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BIEEE-008

B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

June, 2018

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BIEEE-008 : FLEXIBLE AC TRANSMISSION SYSTEM

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt* ***five*** *questions in all. All questions carry equal marks. Use of scientific calculator is permitted.*

1. (a) With relevant diagrams and derivations, show that power factor affects the voltage and reactive power of uncompensated lines. 7

(b) Compare passive and active compensators with suitable examples. 7

2. (a) Discuss the reactive power compensation technique to improve the operation of power systems. 7

(b) Explain the line loading capability of overhead transmission lines. 7

3. (a) Compare TCR and TSC on the basis of VI and VQ characteristics. 7

(b) Explain the reasons for variation of voltages in power systems and suggest different methods to control it. 7

4. (a) Explain the operation of 'UPFC' with suitable diagram. Discuss its functional capabilities. 7

(b) What are custom power devices ? Mention their examples and explain any one of them in brief. 7

5. (a) With suitable diagrams, explain the working of SSSC in power systems. 7

(b) Why is TCR preferred over TSC when continuous voltage control of lines is required ? 7

6. (a) Why are filters needed in thyristor based compensators ? 7

(b) How does Interline Power Flow Controller (IPFC) help in compensating multiple number of overhead lines ? 7

7. Write short notes on any ***two*** of the following : *2×7=14*

(a) Thyristor Controlled Voltage Limiter (TCVL)

(b) Comparison Between SVC and STATCOM

(c) Energy Storage Devices