

# MIZORAM PUBLIC SERVICE COMMISSION

## DEPARTMENTAL EXAMINATIONS FOR JUNIOR GRADE OF M.E.S. (AE/SDO) UNDER POWER & ELECTRICITY DEPARTMENT, GOVERNMENT OF MIZORAM, DECEMBER, 2019.

### ELECTRICAL ENGINEERING PAPER – II (WITH BOOKS)

Time Allowed : 3 hours

FM : 100 PM : 40

*The figures in the margin indicate full marks for the questions.*

*Attempt all questions.*

1. Explain how a Contractor who has entered into a contract with a supplier or a consumer may operate and carry out the works on electrical lines and apparatus? (5)
2. What are the minimum ground clearance to be maintained of the lowest conductor of overhead lines for different voltage level erected elsewhere than along and across the street in Mizoram? (5)
3. In case of alteration existing overhead line due to erection or alteration of buildings, structures, flood banks and elevation of roads, what are the responsibilities of the Electrical Inspector if there is dispute on the cost of alteration of line estimated by the supplier? (5)
4. What are the general clearance to be maintained for blasting near electrical lines and sub-stations, cutting of soil near tower footings and construction of brick kiln or other polluting units? (5)
5. What are the tolerance for 3 phase voltage unbalance and load unbalance? How are supply voltage classified based on contracted load in Mizoram? (5)
6. What is the formula for calculating Security deposit of a consumer? If an LT domestic consumer have 1kW connected load, calculate the load security amount of the consumer?( Load factor =15%, Fixed Charge = Rs.50.00 per kW, unit cost =Rs.3.10 for first 100kWh and Rs.4.60 for the next 100kWh) (5)
7. What type of energy meter is suggested for HT/EHT consumers? If metering is done on the LT side how transformer loss is to be calculated and adjusted? (5)
8. Calculate the connected load in watts of a new applicant whose proposed electrical fittings and appliances are shown below: (5)
  - 1) LED bulb (9W) = 10 nos.
  - 2) Tube light (40W) = 10 nos.
  - 3) Television (90W) = 2 no.
  - 4) Refrigerator (150W) = 1 no.
  - 5) Electric iron (750W) = 3 no.
  - 6) Washing machine (750W) = 2 nos.
  - 7) Water pump ( 1.5 HP) = 2 no
  - 8) Spare 5A plug (500W) = 6 nos.

9. Elaborate on the functions of State Load Despatch Centre. (5)
10. What are the acts considered as offence for interference with meters or works of licensee and the penalties for it? (5)
11. What are the acts that have been repealed by Indian Electricity Act,2003 and in which section of the Act does it said so? (5)
12. What are the various cause that may lead to suspension of distribution licensee as stated in the Indian Electricity Act, 2003? (5)
13. What is Employer's liability and non-liability for compensation? (5)
14. Who are the dependents of the deceased workman? (5)
15. What is the amount of compensation for a deceased workman? (5)
16. Where will the claim application be filed by the workman? (5)
17. What does IS 3401 say about the volume of breather for distribution transformer? (5)
18. Which IS specification is applicable for A.C three phase Circuit Breakers having voltage greater than 1000V? As per IS 10118, 13118 etc what is the minimum IR value between each pole of HV Circuit Breaker and earth measured using 2500V Meggar? (5)
19. What are the standard basic currents for direct connect single phase and three phase energy meters as per IS 13779:1999? (5)
20. Name the three IS Specifications required to conform for HV side transformer bushing assembly? (5)

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