Roll No. | | | | | | | | | | | | | **Total No. of Pages : 01**

Total No. of Questions : 08

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)

Q5 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.