

Roll No.

Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(Power System) (2013 Batch) (Sem.-3)
EHVAC AND HVDC TRANSMISSION SYSTEM
Subject Code : MTPS-301C
M.Code : 72136

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

- Q1. (i) Compare and contrast AC transmission with DC transmission systems. (10)
- (ii) Discuss various modern trends in DC transmission systems (10)
- Q2. (i) A sphere gap consists of two spheres with $R=0.25\text{m}$ each. The gap between their surfaces is 0.5m . Calculate the charges and their locations to make the potentials 1 and 0. (15)
- (ii) What is the effect of high electrostatic fields on human beings under a line? Why does a normal human being not experience a shock when walking underneath a line? (5)
- Q3. (i) Discuss the benefits of FACTS technology. (10)
- (ii) List the applications of static synchronous series compensator (SSSC) and explain its working principle. (10)
- Q4. Explain the principle of operation of a six pulse Graetz circuit with neat schematic diagram and derive the expression for load voltage and load current. (20)
- Q5. (i) Discuss various factors affecting corona losses. (5)
- (ii) Discuss various faults that exist in converter station in HVDC system. Mention the protection techniques. (8)
- (iii) Write a note on radio interference due to EHVAC and HVDC systems and what are the methods to reduce this noise? (7)

- Q6. (i) Explain in detail various types of filters used in HVDC systems. (10)
- (ii) Discuss briefly the design of single tuned filters in HVDC systems. (10)
- Q7. (i) What are the problems and advantages of parallel operation of HVAC and DC systems? (10)
- (ii) What are the techniques for controlling the output voltage of converter of HVDC transmission system? (10)
- Q8. (i) Why are harmonics generated in HVDC converters? What are the problems associated with the harmonics. (10)
- (ii) Distinguish between characteristic and non-characteristic harmonics. (10)

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NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.