



6. According to the Paschen's Law, the breakdown voltage of a uniform field gap is
- Directly proportional to the gas pressure and inversely proportional to the electrode gap
  - Inversely proportional to the gas pressure and directly proportional to the electrode gap
  - Directly proportional to the both electrode gap and gas pressure
  - Inversely proportional to the both electrode gap and gas pressure
7. Surge diverters are
- non-linear resistors in series with spark gaps which act as fast switches
  - arc quenching devices
  - shunt reactors to limit the voltage rise due to Ferranti effect
  - over-voltages of power frequency harmonics
8. Impulse testing of transformers is done to determine the ability of
- bushings to withstand vibrations
  - insulation to withstand transient voltages
  - windings to withstand voltage fluctuations
  - all of the above
9. In wet flashover tests, the conductivity of water used is
- $10 \pm 1.5 \mu$  Siemens
  - $100 \pm 15 \mu$  Siemens at ambient temperature
  - $45 \pm 10 \mu$  Siemens at room temperature
  - $< 1.0 \mu$  Siemens at  $27^\circ$  C
10. In EHV and UHV system, ratio of BIL to SIL will be usually
- Less than unity
  - More than 1.5
  - 1.5 to 2.0
  - 1.2 to 1.5
- PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

- Explain the HVDC transmission based on VSC. (8)
- Write short note on
  - Converter bridge characteristics (8)
- Describe the control circuit for the operation of Current source converter with neat sketch. (8)
- Compare the salient features of SVC and STATCOM based on all operational aspects. (8)
- Derive the discrete time converter model for 3 valve conduction (8)

