Code No: D5601 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
HIGH VOLTAGE TESTING TECHNIQUES
(POWER SYSTEMS HIGH VOLTAGE)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1. Explain different methods available for measurement of DC resistivity. [12]

2. Explain high voltage Schering bridge method for measurement of dielectric loss and dielectric constant of insulating materials. [12]

3. a) Explain the terminology related to partial discharge phenomenon.
   b) How partial discharge is measured by balanced detection method? [12]

4. How discharge detectors are calibrated in partial discharge measurements? [12]

5. a) A Schering bridge was used to measure the capacitance and loss angle of an HV bushing. At balance condition observations were: The value of standard capacitor =100pF, R_3=3180 ohms, C_3=0.00125μF, R_4=636 ohms. Determine what are the values of capacitance and tanδ of the bushing.
   b) A 0.1 μF, 1000V standard condenser was charged to 1000V and discharged through the specimen. If the time taken for the voltage to fall from 1000V to 500V was 30min 20sec, find the resistivity of the specimen. [12]

6. Explain how the testing of insulator can be done using power frequency tests and impulse tests. [12]

7. Explain the different types of short circuit tests carried out on circuit breakers and isolators. [12]

8. Explain the testing of surge arresters by different methods in high voltage engineering. [12]

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