564 Register No.: [ ]

October 2018

Time – Three hours
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory. Answer any FOUR questions from the remaining in each PART – A and PART – B

(2) Answer division (a) or division (b) of each question in PART – C.

(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and 10 marks in PART – C.]

PART – A

1. State Kirchhoff's voltage law.
2. Mention any two applications of DC series motor.
3. What are the losses in a transformer?
4. Define the terms power and power factor of an AC circuit.
5. State the importance of earthing.
6. What is ripple in rectifier circuits? How it is removed?
7. What is limit switch? Where it is used?
8. Write the Boolean expression for universal logic gates.

PART – B

9. State Faraday's laws of electromagnetic induction.
10. Draw the circuit of 3 phase star connection and write the relationship between line values and phase values of voltage and current.
11. What is fuse? State its necessity in an electrical circuit.
12. What is stepper motor? Mention any two applications of it.
13. Differentiate positive logic and negative logic systems.
14. List the advantages and disadvantages of SMPS.
15. Draw the block diagram of inductive proximity sensor used for metal detection.
16. Explain pole changing method of speed control in a 3 phase induction motor.

[Turn over.....

PART – C

17. (a) Explain the constructional details of a DC generator with neat diagram.

(Or)

(b) (i) Draw the diagram of 3 point starter.

(ii) The equivalent resistance of 2 resistors is 16Ω when connected in series and 3Ω when connected in parallel. Find the value of two resistors.

18. (a) Explain the construction and working of single phase capacitor start induction motor.

(Or)

(b) Explain the construction and principle of operation of alternator.

19. (a) Explain individual drive, group drive and multimotor drive with neat sketches.

(Or)

(b) Explain the half step switching sequence of a stepper motor with a neat diagram.

20. (a) Explain the working of half wave rectifier with a neat diagram. Draw its input and output waveforms.

(Or)

(b) Draw the symbol and truth table of OR, AND and EX-OR gates and explain OR and AND gates using their equivalent electrical circuit.

21. (a) Explain the types of PLC scan.

(Or)

(b) Explain the construction and working of oil circuit breaker with a neat sketch.
