

**834****October 2017**

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. You have been given a magnet and a coil. When will an emf induced in coil?
2. What is sparking?
3. What is back emf?
4. Mention the purpose of conducting Swinburne's test.
5. Relate primary and secondary voltage and number of turns in a transformer.
6. Draw the connection diagram of 3 phase delta star transformer.
7. What is internal resistance of a cell?
8. How much of voltage and current is to be set during SC test of a transformer?

**PART – B**

9. Write a note on lap and wave winding.
10. Draw speed-torque characteristics of DC shunt motor and comment on it.
11. What is the necessity of using starter with DC motors?
12. Write the emf equation of single phase transformer. Why a constant 4.44 is included in this equation?
13. Write a brief note on breather.
14. What is the reason for conducting acidity test?
15. What do you understand by the term capacity of battery?
16. With reasons, mention the applications of DC shunt generators.

**[Turn over...**

PART – C

17. (a) Draw the constructional diagram of DC generator and explain the principle of operation.

(Or)

- (b) Explain the load characteristics of DC series generator.

18. (a) Draw the characteristics of DC shunt motor and give a brief account on each.

(Or)

- (b) Explain the methods of speed control of DC shunt motor.

19. (a) Explain the process of paralleling two single phase transformers.

(Or)

- (b) The test results of a 5kVA, 200/400V, 50Hz single phase transformer are as follows.

OC test : 200 V, 0.7A, 70W

SC test: 15V, 10 A, 85W

Find the equivalent circuit constants.

20. (a) Explain how load is shared by two transformers having unequal ratings.

(Or)

- (b) Explain how dielectric strength and contamination in transformer oil are identified.

21. (a) Discuss in detail about Nickel Cadmium cell.

(Or)

- (b) Explain in detail about indications of battery charged and discharged conditions.

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