विद्युत तारतंत्री परीक्षा

परीक्षा :- विद्युत तारतंत्री परीक्षा वर्षातून दोनदा, सर्वसाधारणपणे मे व नोव्हेंबर महिन्यात घेण्यात येतील. परीक्षेचे वेळपत्रक मंडळामार्फत अधिसूचित करण्यात येईल.

विद्युत तारतंत्री यांच्यासाठी असलेल्या परीक्षेकरिता उमेदवारांना प्रवेश :

परीक्षा प्रवेश :- ही परीक्षा महाराष्ट्र राज्यामध्ये अधिवास असणाऱ्या उमेदवारांसाठी उद्देशीत आहे. उमेदवार अर्जासोबत आवश्यक दस्ताऐवज सादर करील.

१. तारतंत्री परीक्षेसाठी अहर्ता व अनुभव :-

पुढीलप्रमाणे तारतंत्री परीक्षेसाठीचा उमेदवार असेल :-

(क) जी व्यक्ती महाराष्ट्र राज्याचा अधिवासी आहे.

(ख) जिने मंडळाचे समाधान होईल असे एकूण एक वर्षाच्या कालावधीत क्षमता प्रमाणपत्र धारकाच्या किंवा अहर्ताप्राप्त विद्युत अभियंत्याच्या थेट पर्यवेक्षणाखाली तारतंत्रीचे व विद्युत संचमांडणीचे काम केले आहे;

किंवा,

जिने राज्य शासनाने मान्यता दिलेल्या कोणत्याही तंत्र शिक्षण संस्थेतील तारतंत्री शिकाऊ उमेदवारी वर्ग पूर्ण करून तिला क्षमता प्रमाणपत्रधारकाच्या किंवा अहर्ताप्राप्त विद्युत अभियंत्याच्या थेट पर्यवेक्षणाखाली सहा महिन्यांचा प्रत्यक्ष कामाचा अनुभव मिळाला आहे आणि तंत्रपरीक्षा मंडळाकडून किंवा व्यवसाय शिक्षण व प्रशिक्षण मंडळ, महाराष्ट्र राज्याकडून घेण्यात आलेली परीक्षा देखील उत्तीर्ण केली आहे ;

किंवा

जिने तंत्र शिक्षण परीक्षा मंडळ किंवा व्यवसाय शिक्षण व प्रशिक्षण मंडळ, महाराष्ट्र राज्य यांच्याकडून चालिवण्यात आलेला मोटार वायिंडगचा सहा महीन्याचा पाठयक्रम पूर्ण करून तिला क्षमता प्रमाणपत्र धारकाच्या किंवा विद्युत अभियंत्याच्या पर्यवेक्षणाखाली सहा महिन्यांचा प्रत्यक्ष कामाचा अनुभव आहे.

२. विद्युत तारतंत्री परीक्षेसाठी संरचना :-

(एक) या परीक्षेसाठी १०० गुणांची ३ तासांची प्रात्येक्षिक परीक्षा आणी ५० गुणांची मौखिक चाचणी असेल. परीक्षा उत्तीर्ण होण्यासाठी उमेदवाराने प्रात्येक्षिक परीक्षेत किमान ५० गुण आणि मौखिक परीक्षेत उत्तीर्ण होण्यासाठी २५ गुण मिळिवणे आवश्यक असेल.

(दोन) तारतंत्री परीक्षेचा अभ्यासक्रम अनुसूची "डब्लू एस" मध्ये विनिर्दिष्ट केल्याप्रमाणे असेल.

३. विद्युत तारतंत्री परीक्षेसाठी प्रवेश शुल्क :- रुपये **५००/-** ग्रास प्रणालीद्वारे भरणा करावा.

४. विद्युत तारतंत्री परीक्षेच्या अर्जाकरिता आवश्यक कागदपत्रे :-

अ) नमुना १२ "म"

आ) नमुना "सी"

इ) नमुना "डी' (पुनः प्रवेशासाठी)

ई) नमुना "ई"

उ) आवश्यक शैक्षणिक अहर्तेचे प्रमाणपत्र

ऊ) रहिवासी दाखला/ आधार कार्ड

ऋ) विद्युत पर्यवेक्षक परीक्षेसाठी प्रवेश शुल्क पावती.

५. विद्युत तारतंत्री परीक्षेसाठी आवश्यक नमुने :- "Various forms" या टॅब मध्ये उपलब्ध आहे.

६. विद्युत तारतंत्री परीक्षेचा अभ्यासक्रम :-

SCHEDULE "WS"

(See rule 21)

Syllabus for Examination for Electrical Wiremen Permit

1. Properties of copper and aluminium conductors. Properties of insulating materials such as PVC, XLPE, rubber and porcelain. Concept of voltage, current, power, energy, resistance, inductance, capacitance, impedence, power-factor. Simple calculation of current, power, energy and voltage drop. Comparison between series and parallel connection of loads.

2. Basic principle of bulk generation of electricity in hydel and thermal stations. Functions of substations
and transformer stations in power systems. Lead acid and dry type of storage batteries. constructional details, characteristics, charging and maintenance, tubular and maintenance free batteries.

3. Measuring devices. Principle of operation of voltmeter, ammeter, wattmeter, tong tester and multimeter. Measurement of energy in single phase and three phase circuits using energy meters. Checking of possible errors.

4. Transformers principle of operation, construction, KVA and current ratings – efficiency, care and maintenance. Induction motors. Principle of working of squirrel cage and slipring motors–starter, D.O.L., star/delta(semiautomatic and automatic) and rotor resistance types. Single phase motors principle. Different types of fan regulators -–resistance and electronic types. Principle of operation of fractional horse power motors used in appliances such as mixies, washing machines, etc. Principle of operation of AC generators.

5. Various systems of LT wiring – types of wires and standard sizes – voltage and current ratings – thumbrules for voltage drop in cables. Main switch boards, sub switch boards and distribution boards – permissible loads – selection of location and standards clearances for main boards etc. Circuit breakers, MCCBs, switch fuse units, MCBs, etc standard ratings. Conduits – metallic and non metallic types – permissible numbers of wires in conduits. Wiring of Special equipments like UPS, invertors, standby for computers, etc. Essential factors for wiring high rise buildings.
Making straight and Tee joints in standard insulated wires.
Making Brittania and western union joints in bare copper and aluminium wires.

6. Earthing of systems, necessity types of standards for earthing – selection of location – type and size of earthing conductors – minimum number of earth electrodes. Earthing of Special equipment.

7. Fuses, rewirable and HRC types – ratings, selection and grading. Circuit breakers – MCCB, MCB, Overload protection, Earth leakage protection – ELCB – principle of operation – standards leakage current ratings.

8. Basic Principle of operation of invertors, UPS and electronic chokes, power ratings. principle of operation and characteristics of commonly used light sources such as incandescent lamps, LED lamps, fluorescent lamps, compact fluorescent lamps, vapour lamps.

9. Standard symbols of various types of electrical equipments – reading of schematic drawing for power and control circuits. Electrical workman tools and accessories.

10. Testing and commissioning of installations – standards, testing meters – insulation tester, earth tester, neon tester, hand held lamp tester. General knowledge of continuity and polarity tests in single phase and three phase wiring, insulation resistance and earth resistance test.

11. Safety measures to be observed while working – devices used for electrical workman safety. Knowledge on tariffs. Procedure for availing electric supply to consumer – submission of completion report. Energy efficient and trouble free maintenance of installations. Knowledge of energy conservation methods. Code of conduct and ethics to be observed by the electrical workman with the Contractor, consumer and the Regulatory Authorities. Protective measures against electrical shocks to working personnel, restoration of and first aid to persons sustaining electrical shocks.

EXAMINATION FOR ELECTRICAL WAIREMAN

Examination: Electrical Wireman Examination shall normally be held in May and November in a year. Examination Time table shall be notified by the Licensing Board.

Examination for Electrical Wiremen :-

The examination for Wiremen is intended for candidates domiciled in the State of Maharashtra. Candidate will submit the necessary documents with application.

1. Qualification and experience for Wireman Examination :– A candidate for the examination of Wireman shall be a person:-

(a) who is domicile of the State of Maharashtra;

(b) who has worked on wiring and electrical installation works under direct supervision of a competency certificate holder or a qualified Electrical Engineer for a total period of one year as may be considered satisfactory by the Board;

or

Who has gained six months practical experience under direct supervision of a competency certificate holder or a qualified Electrical Engineer after completion by him of the wireman apprentices' classes at any technical institute recognized by the State Government and has also passed the examination held by the Board of Technical Examination or Board of Vocational Education and Training, Maharashtra State;

or

Who has gained six months' practical experience under direct supervision of a competency certificate holder or a qualified Electrical Engineer after completion by him six months course of Motor Winding conducted by the Board.

2. Structure for the Electrical Wireman Examination:-

(i) The Examination shall consist of practical examination of 3 hours duration carrying 100 marks and Oral Test carrying 50 marks.

To pass the examination the candidate shall be required to secure at least 50 marks in practical and 25 marks in Oral examination for passing the examination.

(ii) Syllabus for the wireman Examination shall be as specified in Schedule **"WS".**

3. Fee for admission to Wireman Examination :- Rs. 500/- to be paid through GRASS system.

4. Essential documents for application of Wireman Examination:-

a) Form "12 M"
b) Form "C"
c)) Form "E"
d) Form "D" (For readmission to examination)
e) Certificates of educational qualification.
f) Domicile Certificate / Aadhar Card
g) Receipt of prescribed fees for wireman examination.

5. Formatsfor Wireman Examination: - Available under the Tab "Various Forms".

6. Syllabus for Examination for Electrical Wiremen Permit:-

1. Properties of copper and aluminum conductors. Properties of insulating materials such as PVC, XLPE, rubber and porcelain. Concept of voltage, current, power, energy, resistance, inductance,

capacitance, impedence, power-factor. Simple calculation of current, power, energy and voltage drop. Comparison between series and parallel connection of loads.

2. Basic principle of bulk generation of electricity in hydel and thermal stations. Functions of substations
and transformer stations in power systems. Lead acid and dry type of storage batteries. constructional details, characteristics, charging and maintenance, tubular and maintenance free batteries.

3. Measuring devices. Principle of operation of voltmeter, ammeter, wattmeter, tong tester and multimeter. Measurement of energy in single phase and three phase circuits using energy meters. Checking of possible errors.

4. Transformers principle of operation, construction, KVA and current ratings – efficiency, care and maintenance. Induction motors. Principle of working of squirrel cage and slipring motors–starter, D.O.L., star/delta(semiautomatic and automatic) and rotor resistance types. Single phase motors principle. Different types of fan regulators -–resistance and electronic types. Principle of operation of fractional horse power motors used in appliances such as mixies, washing machines, etc. Principle of operation of AC generators.

5. Various systems of LT wiring – types of wires and standard sizes – voltage and current ratings – thumbrules for voltage drop in cables. Main switch boards, sub switch boards and distribution boards – permissible loads – selection of location and standards clearances for main boards etc. Circuit breakers, MCCBs, switch fuse units, MCBs, etc standard ratings. Conduits – metallic and non metallic types – permissible numbers of wires in conduits. Wiring of Special equipments like UPS, invertors, standby for computers, etc. Essential factors for wiring high rise buildings.

Making straight and Tee joints in standard insulated wires.

Making Brittania and western union joints in bare copper and aluminium wires.

6. Earthing of systems, necessity types of standards for earthing – selection of location – type and size
of earthing conductors – minimum number of earth electrodes. Earthing of Special equipment.

7. Fuses, rewirable and HRC types – ratings, selection and grading. Circuit breakers – MCCB, MCB, Overload protection, Earth leakage protection – ELCB – principle of operation – standards leakage current ratings.

8. Basic Principle of operation of invertors, UPS and electronic chokes, power ratings. principle of operation and characteristics of commonly used light sources such as incandescent lamps, LED lamps, fluorescent lamps, compact fluorescent lamps, vapour lamps.

9. Standard symbols of various types of electrical equipments – reading of schematic drawing for power and control circuits. Electrical workman tools and accessories.

10. Testing and commissioning of installations – standards, testing meters – insulation tester, earth tester, neon tester, hand held lamp tester. General knowledge of continuity and polarity tests in single phase and three phase wiring, insulation resistance and earth resistance test.

11. Safety measures to be observed while working – devices used for electrical workman safety. Knowledge on tariffs. Procedure for availing electric supply to consumer – submission of completion report. Energy efficient and trouble free maintenance of installations. Knowledge of energy conservation methods. Code of conduct and ethics to be observed by the electrical workman with the Contractor, consumer and the Regulatory Authorities. Protective measures against electrical shocks to working personnel, restoration of and first aid to persons sustaining electrical shocks.