

POWER APPARATUS

Time: Three hours

Full Marks: 100

Use separate Answer- script for each part.

Part-I
(30 marks)

Answer any three questions.

1. What are the different voltage withstand tests for 3- phase transformer windings? Explain two of them with proper phasor diagrams. 10
2. Draw and explain the delta/delta connection for measuring temperature rise in case of oil immersed transformers. How is the duration of such test fixed? 10
3. What is oil filter press? Discuss how it helps in the maintenance of insulating oil of transformer? How does it differ in operation from stream line filter? 10
4. Explain the need for partial discharge measurement of power transformers. Draw and explain circuits used for the partial discharge calibration and measurement. Why precautionary measures are taken at the time of partial discharge measurement? 10
5. Discuss with necessary diagram the general arrangement of equipments for an impulse test on transformer and different connections used for fault detection during this test. 10
6. What are the different methods employed for drying out of transformer oil and transformer on site? Discuss with proper connection diagram. 10

M.E. POWER ENGINEERING FIRST YEAR SECOND SEMESTER - 2017

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PART-II (70 marks)

Answer any three questions

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| 1. a) Discuss various types of over voltages. | 20 |
| b) What are the essential ratings of a lightning arrester? | 3 |
| 2. a) Discuss the mechanism of arc initiation in a circuit breaker. | 10 |
| b) Give a note on SF ₆ circuit breaker. | 13 |
| 3. a) Give a note on RRRV. | 5 |
| b) What are the essential characteristics of lightning arrester? | 4 |
| c) Give a note on air-blast circuit breaker. | 14 |
| 4. a) Discuss why gapless arresters have replaced the conventional type of lightning arrester. | 9 |
| b) Give a note on vacuum circuit breaker. | 14 |
| 5. a) Give a note on FACTS devices. | 20 |
| b) Why lightning arrester is required in a substation? | 3 |