Printed Pages: 4 EEE-063

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 120854	**Roll No.**

B.TECH.

Theory Examination (Semester-VIII) 2015-16

POWER CONVERTERS APPLICATIONS

Time : 3 Hours ***Max. Mar : 100***

Section-A

1. Attemp ALL Parts of the following: (2×10=20)

(a) What is transmission loss? Mention various losses in transmission system.

(b) What is the need of excitation system in synchronous generator?

(c) Define FACTS controller and mention its advantages.

(d) Write full from of STATCOM and mention its application.

(e) Enlist the advantages of switch mode power supply (SMPS).

(f) Write operating frequency range of aircraft power supply. How does it differ from conventional power supply system.

(g) Mention the application of induction heating.

(h) Enlist the benefits of interconnection of renewable energy resources to grid.

(i) Why HVDC transmission is preferred over HVAC transmission?

(j) Differntiate between power converter and dual converter.

Section-B

Q2. Attempt any FIVE parts of the following: (10×5=50)

(a) Discuss various modes of operation of 12-pulse converter based HVDC trarnsinission system.

(b) Explain various dc links used in HVDC transmission sytem with neat diagram.

(c) Describe the various static Var systems (SVS) commonly used in EHV power transmission.

(d) Describe the working of Full-Bridge SMPS with neat circuit diagram and waveforms. Also mention the various expressions of voltages and current involved in it.

(e) Describe single-pole switches based on (i) a thyristor (ii) a transistor and (iii) a GTO used in industrial applications.

(f) What are the various types of converter faults in HVDC transmission system? Explain in detail.

(g) Compare the performance of series and shunt compensators in HVDC system.

(h) Explain the principle of high frequency inverters based induction heating with the help of neat diagrams.

Section-C

Note : Attempt any TWO parts of the following:

(15×2=30)

Q3. Explain the application of ac voltage controller for resistance heating and illumination control.

Q4. Explain the configurations and application of off-line and on-line UPS systems by means of neat illustrations.

Q5. Discuss the MINNESOTA interface for the integration of photovoltaic system to the utility grid.