



Name :
Roll No. :
Invigilator's Signature :

CS/M. Tech (EE)/SEM-2/PEM-202/2013

2013

POWER SYSTEM APPRATUS

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* of the following : $5 \times 14 = 70$

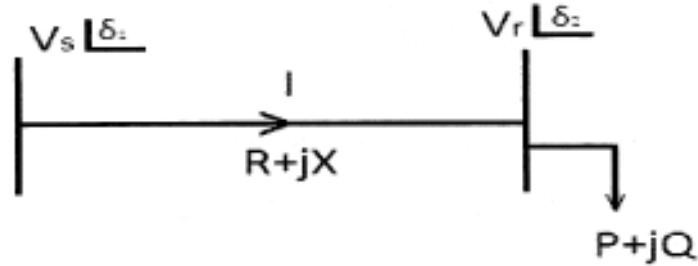
1. a) Discuss about the properties of fluids used in circuit breaker.
b) What types of properties are required for the gases used in circuit breaker ?
c) Discuss about the application of VCB and SF₆ circuit breaker. $8 + 3 + 3$
2. a) Explain the construction and working principle of Vacuum circuit breaker using proper diagram.
b) Write down the demerits of VCB and SF₆ circuit breakers. $10 + 3 + 1$
3. a) What is FACTS ?
b) Classify the FACTS controller.
c) Discuss the benefits with the applications of FACTS controller. $2 + 3 + 9$

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4. a) Derive the voltage stability index of a bus of sending and receiving end voltage as shown in the figure below.



- b) What is voltage collapse ? 11 + 3
5. a) What passive compensation ?
- b) Compare series and shunt compensators.
- c) What are the functions of STATCOM in load flow ? 2 + 6 + 6
6. a) What is Thyristor Switched Capacitor.
- b) Explain Unified Power Flow Controller (UPFC) with proper diagram. 3 + 11
7. Write short notes on any *two* of the following : 7 + 7
- a) Static Synchronous Compensator (SSC)
- b) Static Var Compensator (SVC)
- c) Thyristor Control Series Capacitor (TCSC)
- d) Static Synchronous Series Compensator (SSSC).