Hall Ticket Number:

Code No. : 7211

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

M.E. I Year (EEE) II-Semester (Main) Examinations, July-2016

(Power Systems & Power Electronics)

Distribution System Planning and Automation

Time: **3** hours Max. Marks: **70**

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2=20 Marks)

1. Write the objective of load management.
2. The annual average load is 1241 kW and monthly peak load is 3600kW. Find the load factor and loss factor by using approximate formula.
3. List the components of distribution system.
4. Give the classification of substation bus schemes.
5. Discuss area coverage principle.
6. What is Tie line and what are the functions of Tie line?
7. Classify secondary distribution systems.
8. Enumerate the functions of secondary mains.
9. Name the advantages of DAC System.
10. Justify the need for distribution system automation.

Part-B (5 × 10=50 Marks)
(All bits carry equal marks)

11. a) Derive the relationship between the load and loss factors for three different cases when i) Off peak load is zero ii) Load is steady iii) For very short lasting peak.
    b) Explain the following terms in distribution system:
    i) Connected load ii) Demand factor iii) Load diversity.
12. a) Compare the radial, loop and ring main primary distribution systems on the basis of load, reliability of supply and economy.
    b) Explain the ratings of a distribution substation for square shaped and hexagonally shaped substation service areas.
13. a) Write a short notes on ladder iterative technique.
    b) Explain the application of ABCD parameters in distribution system planning.
14. a) Write the process to determine capacitor size in distribution system.
    b) A 50-Hp, 50-Hz, 415V delta connected induction motor has a full load efficiency of 85% and power factor 0.75. The power factor is to be improved to 0.9 using static capacitors. Determine i) rating of capacitor bank kVAR, ii)capacitance of each unit, if they connected as *(a)* delta and *(b)* star in μF.
15. a) Explain different communication systems available for distribution automation.
    b) Explain about Distribution Automation.
16. a) Explain in detail the load classification in distribution system.
    b) Discuss the use of sub-station application curves in distribution system planning.
17. Answer any **two** of the following:
    a) List the various voltage regulation improvement methods.
    b) Compare any two types of sub-transmission systems used in distribution system.
    c) Write short note on GIS system for distribution system.

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