33071 – CONTROL OF ELECTRICAL MACHINES

UNIT – I - CONTROL CIRCUIT COMPONENETS

PART-A & PART-B QUESTIONS

1. Draw the symbol of ON and OFF Pushbutton switch.
2. Write the uses of Proximity switch. And it's Types.
3. Mention the types of over current Relay.
4. State some Relay's used in control circuits.
5. What is the use of Interlocks on drives?
6. State the advantages of solid state Relay.
7. What is OFF delay timer and Explain?
8. Write brief notes on latching relay.
9. What is zero speed switches. And where it is used.
10. What is preventive interlocking?
11. What are the Effects of single phasing?

PART-C QUESTIONS

1. Explain the operation of current operated Phase Failure relay with a neat sketch (or) Explain with circuit diagram the principle of operation of Single phase preventer.
2. Explain the operation of Dash pot oil filled Relay with neat diagram.
3. (a) Explain the construction and operation of pressure switch and state its use.
   (b) Explain the operation of Electronic Timer with neat circuit diagram.
4. Explain the construction and operation of Latch Relay and how it is used in control circuit.
5. Draw the control circuit Electrical and Mechanical Interlocks and Explain briefly.
6. Explain voltage Relay , DC series current Relay, Frequency Response Relay and phase failure Relay.

UNIT – II - AC MOTOR CONTROL CIRCUITS

PART-A & PART-B QUESTIONS

1. What is the motor current at starting and during the acceleration?
2. What are the types of speed controller of AC motor?
3. Draw the control circuit of DOL starter.
4. What is meant by automatic control of motor?
5. List any Three starter for AC motor
6. Write the principle of Dynamic breaking.
7. How do you reverse the Direction of rotation of 3 phase induction motor?
8. Name the type of starter used for wound induction motor
9. Draw the control circuit for Two speed Two winding motor.
10. Draw the current speed characteristics of an AC motor during acceleration.
11. What is the meaning of open circuit transition in autotransformer starter?
12. What is Semi automatic star / delta starter?

PART-C QUESTIONS

1. Explain with a control circuit the working of an Automatic Star/ Delta starter for cage induction motor.
2. Explain Dynamic braking of Induction motor with neat diagram.
3. Draw and explain the control circuit of Automatic 3 step rotor resistance starter for wound induction motor.
4. Explain with neat diagram automatic auto transformer starter (open circuit transition).
5. Explain with a control circuit the working of semi automatic star/delta starter.
6. Explain with neat control circuit the operation of secondary frequency acceleration starter.
7. Explain with a control circuit for reversing the direction of 3φ induction motor.

UNIT – III - INDUSTRIAL CONTROL CIRCUITS

PART-A & PART-B QUESTIONS

1. What are the three motions in a crane control?
2. Draw the control circuit of Water pump.
3. What is the necessity of sequential control in conveyor system? (or) why should motors of a conveyor system be switched on in sequential manner?
4. Draw the circuit diagram of skip hoist control.
5. Why single phasing contactor is used in the control of overhead crane?
6. State any five trouble spot in control circuit.
7. State some methods used to control the heat of an electric oven.
8. Draw the various limit switch contact position when the lift car (elevator)is at 3rd floor.
9. Name the limit switches that are used in Planer machine control.
10. State the use of skip hoist.

PART-C QUESTIONS

1. Explain with control circuit, the operation of planner machine.
2. Draw and explain the control circuit of Electric oven.
3. Explain the Mechanical arrangement and control circuit of automatic control of water pump.
4. (i) Explain the trouble spots in control circuit.
   (ii)Explain the general procedure for trouble shooting of control circuit.
5. Explain with a neat sketch, the control of a conveyor system by sequential starting of conveyor motors.
6. Explain Air compressor and its control circuit.
7. Explain skip hoist and its control circuit.

UNIT – IV - PROGRAMMABLE LOGIC CONTROLLER

PART-A & PART-B QUESTIONS

1. Name the parts of PLC.
2. What is the principle of PLC?
3. Briefly explain the working of PLC.
4. Write notes on input devices of PLC.
5. What is the advantage of using modular PLC?
6. What are the applications of PLC/
7. Explain the memory organization of PLC.
8. Mention the criteria for selection of suitable PLC.
9. Explain Fixed PLC.
10. Define PLC scan.

PART-C QUESTIONS

1. Draw the Block diagram of a PLC system and explain the function of each block.
2. Draw the schematic and wiring diagram for input/ output modules and explain.
3. Compare hardwire control system and plc system in detail.
4. Explain the modes of operation of plc in detail.
5. Explain the components of plc scan in detail.
6. Explain in detail about the different programming devices.
7. Explain in details about manufacturing automation and Non-manufacturing automation.

UNIT – V - PLC PROGRAMMING

PART-A & PART-B QUESTIONS

1. What is ladder programming?
2. What is rung?
3. Explain the difference between the operation of a non-retentive timer and that of a retentive timer.
4. Briefly explain about status bits of plc timer.
5. What is examining OFF instruction in plc?
6. What is a preset time of PLC timer?
7. Describe cascading of Timers.
8. Briefly explain about status bit of counter.
9. Explain Up counters in PLC.
10. What is Retentive timer?

PART-C QUESTIONS

1. Explain the various types of programming languages in PLC.
2. Explain with ladder diagram, the operation of star-delta starter using PLC.
3. Explain the working of Rotor resistance starter using ladder diagram.
4. Explain the working of up counter used in PLC with Ladder diagram.
5. Explain Relay type instruction used in PLC.
6. Develop a ladder logic diagram for EB to generator change over system.