

- 1) Explain the fault management process in the case of short circuit fault in medium voltage overhead line. What is the role of modern distribution automation in the process? How customer service is handled during the process?
- 2) Explain the fault management process in the case of fault in low voltage network. How the process has been changed along with new distribution automation applications?
- 3) Explain briefly what kind of communication is typically used in the following applications of distribution automation and why:
  - a) Communication inside substation
  - b) Communication between control center and substations
  - c) Customer meter reading
- 4) Calculate the reliability indices SAIFI, SAIDI and MAIFI in the following simple feeder. Calculate the indices also in case when the disconnecter is remote controlled (switching time is 5 minutes) and in the case when the disconnecter is replaced by a circuit breaker. What else method could be used to evaluate reliability?

**Failure rate = 5 faults / 100 km, a**

**Temporary failure rate = 40 faults / 100 km, a**

**Switching time of disconnecter 1 h, repair time 3 h**

