

M.E. POWER ENGINEERING FIRST YEAR SECOND SEMESTER - 2018
POWER APPARATUS

Time: Three hours

Full Marks: 100

Answer any five questions.

1. What is earthing transformer? Illustrate its winding connection diagram and explain its operation during an earthed fault condition.
Discuss the copper loss and impedance voltage test for a three phase interconnected star neutral earthing transformer. Why it is necessary to conduct the impedance voltage test at a reduced value of current.
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2. Draw and explain the three phase back to back test on delta/star connected transformers. How the top oil temperature is measured during such test.
Explain the temperature rise test on dry type transformers.
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3. Explain with diagram the standard impulse voltage wave shape used for transformer impulse withstand testing in laboratory. Describe the impulse withstand test on a transformer and different connection diagrams used for fault detection during this test.
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4. Explain the need for partial discharge measurement of power transformers. Describe different types of circuits used for the partial discharge calibration and measurement. How protection is taken at the time of partial discharge measurement?
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5. Enumerate the advantages of HVDC system?
Discuss different components of HVDC transmission system.
Explain the operating mechanism of HVDC circuit breaker.
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6. What are merits and demerits of using SF₆ in switchgear applications?
Discuss the constructional details of SF₆ circuit breakers.
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7. Write short notes on any two of the followings:
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 - (i) Thyristorized VAR Compensator (any one)
 - (ii) Vacuum circuit breaker.
 - (iii) Horn gap type lightning arrester