Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

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MEPS-205

M.E./M.Tech., II Semester

Examination, December 2016

Power System Transients

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions.
ii) Each question carries 14 marks. Part (a) and (b) carries 7 marks each.

1. Explain the phenomena of current chopping in a circuit breaker. What measures are taken to reduce it?

2. With reference to circuit breaker, write technical notes on the followings:
   i) Capacitive current breaking
   ii) Interruption of kilometric fault
   iii) Asynchronous switching

3. What are the causes of over voltages arising on a power system? Why it is necessary to protect the lines and other equipments of the power system against over voltages?

4. Differentiate between surge diverter and surge observer. What are the characteristic of an ideal surge diverter?

5. What are the internal and external sources for the development of transients in power system? Discuss in brief.

6. Give the concept of travelling wave. What are the specifications of a travelling wave? Write the expression for series and shunt lumped parameters in distributed lines.

7. a) How can the magnitude of over voltages due to direct and indirect lighting strokes on overhead lines be calculated?
   b) What is a Ground Wire? What are the requirements to be satisfied by ground wires to provide efficient protection to lines against direct lightening strokes.

8. Write short notes on the followings:
   a) Difference between power frequency over voltage and transient over voltage surges
   b) Basic Insulation Level (BIL)
   c) Protective margin and protective ratio

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