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M.Tech (EE) (Sem.-2,4)

POWER SYSTEM OPERATIONS AND CONTROL

Subject Code : ELE-501 M.Code : 36005

Time: 3 Hrs. Max. Marks: 100

INSTRUCTIONS TO CANDIDATES:

- 1. Attempt any FIVE questions out of EIGHT question.
- 2. Each question carry TWENTY marks.
- Q1 a) Explain the input-output characteristics, cost curve characteristics and incremental cost curve characteristics of a steam unit. (10)
 - b) What is economic dispatch problem? Derive the exact coordination equation for N thermal generating units neglecting transmission losses. (10)
- Q2 Explain Lambda-iteration method for solving economic dispatch problem. Consider losses into account as well. (20)
- Q3 a) Write down B matrix loss formula. Explain the gradient method for economic load dispatch with consideration of losses as well. (12)
 - b) Distinguish between economic dispatch and unit commitment problem. (8)
- Q4 What are the various techniques of unit commitment? Explain constraints in a unit commitment problem Explain the solution of UC problem using priority list method. (20)
- What is the importance of short-term hydro-thermal scheduling problem? Explain its solution using Lambda-Gamma iteration method. (20)
- Q6 What is load frequency control (LFC) in power system? Explain various controls associated with LFC for a two area LFC system with the help of block diagram. (20)
- Q7 a) Explain how overall cost of generation of electric power is calculated. Explain break down of cost in various heads. (10)
 - b) What are the advantages and disadvantages of interconnected power systems? (10)
- Q8 What is optimal power flow (OPF) problem? Write down its objective function and constraints. Explain various algorithmic steps to solve OPF problem using Gradient method. (20)

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

1 | M-36005 (S9)-2828