

MASTER OF TECHNOLOGY (ELECTRICAL - POWER SYSTEM) (CBCS - 2015 COURSE)
M. Tech. (Electrical-Power System) Sem-II :SUMMER- 2022
SUBJECT : PLC & SCADA

Day : Monday
Date : 1/8/2022

S-14125-2022

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION-I

- Q.1** a) What is Programming equipment? State their types? (05)
b) What are input analog devices? Draw its block diagram. (05)

OR

- a) What are merits and demerits of PLC? (05)
- b) What is power supply block diagram for PLC? Explain. (05)

- Q.2** a) What is ladder diagram for following function table? (05)

I/ P I ₁	I/ P I ₂	O/ P Q ₁	O/ P Q ₂	O/ P Q ₃
0	0	1	1	0
0	1	0	1	1
1	0	1	1	1
1	1	1	0	1

- b) What are different steps involved in creating ladder diagram? (05)

OR

- a) What are output analog devices? (05)
- b) What is ON/OFF analog devices? (05)

- Q.3** a) What are different types of transducers? Explain any one. (05)
b) How do you explain temperature measurement and controlling using PLC? (05)

OR

- a) What is variable frequency drive for AC motor? (05)
- b) What is AC motor overload protection? Draw neat sketch for the same. (05)

SECTION-II

- Q.4** a) How do you draw and explain SCADA architecture in detail? (05)
b) What are merits and demerits of SCADA system? (05)

OR

- a) How SCADA can be implemented in water purification system? (05)
- b) What are different SCADA generations? (05)

- Q.5** a) What is automatic substation control? (05)
b) How do you explain SCADA in connection with electrical power system? (05)

OR

- a) What are security implications of SCADA protocol? (05)
- b) What do you mean by Intelligent Electronic devices? (05)

- Q.6** a) What is DNP3 SCADA protocol? (05)
b) What is Flexible functions block (FFB)? (05)

OR

- a) What is control and information protocol? (05)
- b) How do you explain Open System Interconnection (OSI) Model? (05)