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BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2018

DEEE—FOURTH SEMESTER EXAMINATION

ELECTRICAL INSTALLATION AND ESTIMATION

Time : 3 hours]

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. What are the requirements of fuse material?

2. List the six concealed conduit wiring system accessories.

3. Write the full forms of (i) DPIC, (ii) TPIC, and (iii) TPICN.

4. What are different systems of interior wiring?

5. Calculate the size of cable for the given 3-phase, 7.5-HP, 400-V, 50-Hz inductioin motor. Assume efficiency 85% and power factor 0.8 lag.

6. List the important accessories used in wiring service mains.

7. What are the types of insulator used in overhead lines?

8. Write the applications of plate earthing.

9. Specify the values of earth resistance to be maintained for the following : (a) Large power station (b) Major substations (c) Small substations

10. What do you know about the location of transformer while erecting.

PART—B 10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) The answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

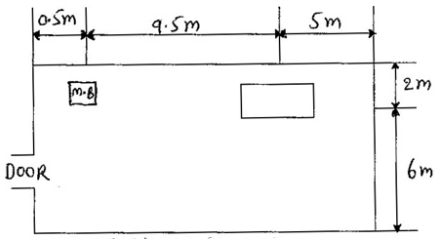
11. *(a)* Explain the construction and working of HRC fuse with neat diagram.

(b) What are the advantages and disadvantages of rewirable fuse?

12. *(a)* Draw the wiring layout with six number power points for an electrical workshop in a polytechnic.

(b) Write any five Indian electrical rules for internal domestic wiring.

13. A 10-HP (Metric), 415-V, 3-phase, 50-Hz, squirrel-cage induction motor is to be installed in floor mill, the plan of which is shown in the figure below:



Draw the layout of wiring diagram and estimate the quantity of materials required. The efficiency of the motor is 85% and power factor is 0.8 lag. Assume missing data, if any.

14. Prepare the quantity of materials and their approximate cost for an agricultural pump set of 7.5 HP, 3phase, 415 V motor. The

distance between LT pole and pump shed is 10 m. The pump shed dimensions are 5 m × 2 m × 3 m. Assume missing data, if any.

15. A new 2.5 kM, 11 kV line is to be expected and connected to the existing 11 kV line. The height of pole is 10m, ACSR conductor of size 6/1 × 2.11 mm is to be used. Estimate the materials required.

At least two cut points and three 90° angle points may be assumed. Assume a span 80m.

16. Draw the neat sketch of 250 MVA, 11-kV/400-V and 3-phase plinth mounted substation and estimate the materials required for the erection of the above substation.

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

18. Describe the following tests in detail :
(a) Continuity of wiring in an electrical installation
(b) Insulation resistance between conductors

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