

**M. TECH.-II (ELECTRICAL -POWER SYSTEM) (CBCS – 2015  
COURSE) : SUMMER - 2018  
SUBJECT: PLC AND SCADA**

Day: **Friday**  
Date: **15/06/2018**

**S-2018-3016**

Time: **11.00 AM TO 02.00 PM**  
Max Marks: 60

**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) Write a short note on input and output module with necessary block diagram. (05)  
b) Draw block diagram of power supply required for PLC and explain the same. (05)  
OR  
a) Write note on History of PLC. (05)  
b) State advantages of PLC over other types. i.e. relay logic. (05)
- Q.2** a) What do you mean by Counters? Explain Up counter with diagram. (05)  
b) What is retentive timer and its application in industries. (05)  
OR  
a) Differentiate between Boolean logic and relay logic. (05)  
b) Explain basic components of ladder diagram. (05)
- Q.3** a) Differentiate between open loop system and closed loop system. (05)  
b) Write a note on PID controller. (05)  
OR  
a) Explain output analog devices. (05)  
b) Draw torque-speed characteristic for variable speed (variable frequency) AC motor drive. (05)

**SECTION-II**

- Q.4** a) Write a note on SCADA system architecture. (05)  
b) What is role of SCADA in power system generation. (05)  
OR  
a) What is R.T.U.? Explain its role in remote areas or in hazardous environment. (05)  
b) What is monolithic architecture of SCADA system? (05)
- Q.5** a) Explain SCADA system networked architecture with diagram. (05)  
b) Write a note on SCADA system in critical infrastructure. (05)  
OR  
a) Write a note on energy management system. (05)  
b) Write a note on automatic substation control. (05)
- Q.6** a) Write down overview of OSI model. (05)  
b) What are functions of internet protocol. (05)  
OR  
a) Explain what do you understand by profibus. (05)  
b) Explain security implications of SCADA protocol. (05)