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Printed Pages : 3 TEE – 021

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0289 Roll No. | | | | | | | | | | |

B. Tech.

(SEM. VIII) EXAMINATION, 2008-09

EHV AC & DC TRANSMISSION

Time : 3 Hours] *[Total Marks : 100*

Note : Attempt all questions.

1 Attempt any **four** of the following: 5×4=20

(a) Enumerate the **five** most important points describing the need of EHV Transmission.

(b) With the help of a line diagram give the hierachy of standard voltage levels of power transmission in India.

(c) Describe in **two** sentences the following :
- (i) Bundled - Conductors.
- (ii) Sub-conductors
- (iii) Surface gradient
- (iv) Dampers
- (v) Spacers.

(d) Write a brief note on modern trends in EHV AC and DC Transmission in India.

(e) Compare EHV AC with HVDC transmission on five salient points.

(f) Discuss about **two** major considerations in mechanical design of transmission lines.

2 Attempt any **two** of the following: **10×2=20**

(a) A 400 kV system has a generated capacity of 2000 MVA. Calculate :

(i) The normal current

(ii) The rms value of shrot circuit current for a bus fault on the Transformer H.V. winding if $X_d^{'} + X_t = 0.5\ pu$ on generator base on the 400 KV side.

(iii) The maximum current which the circuit breaker contacts have to carry and

(iv) The maximum interrupting current of the breaker if the contacts part after $1\frac{1}{2}$ cycles (f = 50 Hz.).

(b) Write a note on Corona on following points :

(i) Definition and causes.

(ii) Factors affecting.

(iii) Formulae.

(iv) Adverse effects.

(c) (i) Discuss about audible noise or Radio Interference in detail.

(ii) What do you know about principle of Half Wave transmission? Write in detail.

3 Attempt any **two** of the following : **10×2=20**

(a) Show the characteristics of an Impulse voltage. Draw a labelled diagram to show a practical Impulse generator.

(b) What are the various methods of generating High AC voltage? Draw a schematic diagram to depict internal arrangement of 2 unit cascade-connected transformer with excitation and measuring circuits.

(c) Write a detailed note on effects of pollution on performance of EHV Lines.

4 Attempt any **two** of the following: **10×2=20**

(a) Describe the various types of HVDC links. Also discuss about the various firing schemes used for controlling the power flow through HVDC links.

(b) What do you understand by starting and stopping of DC link. Describe the methods used for the same.

(c) Write notes on :

(i) Monopolar HVDC Systems, and

(ii) Earth eletrode in bipolar systems.

5 Attempt any **two** of the following. **10×2=20**

(a) Describe the various types of converter faults. What protection is used against overcurrents in an HVDC system ?

(b) Describe the sources of harmonics in HVDC System. How are the harmonics mitigated?

(c) Describe a Multiterminal DC system on following points :

(i) Types

(ii) Control.
