

M. Tech.-II (Electrical -Power System) (CBCS – 2015 Course) :

WINTER - 2018

SUBJECT: PLC AND SCADA

Day: Thursday
Date: 22/11/2018

Time: 11.00 AM TO 02.00 PM
Max Marks: 60

W-2018-3154

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data, if necessary.

SECTION-I

- Q.1**
- a) What is need of automation? What are its advantages? (05)
 - b) Write a note on manufacturing companies and PLC evolution. (05)
- OR**
- a) Draw and explain block diagram of CPU. (05)
 - b) What are different memory types? Explain in brief. (05)
- Q.2**
- a) Explain different types of timers with diagrams. (05)
 - b) Write a note on tuning of PID (05)
- OR**
- a) Write a note on Retentive timer. (05)
 - b) What are steps involved in creating ladder diagram. (05)
- Q.3**
- a) Write a note on PLC interface. (05)
 - b) Discuss use of PLC in AC motor starter. (05)
- OR**
- a) Explain overload protection for AC motor with diagram. (05)
 - b) Explain how PWM DC motor controls motor speed. (05)

SECTION-II

- Q.4**
- a) What are desirable properties of SCADA system. (05)
 - b) Explain different communication protocols in case of SCADA system. (05)
- OR**
- a) What do you mean by HMI and state its properties. (05)
 - b) What is use of SCADA in case of Electrical power generation? (05)
- Q.5**
- a) Draw and explain about SCADA server. (05)
 - b) Draw block diagram of SCADA in case of chemical plant. (05)
- OR**
- a) Draw block diagram of SCADA system for oil refinery plant. (05)
 - b) Write a note on RTU and MTU for remote applications. (05)
- Q.6**
- a) Explain control of Information protocol. (05)
 - b) Draw and explain DNP₃ protocol. (05)
- OR**
- a) Write a note on modbus. (05)
 - b) What do you mean by different layers OSI model and their functions. (05)

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