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BOARD DIPLOMA EXAMINATION, (C-09)
MARCH/APRIL - 2019
DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING
ELECTRICAL INSTALLATION & ESTIMATION
FOURTH SEMESTER EXAMINATION

Time: 3 Hours

Total Marks: 80

PART - A (10 x 3 = 30 Marks)

Note 1: Answer all questions and each question carries 3 marks

2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Draw the wiring diagram for GO-DOWN wiring.
2. Calculate the rating of ICTP main switch capable of handling the starting current for the given 3-phase, 400V induction motor.
3. Draw the wiring diagram of fluorescent lamp.
4. Write the classification of earthing systems based on the type of electrical installation
5. List the material that are to be used in the earth pit surrounding the earth electrode.
6. State the materials required for erecting the 100 KVA, 11KV/400 volts distribution transformer.
7. State I.E. Rule 31, related to placement of cutout on consumer's premises.
8. Specify the value of earth resistance to be maintained for a given electrical installation
 - a) Large power station
 - b) Major substation
 - c) Small substation.
9. State the causes for failure of power transformer due to structural defects.
10. What is the importance of plant maintenance?

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PART - B (5 x 10 = 50 Marks)

Note 1: Answer any five questions and each question carries 10 marks

2: The answers should be ^{*}comprehensive and the criteria for valuation is the content but not the length of the answer

3: Assume any missing data

11. Estimate the number of sub-circuits and size of main switch, Distribution board and the cable required for a residential building which is provided with various electrical installations as shown in the plan. Assume any missing data.

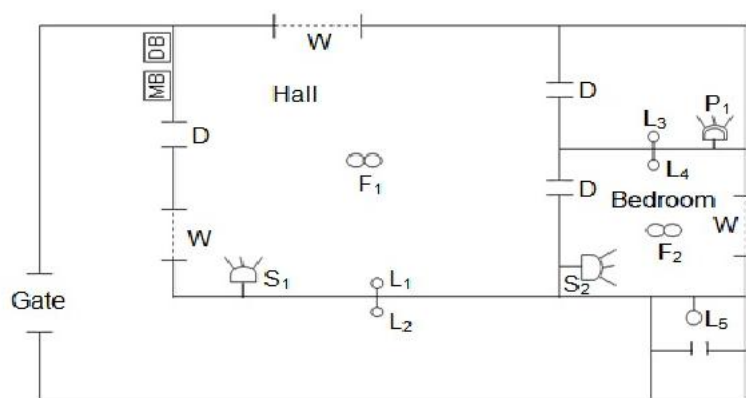


Fig. Plan

12. Draw the circuit incorporating main switch, energy meter, fuse cut-out and distribution board.
13. Prepare the quantity of materials and their cost for an agricultural pump set of 5.5 KW, 3- ϕ , 400V squirrel cage induction motor. The distance between the L.T. pole and the pump-set shed (5x3x3m) is 10 meters. Assume missing data if any.
14. Estimate the quantity of materials required for a 11KV line 3.5KM long. The line is to be laid with 6/1x2.11mm ACSR conductor on R.C.C pole of 9m length with a span between two adjacent poles is 100m. The line will have to pass along the road in a town about $\frac{1}{2}$ KM long. Assume at least 2 turning points and necessary double pole structures.
15. Draw a neat sketch of suitable earthing with necessary dimensions for a 10 H.P. Motor and prepare the quantity of materials.
16. A village has following loads and is to be electrified.
- 50 No's domestic connection each of 200W.
 - ^{*} 18 number of Agricultural pump sets each of 5 H.P. rating. Take efficiency of 85%, 0.8 p.f. to the pump sets.
 - Two flour mills of 10 H.P. capacity Assume a diversity factor of 2, find the suitable rating of distribution transformer and prepare the necessary quantity estimate for the electrification of village. Assume the necessary data.
- 17A. What are the different types of insulators used in overhead transmission line and write their suitability to particular purpose.
- B. Specify insulation resistance desirable for domestic electrical installation and Explain about the departmental test for insulation resistance.
- 18A. Write the major hazards that frequently occur in any industry.
- B. Write any five advantages of plant maintenance.