machine

1. Installation Test
 - (1) Insulation Test.
 - 2) Insulator Resistance. Between conductor & Earth. Wiring. Testing.
2. Revision of wiring C.T.S. P.V.C. & conduct.
3. To find Transformer Voltage Ratio.
4. Tests of single phase transformer.
5. Study of single phase motor.
6. Connection of single phase motor.
7. Study of 3 phase induction motor.
8. Connection of 3 phase induction motor.
9. Single phase & three phase induction motor overhauling.
10. Study of starters used for 3 phase induction motors.

Tools & Equipment

Sr. No.	Name of tools & Specification	Quality
1)	Insulated Combination Pliers 6 to 8"	4
2)	Insulated side cutting pliers 6 to 8 "	4
3)	Screw driver 10"	4
4)	Screw driver 8"	4
5)	Screw driver 6"	4
6)	Connector (Ser. driver) 4"	4
7)	Firmer chisel ½	4
8)	Ball pin Hammer ½ 1 bs	4
9)	Ball plain	4
10)	Hand Drill machine 0 to ¼	1
11)	Electric Portable Hand Drill	02 Nos.
12)	Hack saw. 8 to 12 "	06 Nos.
13)	Tennon saw. 10"	02 Nos.
14)	Poker.	02 Nos.
15)	Adjustable spanner. 2"	02 Nos.
16)	Pipe spanner Set	02 Nos.
17)	Fix spanner Set	02 Nos.
18)	Cold chisel 1 "	04 Nos.
19)	Conduct die 5/8 to 1 ½ " Conduit die Set.	01 No.
20)	Try square 8"	02 Nos.

EQUIPMENT

1)	Voltmeter AC/DC 0 to 250 v.	2 Nos.
2)	Voltmeter AC/DC 0 to 500 v.	1 No.
3)	AM- meter AC/DC 0 to 10 Amp.	1 No.
4)	AM-meter AC/DC 0 to 15 Amp.	1 No.
5)	Wattmeter 0 to 1200 watts.	1 No.
6)	Energy mete 30 Amp	2 Nos.
7)	Megger	1 No.
8)	Variable Resistance 100, 50, 250.	each 2 Nos.
9)	Electric Iron. 400 Watts.	2 Nos.
10)	Automatic Elect. Iron 400 watts.	2 Nos.
11)	Bell Indicator 4 way.	3 Nos.
12)	Electrical appliances	10 Nos.
13)	Transformer	
14)	1 phase induction motor	03 Nos
15)	3 Phase induction motor	02 Nos
16)	DOL Starters	01 Nos
17)	Star Delta Starters	01 Nos

REFERANCE BOOKS

1)	SUBODH VIDYUTSHAstra	BY TRAMBAK WAGHMARE
2)	ADHUNIK VIDYUTSHAstra	BY PRAKASH SHAHA
3)	BASIC ELECTRICITY	BY M L ANWANI
4)	SOPE VIDYUTSHAstra	BY SHAM PITKE
5)	BASIC ELECTRICAL ENGINEERING	BY P S DHOGAL
