

16.11.19 FW L/R.



Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : 90450

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Fifth Semester

Information Technology

OEI551 – LOGIC AND DISTRIBUTED CONTROL SYSTEMS

(Common to : Computer Science and Engineering/Computer and Communication Engineering/Electronics and Communication Engineering/Electronics and Telecommunication Engineering)

(Regulations 2017)

Time : Three Hours

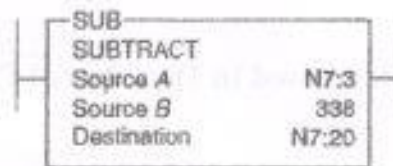
Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Give at least four examples for input and output devices used in PLC.
2. Draw the ladder logic to control a single lamp with three switches.
3. With reference to the instruction of Figure given below, what is the value of the number stored at the destination if N7:3 contains a value of 500 ?



4. Write the significance of sequencer in PLC programming.
5. Write the necessity of Data Acquisition System in Computer Controlled Systems.
6. Differentiate Supervisory Control and Direct Digital Control.
7. Write the significance of Distributed Control System.
8. State the significance of Local Control Unit in Distributed Control System
9. Mention the function of operator interface system.
10. Write the significance of Human Machine Interface.



11. a) Draw the architecture of PLC and explain the significant features of each component. (13)
- (OR)
- b) Illustrate with examples, explain the working of programming timers and counters in PLC. (13)
12. a) Write the significance of program control instructions. Explain the various program flow control instructions. (13)
- (OR)
- b) Illustrate with logic diagram, the working of Bit Shift Left and Bit Shift Right register instructions. With the help your own objectives, develop a program using shift registers to track the carriers flowing through 16 stations. (13)
13. a) Explain the operations performed by digital data acquisition system for computer-controlled systems. Also draw the block diagram and explain the features of various blocks involved in digital data acquisition system. (13)
- (OR)
- b) Write the significance of SCADA in industrial control. Describe the features of various components involved in SCADA architecture. (13)
14. a) Compare the features of various architectures of Distributed Control System. (13)
- (OR)
- b) Discuss the salient features of various communication protocols used in Distributed Control System. (13)
15. a) Discuss the features of displays used in Distributed Control System and the corresponding interfaces. (13)
- (OR)
- b) Discuss the factors to be considered in selecting the Distributed Control System. (13)

16. a) i) Draw the functional block diagram and ladder logic of AND, OR, NOT, NAND, NOR and XOR logic gates. (9)
- ii) Draw the block diagram of direct digital control applied to an industrial process and explain. (6)
- (OR)
- b) For a process of your own, analysis the implementation of distributed control system with clear definition of objectives, block diagram, hardware and software details used. (15)