

Benha University		Circuit Breakers and Substations - EPE445
Faculty of Engineering (Shoubra)		Mid Term Exam, 26 Nov., 2014
Elec. Eng. Dept., 4 th Year (Power)		Time Allowed: 90 Minutes

Answer all questions in allowed time and use drawings if available

Question (1)

(14 Marks)

Distinguish between each of the following:

- a) Air Blast circuit breaker and Oil Circuit breakers, from the point of view of merits, demerits and applications.
- b) Live tank circuit breaker and dead tank circuit breaker, from the point of view of installation, merits, demerits and applications.
- c) Load break switches, isolators and circuit breakers.
- d) Rated breaking current and rated making current of circuit breakers.
- e) Circuit breakers used in extra high voltage transmission lines and that used in distribution system.

Question (2)

(16 Marks)

- a) State the common rated characteristics of the metal clad switchgear and the circuit breaker.
- b) What are the conditions affecting the operation, maintenance and the lifetime of the metal clad switchgear?
- c) Compare between the type and routine tests to be carried out on the metal clad switchgear as per the IEC?
 - a) What is the TRV, its effects on C.B and the parameters affecting on its value?
 - b) In a short circuit test on a circuit breaker, the time to reach the peak restriking voltage of 100kV is 70 μ sec on a frequency transient. Determine the following:
 - The average rate of rise of restriking voltage.
 - The time for maximum rate of rise of restriking voltage.
 - The maximum rate of rise of restriking voltage.
 - The frequency of restriking voltage transient.

Best Regards

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