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BOARD DIPLOMA EXAMINATION

MARCH/APRIL - 2019

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

ELECTRICAL INSTALLATION & ESTIMATION

FOURTH SEMESTER EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (3m x 10 = 30m)

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. State any three advantages of cartridge fuses.
2. Compare lead-sheathed cable and weather proof cable in any three aspects
3. State any three merits and demerits of concealed wiring system
4. Calculate the size of the cable for the given 3-phase, 7.5 HP, 400V induction motor. Assume efficiency of motor as 85% and power factor as 0·8 lagging
5. Draw the wiring layout for an Electrical laboratory
6. State the use of single phase preventer in the installation of irrigation pump set
7. List the type of Insulators used in overhead line.
8. Calculate the no.of Insulators required for 1 km length, 11kV line. Assume Two cut point and span between poles is 70 meters.
9. What is the importance of I.E rules in electrical supply and distribution system
10. The load particulars of the villages are given below. Determine the rating of the transformer to be installed in the load centre by assuming suitable diversity factor.

    a) Agricultural load – 20 H.P
    b) Domestic load each 1000W – 60 No's
    c) Small scale industries load each 4 KW – 3 No's
    d) Commercial load – 6 KW

PART - B (10m x 5 = 50m)

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

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

11. Explain surface conduit wiring system with a neat diagram

12. In a workshop of size 6m x 4m x 3.5m, a 3-phase, 415V, 50Hz, 10HP squirrel cage induction motor is to be installed. The motor is 4m away from the main switch and 1.5m from the nearest wall

    (a) Draw the installation plan
    (b) Draw the single line diagram
    (c) Prepare the list of materials required with specifications for the above electrical wiring installations

    Assume missing data if any

13. An agricultural pump set of 5 HP, 415V, 3-phase, 50Hz is to be installed for a well. The height of pump shed is 2m. The distance between the pump shed and L.T. line pole is 20m. Efficiency and power factor are 85% and 0.9 lagging respectively. Estimate the quantity of material required for connecting the pump set to the lines and draw the line diagram of wiring installation. Assume missing data if any

14. The plan of a residential building is shown in Fig. It is to be provided with Concealed system of wiring. Estimate the materials required. Wattage of lamps=60W, Fan=80W, 15A socket=1000W.Also draw the wiring diagram. Assume any missing data

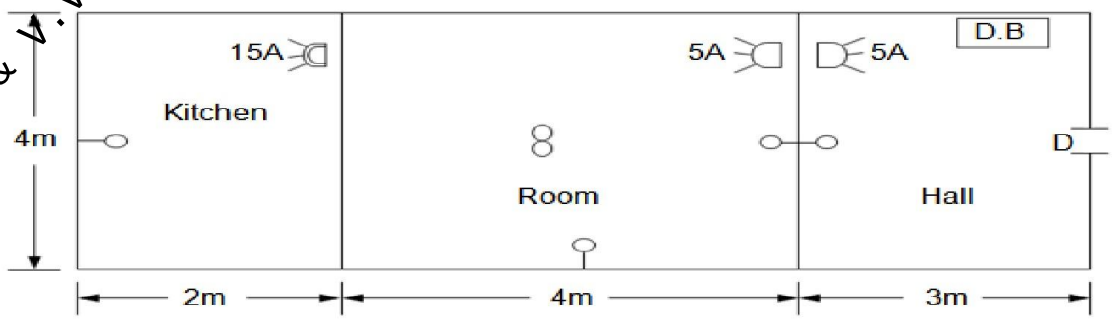


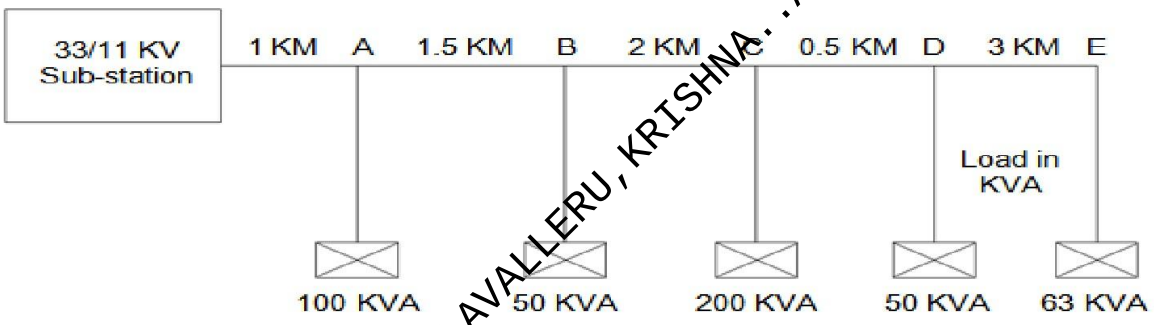
Fig. Plan of a residential building

15. Estimate the quantity of materials required for an 11 kV, 3-phase overhead line with 6/1x2.59 mm ACSR conductor for 1 km long on 8 m PSCC poles. The span between two poles is 75 m

16. Draw a neat sketch of 250 kVA, 11kV/415V,3-Phase plinth mounted sub-station and prepare the materials for the erection of the above substation

17. Draw a neat sketch of plate earthing showing dimensions and estimate the quantity of materials required

18. Calculate the voltage regulation of a 11KV line with 7/2.59mm ACSR conductor which is emanating from 33/11KV substation, the connected distribution transformers and distances are as shown in Fig.



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