

**B. Tech. Sem –VIII (Electrical Engg.) (2014 COURSE) (CBCS) :
SUMMER - 2019**

SUBJECT: COMPUTER APPLICATIONS IN POWER SYSTEMS

Day: Tuesday
Date: 28/05/2019

Time: 02.30 PM TO 05.30 PM
Max Marks: 60

S-2019-2894

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw a neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

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- Q.1**
- a) Illustrate the formulation of Network matrices in terms of Impedance. (05)
 - b) List the various components in representation of Electrical power system. Illustrate representation for Generator, Transformer and Transmission line. (05)
- OR**
- a) Justify the role of digital computers in power system simulations with example. (05)
 - b) Examine the nature and scope of power system studies. (05)
- Q.2**
- a) Illustrate the computer applications in wind energy system design with a neat labeled diagram. (06)
 - b) What do you understand by monitoring, maintenance and scheduling? Explain. (04)
- OR**
- a) What are the various factors required for computer applications in solar energy design? Illustrate with diagram. (06)
 - b) Compile various energy storage devices. What are the factors for selection of energy storage devices? (04)
- Q.3**
- a) What is load flow analysis? Explain Load flow analysis using Gauss Seidel method. (06)
 - b) What do you understand by acceleration factor? How does it affect the load flow analysis? (04)
- OR**
- a) Derive power flow equations for Load flow analysis. (06)
 - b) Identify the parameters essential for load flow analysis with example. (04)
- Q.4**
- a) What do you understand by Transient Stability analysis? Illustrate Euler's method for solution of Numerical differentiation equations. (05)
 - b) What are symmetrical faults? Illustrate the symmetrical faults with diagram. (05)
- OR**
- a) What are faults in power system? Illustrate the pre-fault and post-fault conditions for a particular system. (05)
 - b) Explain the steps for the formulation of sequence impedance matrix. (05)
- Q.5**
- a) What do you understand by economic dispatch? Optimize the generation schedule for a thermal power plant with equations. (06)
 - b) Develop algorithm steps for economic dispatch using Newton-Rhapson method. (04)
- OR**
- a) Illustrate the classical method to calculate the loss coefficients. (06)
 - b) Explain generalized Generation Shift Distribution Factor. (GSDF) (04)
- Q.6**
- a) What is state transition diagram? Illustrate with diagram the various operating state of power systems. (06)
 - b) Distinguish between Static Security Analysis (SSA) and Transient Security Analysis (TSA) (04)
- OR**
- a) Illustrate with diagram the major components of security assessment. (06)
 - b) What do you understand by contingency analysis? Develop an algorithm for contingency analysis. (04)