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الاسم/   السكشن/

Question 1

Draw a schematic diagram for typical SCADA system for the following specifications.

1. The field sit contains

A. Three flow-meters (Smart).	F. Two pressure transmitter.
B. Five level transmitter (smart).	G. One temperature transmitter.
C. Ten Level switches	H. Six indication lamps.
D. Three start/stop push-buttons.	I. Five AC pumps 20 KW.
E. One emergency stop push-button.	

2. The over-all sit control is constructed from 6 controllers, 3 of them is connected together in a ring network topology but the others in a star.

3. Redundancy only for the main controller in a ring network topology.

4. Each controller in a ring network topology is connected to the sub-central unit through a radio communication system, but only the main controller in a star network topology is connected through an optical landline network to another sub-central unit.

5. The main central unit consists from the main controller with 3 operation stations that are connected point-to-point to the main controller

6. Final level of SCADA is a commercial data processing system which consists from two levels, the low level is production control but the highest level is production scheduling.

After complete drawing SCADA system, answer all the following

1. Why each sub-central unit contains two separate communication system?
2. Is there any connection between the two sub-central units?
3. Identify the key features of SCADA software and hardware.
4. Identify all components that could need maintenance in SCADA system.
5. Identify the approximately speed of data transfer in each levels of SCADA system.
6. What are the two different licensing patterns used for SCADA Software?
7. Name the Leading SCADA Companies and its SCADA software?
8. Name 3 not open SCADA software.