

10EE36

**Third Semester B.E. Degree Examination, June/July 2019**  
**Electric Power Generation**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.**

**PART – A**

- 1 a. Explain the classification of fuels with an example for each. (06 Marks)  
b. Explain with sketches, the working of single-basic and double basic tidal power plant. (08 Marks)  
c. Discuss the benefits of 'co-generation'. (06 Marks)
- 2 a. With a schematic diagram, explain the working of a diesel power station. (08 Marks)  
b. Explain the principle of working of a gas turbine plant. Also explain open cycle and closed cycle gas turbines. (08 Marks)  
c. Explain with a block diagram, working of a bio-generation plant. (04 Marks)
- 3 a. With a schematic diagram, explain the main parts and operation of a thermal power plant. (08 Marks)  
b. Discuss the classification of hydroelectric power plants. Explain high head and base load. (08 Marks)  
c. Mention the factors to be considered for the selection of site for a hydro-electric power plant. (04 Marks)
- 4 a. State the main components of a nuclear power station. Describe the function of each. (08 Marks)  
b. Explain the operation of a Candu reactor. (06 Marks)  
c. Explain the method of nuclear waste disposal. (06 Marks)

**PART – B**

- 5 a. Define the following terms:  
i) Load factor  
ii) Diversity factor  
iii) Plant capacity factor  
iv) Plant use factor. (08 Marks)  
b. Write a note on load curve and its importance. (04 Marks)  
c. The yearly load duration curve can be considered as a straight line from 300MW to 80MW for a contain power plant. Power is supplied with one generating unit of 200MW capacity and two units of 100MW capacity each. Determine: i) Installed capacity ii) Load factor iii) Plant factor iv) Maximum demand. (08 Marks)
- 6 a. Discuss the disadvantages and causes of low power factor of the supply system. (06 Marks)  
b. Explain three part tariff and maximum demand tariff. (06 Marks)  
c. A factory has a maximum load of 240kW at 0.8p.f. lagging with an annual consumption of 50,000 units. The tariff is Rs.50 per KVA of maximum demand plus 10 paise per unit. Calculate the flat rate of energy consumption. What will be annual saving if p.f. is raised to unity? (08 Marks)

- 7 a. Explain the classification of substations according to service requirement and constructional features. (08 Marks)
- b. With a diagram, explain single bus bar system with sectionalization. (04 Marks)
- c. The single line diagram of a three phase system is as shown in Fig.Q.7(c). Percentage reactance of each alternator is based on its own capacity. Find the short circuit current that will flow into a complete three phase short circuit at F. (08 Marks)

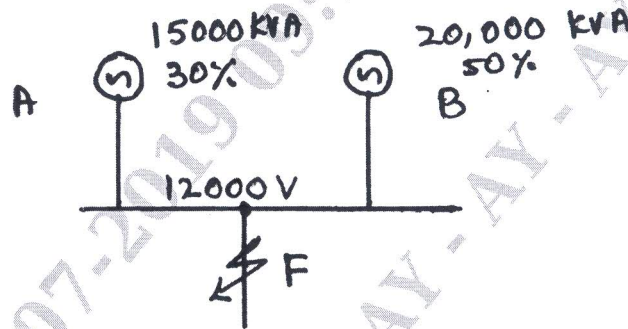


Fig.Q.7(c)

- 8 a. Explain solid grounding and resistance grounding. (10 Marks)
- b. With a schematic arrangement and phasor diagram, explain the resonant grounding. (10 Marks)

\*\*\*\*\*