BE (ELEX) R19 (scheme 13-05-25

(3 Hours) [Total Marks: 80]

N.B.: (1) Question No. 1 is **Compulsory**.
(2) Attempt any **three** questions out of the remaining **five**.
(3) Each question carries 20 marks and sub-question carry equal marks.
(4) Assume suitable data if required.

Q.1 Solve any **Four** from the following 20
a Compare continuous and discontinuous controller
b State different features of Programmable Logic Controller.
c Compare Pneumatic and Hydraulic systems
d
e Explain the features of SCADA system.
Define offset error pertaining to proportional controller how it can be minimized?

Q.2 a Explain PI controller with proper circuit diagram and the controller action 10
b Define scan interval and discuss the factors which affects the scan interval of SCADA. 10

Q.3 a Role of HMI in Automation with a neat block diagram. 10
b. Explain the two-point controller and clearly show how cycling error is avoided? 10

Q.4 a Design a 4 and 20 mA current loop and compare the same the 3-15 psi standards in pneumatic system. 10
b Design the master rung for a pump ON /OFF system. Pump should be ON using NO (normally Open) Pushbutton START switch and switch it OFF using NC Pushbutton STOP switch. Switching of the Pump is indicated by RED lamp. The presence of power supply is indicated by the GREEN lamp. 10

Q.5 a What is tuning of the controller? Explain different ways of controller tuning 10
b With proper block Diagram explain working of the Cascade Controller 10

Q.6 Write short notes on any two 20
a Feedforward Controller
b Floating type of the controller
c Ratio Controller

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