Roll No .....

MEEM-102

M.E./M.Tech., I Semester

Examination, December 2015

Power Generation Transmission and Distribution

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Explain the skin and proximity effect.
   b) List the various sources of electric power. Why some of them are called conventional and others are called non-conventional?

2. Explain Kelvin's Law.
   A 2-conductor cable 1 km long is required to supply a constant current of 200A throughout the year. The cost of cable including installation is Rs. (20a+20) per meter where 'a' is the area of X-section of the conductor in cm^2. The cost of energy is 5P per kWh and interest and depreciation charges amount to 10%. Calculate the most economical conductor size. Assume resistivity of conductor material to be 1.73μΩcm.

3. a) Discuss the points which are considered while designing a transmission line.
   b) Explain in brief the role of flexible AC transmission. And also write merits and demerits of flexible AC transmission.

4. What is meant by corona? Discuss the advantages and disadvantages of corona. A 3- phase, 220 kv ,50 Hz transmission line consist of 1.5 cm radius conductor spaced 2 meters apart in equilateral triangular formation. If the temperature is 400C and atmospheric pressure is 76 cm, calculate the corona loss per km of the line. Take m0 =0.85.

5. a) What are the factors which determine the location and site of a hydro plant?
   b) Describe different turbines and their use in hydroelectric plants.

6. Explain the working of a gas turbine plant. What are its merits and demerits compared to steam power plant?

7. Draw the schematic diagram of a modern steam power station and explain its operation with its important components. And also explain about ash handling waste.

8. Explain the followings-
   a) Modeling of synchronous machine
   b) Reactive power compensation

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