

FORM-'A' (See Clause-12)
HIMACHAL PRADESH STATE LICENSING BOARD

Application Form for Admission to Electrical Supervisor's Certificate of Competency Examination.

(To be filled in Hindi/English)

Sr. No	DESCRIPTION		Affix Recent passport photograph Attested by a Gazetted Officer
1.	Full Name of Applicant (In block letters):		
2.	Father's Name		
3.	Date of Birth (Authentic proof of age is to supplied):		
4.	Proof of Nationality (Any of the following : Bonafide Certificate. or Ration Card or Voter ID or Adhar Card.		
5.	Permanent address	Correspondence Address:	
	PIN CODE-	PIN CODE-	
6.	Detail of Academic qualifications (Proof be attached):		
7.	Experience: (Enclose copy)		
8.	Whether appeared in previous test, if so, quote Roll. No. with year:		
9.	Examination Fee Rs. 250/- Plus Rs. 50/- for paper III(optional) be paid under below mentioned Head of account (fee be deposited through Treasury challan only D.D.O. Code-950 (077 for Capital Treasury, Shimla). Head of Account: 0043- Taxes and Duties on Electricity 800- other Receipts 01- Misc. Receipts. (The original Treasury Challan be enclosed with the admission form).	Name of Treasury: Amount: Challan No: Date	
10.	Personal Marks of identification:	i) ii)	

11.	State clearly the language in which examination: is to be taken (viz. English, Hindi).	
12	Five without attested recent copies of photographs of passport size, showing name and parentage of Candidate on the reverse be enclosed with the form.	
13.	Three specimen signature duly attested by a gazetted officer be enclosed.	

I, hereby declare that the particulars stated above are true and correct to the best of my knowledge and belief.

Signed by candidate in my presence
signature of Gazetted officer with
designation & seal or Principal of a
recognized Institute with address, seal or name.

Dated:

Signature of Candidate

Name: _____
Phone No. _____

The application form can be had (free of cost) from the Office of Chief Electrical Inspector, Block No.29, SDA Complex, Shimla-171009. **OR**

The applications forms can be downloaded from the website: www.hp.gov.in/elins.

INSTRUCTIONS

Read instructions carefully before submitting the application form:

ELIGIBILITY:-

1. The candidate should not be below 20 years on the date of examination. The candidate of less than 20 years can appear in the examination but the certificate of competency will not be granted till he completes the age of 20 years.
2. The candidate must have passed at least Matriculation standard examination from recognized Board/Institution.
3. The candidate should have Two Years Experience under A-Class Wiring Contractor or Other Electrical Training practical Experience recognized satisfactory by the Licensing Board
4. The candidate must have to produce the original documents in support of his eligibility before the Examination Committee at the examination centre before appearing in the examination failing which he/she shall not be allowed to appear in the Examination and his/her candidature shall automatically stand cancelled.
5. Examination shall be open to Bonafide Himachali or in the employment of Government/ Semi-Government/ Other Government Organizations or in the private sector firms/ companies in Himachal Pradesh or has passed 10th / 8th from Board/ Institution situated in Himachal Pradesh.

Fee:

6. Examination Fee amounting to Rs. 250/- Plus Rs. 50/- for the candidates tends to appear in Paper-III be paid through Treasury challan in the **Head of Account given below and the original receipted challan be sent with the application form:**

Head of Account:

0043- Taxes and Duties on Electricity

800- Other Receipts

01-Misc. Receipts.

DDO Code: 950, and 077 for Capital Treasury, Shimla.

7. CHECK LIST:- The following documents are required to be sent with the application form:

- i) Original receipted Treasury challan (in original).
 - ii) Five passport size photographs as per Column No.12 of the application form .
 - iii) Self attested copy of academic qualification.
 - iv) Self attested copy of Experience Certificate as per the instruction at Sr. No. 3 above.
 - v) Self attested copy of proof of Birth Certificate.
 - vi) Self Attested copy of proof of Nationality; Any of the following:
Bonafide Certificate or Ration Card or Voter ID or Adhar Card
 - vii) Two self addressed envelope of size 9"*4" duly stamped worth Rs. 10/-.
8. The Examination form complete in all respects be sent to **THE CHIEF ELECTRICAL INSPECTOR-CUM-CHAIRMAN, H.P. State LICENSING BOARD, ELECTRICAL INSPECTORATE, BLOCK NO. 29, SDA COMPLEX, KASUMPTI SHIMLA (HP) -171009.**
 9. Last date for the receipt of application form is **24.07.2021 up to 5 PM.**

Secretary Licensing Board

SYLLABUS FOR ELECTRICAL SUPERVISOR'S EXAMINATION

The examination will consist of:-

- (1) The following three written papers each of two Three hour duration, and each carry 100 marks:
 - (a) Paper (I) Compulsory- Electrical Theory (Elementary Knowledge).
 - (b) Paper (II) optional –Electricity utilization to be taken by the candidates desiring to qualify domestic, industrial and other installations.
 - (c) Paper (III) optional- Mines Installations to be taken up by the candidates desiring to qualify for electrical installation in mines; and
 - (d) An oral and practical test carrying 100 marks.
- (2) To pass the examination, a candidate must secure 40 marks in each written paper and 50 marks in the oral and practical test.
- (3) No certificate shall be issued unless a candidate passes in papers (I) and (II), or papers (I) and (III). Candidate who have passed in papers (I) and (II), and desire to qualify in paper (III) or candidate who passed in paper (I) & (III) and desire to qualify in paper (II), shall be exempted from re- appearing in paper (I).
- (4) The syllabus for papers (I), II & III shall be as under:-

Paper- I

ELECTRICITY THEORY (ELEMENTARY KNOWLEDGE)

Principles of Electricity- Electric pressure, current and resistances, Ohm's law, Special resistance, Laws of resistance and their application for circulating voltage drop, series and parallel circuits , practical units of voltage, current, resistance, power and energy. Relations between electrical power unit (KW) and mechanical power unit (H.P).

Electromagnetism- Productions of BMP and Flemings hand rule, magnetic , chemical and heating effect of electric current, Magnetic properties of material, Electromagnet and their applications.

Material –Conductors, non-conductors and insulators, insulating materials and their relative merits Transformer oil, effect of heat and moisture on insulation, Lubricants and their uses.

Different types of wires, cable switches, cable breakers, cut outs etc. and their safe current carrying capacity, use of tables and data sheets generally given in electrical handbooks.

Generation of electricity – Natural sources of energy types of prime movers, methods of producing Electro Motive Force-alternating current and direct current.

A.C. Generators- Essential components and constructional features, Shunt, series and compound dynamos and their characteristics, Causes of sparking, Interpoles, Commutators and their maintenance, Carbon brushes their adjustment and care, Methods of voltage regulation , Conditions for parallel operation Simple associated switch board and its accessories.

A. C. Generators (Alternators) - Essential components and constructional features, Methods of voltage and frequency control, conditions and methods for synchronizing, simple associated switch board and accessories.

Batteries- Primary Cells, Dry Cells, Storage of Secondary batteries, accumulators and their installation, Lead acid cells, Nickle iron or alkaline cells. Initial and sub sequent charging of batteries. Charging Circuits and their calculations series and parallel circuits. Maintenance of battery. Use of hydrometer.

D.C. Motors- Theory of series, shunt and compound wound type motor their uses, installation, methods of starting and speed control and reversal of direction

A.C.Circuits- Knowledge of Vectors, Phase and phase difference. Resistance, inductance and capacitance in an A.C. Circuit, periodicity or frequency, power and power factor, Single phase and three phase system. Star and delta connection. Phase sequence.

Controlling and Regulating Gear:- Knowledge of various types of switches, circuit breakers and cut-outs, starters regulators, protective devices for both A.C. and D.C. motors and their wiring with motors.

Transformation- Knowledge of single phase and three phase transformers. Their construction, use and maintenance tapings. Temperature rise. Instrument transformer.

Conversion- Principles of operation of motor generator sets, rotary convertors, mercury and Rectifiers

Transmission and Distribution- (a) *Over head lines-* Simple calculations and general principles of construction of low, medium and high pressure lines, size of conductors, length of spans, sag, strength of poles spacing of conductors, cross arms, effect of temperature, wind pressure, ice and snow, tension on wire, Insulators brackets, stays, guard wires and other protective devices. Earthing, lightning arrestors and lightning conductors and their testing. Testing and fault location.

(b) **Underground Cables-** Simple calculations and general principles of laying cables direct in ground in troughs and pipes, handling, bending, jointing, plumbing under ground and above ground junction boxes distribution board and pillars, Joint by compound, melting of compounds, filling boxes with compound, testing and fault location.

Illumination – Metal filament lamps, fluorescent lamp circuits . High voltage luminous sign installations Photometric units and simple measurement. General requirements of efficient lighting and its elementary calculations, Street lighting time switches.

Safety Rules- Working Knowledge of (a) The Indian Electricity Rules (b) Wiring Rules, (c) Protection and restoration of persons suffering from electric shock.

Paper-II

ELECTRICITY UTILISATION (DOMESTIC INSTALLATION)

Wiring – Layouts of different types such as cleat, metal sheathed, wooden casing, capping, cable type sheathed, conduit and armoured cable for lightning and power installations in residential premises together with necessary types of installations. Wiring of temporary installation and portable appliances.

Circuit Diagrams- Electrical connections of various circuits for (i) House wiring including those for main and sub-distribution boards, switches and cut-outs, etc. together with the load statement with each circuit (ii) Lifts with their safety devices.

Apparatus – Installation and maintenance of heater, cookers, refrigerators and other domestic appliances electric bulbs and indicators, small motors for pumps and electric lifts.

Energy measurement and charges- Energy meters both D.C. & A.C. for house service. Simple calculation relating to cost of energy, elementary knowledge of methods of charging for energy.

Testing and fault attendance- Detection and location of faults in domestic appliances and wiring installations, insulation and continuity test. Rectification of faults. Test for insulation resistance to earth. Earth testing.

Protective devices- Elementary knowledge of the use of fuses and cut outs, earthing of domestic appliances motors etc. Use of lightning arrestors.

Wiring- Layouts of different types such as cleat, wooden capping, metal sheathed, cab type sheathed, conduit and armoured cable for lighting and power installations in industrial premises together with necessary switch gear. Estimates of material and cost of different types of installations. Wiring of temporary installation and portable appliances.

Circuit Diagram- Electrical connection for:-

(i) D.C. & A.C. Generators, switch boards, transformers.

(ii) Main and sub-distribution boards with circuit breakers, switch fuse units, with load statement for each circuit.

(iii) D.C. & A.C. motors, their starters, regulators.

(iv) Battery charging equipment.

(v) Converting machinery.

(vi) Lifts with their safety devices.

Pump installation- General principles and elementary calculations, head, power and energy requirements.

Apparatus- Installation and maintenance of generators, electric motors, electric lifts, electric furnace, electric welding plant, haulage and winding machines, cooling and heating appliances.

Power and Energy Measurement and charges- Measurement of power, volt meters energy meters both D.C. & A.C. Power factor correction by capacitors, simple calculations relating to cost power and energy, elementary knowledge of methods of charging or demand and energy.

Testing and fault attendance- Detection and location of fault in D.C. A.C. generator motors, overhead distribution lines and underground cables, electrical instruments, apparatus and wiring installation, rectification of fault, insulation and continuity test, tests of insulation resistance. Earth testing.

Protective devices – elementary knowledge of earthing of generators, motor, machine installation and appliances. Use of lightning arrestors, fuses including high rupturing capacity fuses cut out outs and circuit breakers over load low volt protection, thermal trips. Field breaking switches and over speed protection.

PAPER III MINES INSTALLATIONS

Wiring- Layouts of different types such as cleats, lead covered, cab types sheathed for lightning purposes and armoured cables of power installations, different types of training cables and their use.

Circuit Diagrams- Electrical connection for-

(a) D.C. & A.C. generators, switch board transformer, etc.

(b) Distribution boards with circuit breakers switch fuse units and gate end switches.

(c) D.C. and A.C. motors tie starters

and regulators. Apparatus- (i)

installation and maintenance of –

(a) Electrical winders, haulages and pump units, their control gears and starters.

(b) Rectifier rotary convertors and electric locomotives.

- (c) Portable and transportable machineries; Coal cutting machines, loaders, conveyors, gate end switches, drill panels with drill units and their control system.
- (ii) General principles and elementary calculation of load, power and energy consumption in pumping, hauling and winding installation and other working machineries.

Power and Energy measurement and charges- Measurement, Watt meters, energy meters meters both D.C. & A.C., power factor correction by capacitors. Simple calculation relating to cost of power and energy. Elementary knowledge of methods charging for demand and energy.

Testing and fault attendance- Detection and location of earth faults in electrical apparatus and cable. Insulation and continuity test. Rectification of faults. Test for insulation resistance to earth. Testing of leakage protective devices and earth testing.

Protective Devices- Elementary knowledge of earthing of metal frame of machinery. Uses of fuses, overload, no volt and earth leakage protection of circuit breakers.

Safety Rules- Working knowledge of the Indian Electricity Rules, 1956 with particular reference to chapter X.

N.B.- Candidate desiring to qualify only for electrical installations in mines need not appear for compulsory section under part II. Part I is, however, compulsory for such candidates also.

SYLLABUS FOR PRACTICAL EXAMINATION FOR ELECTRICAL SUPERVISOR CERTIFICATE OF COMPETENCY.

- (a) (i) Installation including wiring of various type of switches and starters of A.C. & D.C. motors, connection starting and reversal of direction of motors.
- (ii) Connections of MCB's, ELCB, installation of capacitors and wiring of fluorescent tube etc.
- (iii) Connections of HPMVL, SVL etc. (25)
- (b) Installation of energy meter, ammeter, Voltmeter, Power factor meter, measurement of current and Voltage with Tong tester (clip- on meter). (15)
- (c) Measurement of earth resistance and Insulation resistance with the help of various types of instruments.(10)
- (d) Jointing of Various types of cables and conductors, Installation of LT & HT Installations and Hardware fittings. (10).
- (e) Repair of defective appliances such as electric geysers, air coolers. Use of thermostat No. Volt coils, over load relays, N.C. and N.O. contacts in control wiring (10).

VIVAVOICE

Knowledge of transformers, generators, various type of live materials, source of energy, rectifiers, charging and discharging of lead acid batteries. Use of capacitors. Various types of protective devices. Laying of underground cables, Knowledge of illumination. Knowledge of all types of wiring. Location of faults in domestic appliances. Knowledge of various types of cut out and switches. Knowledge of Indian Electricity Rules. Knowledge of size of cables, conductor and earth conductor for different loads.