Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M. Tech (EE)/SEM-2/PEM-204-A/2013

2013
HIGH VOLTAGE D.C. TRANSMISSION

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 × 14 = 70

1. a) What is the difference between HVDC and AC system ?
   b) Briefly describe the application of HVDC transmission system.
   c) Classify the HDVC links. 7 + 3 + 4
2. a) What is the advantage of 12 pulse converters ?
   b) Draw and explain the Graetz circuit and their respective waveforms. 5 + 9
3. Explain any *two* of the following : 7 + 7
   a) Converter Transformer
   b) HVDC light
   c) Current Commutated Converter.
4. a) Write down the advantage of ground return path.
   b) Draw the block diagram of a HVDC generating station and explain the DC system components and their function. 4 + 10

5. a) Classify different types of insulators used in HVDC system.

   b) Why we use composite long-rod type insulator instead of pin type insulator ?

   c) Write down the disadvantages of HVDC transmission.

   3 + 6 + 5

6. Explain any *two* of the following : 7 + 7

   a) Thyristor valves

   b) Back to back converters

   c) Lighting arresters for DC system.

7. a) Why we use reactive power controller in HVDC transmission system ?

   b) Why IGBT valves used in HVDC station instead of thyristor valves ?

   c) What is constant current control ? 5 + 5 + 4