

**B. TECH. (CBCS - 2014 COURSE) SEM –VIII (ELECTRICAL
ENGG.) : SUMMER - 2018**

SUBJECT: COMPUTER APPLICATIONS IN POWER SYSTEMS

Day: **Thursday**
Date: **07/06/2018**

S-2018-4674

Time: **02.30 PM TO 05.30 PM**
Max Marks: 60

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.

- Q.1**
- a) Explain with diagram the hierarchy of transmission and distribution system. **(05)**
 - b) What are the factors required for representation of power system modeling? **(05)**
Illustrate modeling of two-winding transformer.
- OR**
- a) Enlist various generator and load models in ETAP software. Illustrate its importance in modeling of power system. **(05)**
 - b) How will you classify transmission lines? Explain with diagram modeling of Transmission lines. **(05)**
- Q.2**
- a) Explain with diagram computer applications in solar energy design. **(06)**
 - b) Illustrate on various types of membrane required for fuel cells. **(04)**
- OR**
- a) Illustrate computer applications in tidal and wave energy with block diagram. **(06)**
 - b) Explain monitoring and maintenance for wind energy system. **(04)**
- Q.3**
- a) Explain load flow analysis using Newton-Rhapson method. **(06)**
 - b) What do you understand by sensitivity analysis? Enlist the factors affecting sensitivity analysis. **(04)**
- OR**
- a) Explain various notations used in three phase load flow problem. **(06)**
 - b) Explain with equations fast decoupled method of load flow analysis. **(04)**
- Q.4**
- a) Explain with generalized flow chart AC-DC load flow equation solution. **(05)**
 - b) Enlist and illustrate the transient stability analysis of synchronous machines. **(05)**
- OR**
- a) Distinguish between symmetrical and unsymmetrical faults for three phase systems. **(05)**
 - b) Explain with equations Rung-Kutta method for solution of transient stability. **(05)**
- Q.5**
- a) Illustrate the loss coefficients using sensitivity factors. **(06)**
 - b) Explain optimal power flow analysis for equality and inequality constraints. **(04)**
- OR**
- a) Illustrate on Transmission loss formula as function of generation and loads. **(06)**
 - b) What are loss coefficients? Explain various methods to evaluate them. **(04)**
- Q.6**
- a) Explain generation outage sensitivity factor (GOSF) and Linen outage sensitivity factor (LOSF). **(06)**
 - b) Distinguish between preventive and corrective actions for power system security. **(04)**
- OR**
- a) Explain with state transition diagram, operating state and its behavior for a power system. **(06)**
 - b) Explain with diagram, major components of on-line security analysis. **(04)**