B.TECH
(SEM VI) THEORY EXAMINATION 2017-18
SCADA & ENERGY MANAGEMENT SYSTEM

Time: 3 Hours   **Total Marks 100**

Note: 1.   Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   **Attempt all questions in brief.**   **2 x10 = 20**
   a) Explain why SCADA in needed?
   b) What do you mean by RTU? Also explain its applications.
   c) Explain status indicators in SCADA.
   d) What do you mean by data logging in SCADA?
   e) What do you mean by report preparations?
   f) What are the applications of power line carriers.
   g) Explain the configuration of non redundant single processor system.
   h) What are the advantages of energy management system?
   i) What are the limitations in real time operation system requirements in SCADA systems?
   j) What are the printing facilities in machine communications

SECTION B

2.   **Attempt any three of the following:**   **10 x 3 = 30**
   a) Explain the general structure of a SCADA system, its purpose and advantages.
   b) Explain the set points and feedback loops in regulatory systems.
   c) Explain Man machine communication system and its components in detail.
   d) Explain real time operation system and its requirement. Also explains modularization of software programming languages.
   e) What are functions performed at a centralized energy management system? Explain in detail.

SECTION C

3.   **Attempt any one part of the following:**   **10 x 1 = 10**
   (a)   Explain different methods used for data acquisition in a SCADA system.
   (b)   Explain different types of communication channel required in the SCADA system.
4.   **Attempt any one part of the following:**   **10 x 1 = 10**
   (a)   Explain the application of control function for the process in an industry.
   (b)   Explain data acquisition system with the help of block diagram and explain each component of the system.
5.   **Attempt any one part of the following:**   **10 x 1 = 10**
   (a)   What do you mean by mimic diagrams in SCADA system? Explain its different functions and advantages.
   (b)   Explain operator consoles and VDUs functions in man machine communication system.
6.   **Attempt any one part of the following:**   **10 x 1 = 10**
   (a)   Explain the configuration of redundant dual core processor and multicontrol centers.
   (b)   What do you mean by EMS and where does it fit in the network? Also give some differences between SCADA and EMS.
7.   **Attempt any one part of the following:**   **10 x 1 = 10**
   (a)   Define economic dispatch and power pool management and their significance in SCADA System
   (b)   Explain load management and production control in energy management center.