B.TECH SEM – VIII (2007 COURSE) (ELECTRICAL ENGG.)

: WINTER - 2017

SUBJECT: COMPUTER APPLICATIONS IN POWER SYSTEMS

Day : **Tuesday** Time **02.30 PM TO 05.30 PM**

Date **21/11/2017** **W-2017-2668** Max. Marks : 80

N.B.:

1) Q. No. 1 and Q. No. 5 are **COMPULSORY**. Out of remaining solve Any **TWO** questions from each Section.
2) Answers to both the sections should be written in **SEPARATE** answer book.
3) Figures to the right indicate **FULL** marks.
4) Draw neat sketches and assume suitable data **WHEREVER** necessary.

SECTION-I

Q.1 **a)** Explicate hierarchy of transmission and distribution system with neat flow diagram **(05)**

b) Enlighten data acquisition system for a power system with allied block diagram **(05)**

c) Elucidate modified Euler's method to solve swing equation for a multi machine system **(04)**

Q.2 **a)** Explain use of digital computers in a power system **(07)**

b) Draw circuit model for a three phase star delta transformer and its single phase equivalent circuit and elucidate **(06)**

Q.3 **a)** Explain Newton Raphson method of load flow studies along with relevant flowchart **(07)**

b) Write a note on security monitoring **(06)**

Q.4 **a)** Elucidate symmetrical component analysis of unsymmetrical fault along with relevant general power network, sequence network diagrams and Thevenin's equivalent diagram **(07)**

b) Explicate single line to ground fault along with relevant fault representation diagram and sequence network diagram **(06)**

SECTION-II

Q.5 **a)** Write note on nuclear power plant control with related block diagram and associated parameters **(05)**

b) Write a note on data monitoring system along with related block diagram, its need and location of moninitoring equipment **(05)**

c) Elucidate various SCADA configurations along with related block diagrams **(04)**

Q.6 **a)** Explicate thermal plant control with pertinent block diagram and various allied parameters. **(07)**

b) Write a note on integrated information system for a power system with related block diagram. **(06)**

Q.7 **a)** Elucidate remote terminal unit along with related block diagram **(07)**

b) Illuminate various transducers used in data collection system for a hydro power plant **(06)**

Q.8 **a)** Write a note on various applications of SCADA in a gas power plant **(07)**

b) Elucidate use of SCADA in wind farm grid integrated system along pertinent block diagram **(06)**