

- Q.19 Give brief description of DC Transmission system.
- Q.20 Name the filters used in HVDC transmission.
- Q.21 Explain shunt compensation with diagram.
- Q.22 Explain the principle of operation of Interline Power Flow controller.

#### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Describe the sources of harmonics in HVDC systems and the method for their suppression.
- Q.24 Discuss in brief the applications of FACTS.
- Q.25 Write a detailed note on STATCOM (Static Synchronous compensator) and compare it with SVC.

No. of Printed Pages : 4  
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220965A

#### 6th Sem / Electrical

**Subject : HVDC & Flexible AC Transmission Systems**

Time : 3 Hrs.

M.M. : 60

#### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 Which of the following is NOT a FACTS device?
- a) STATCOM                      b) SVC
- c) HVDC converter              d) TCSC
- Q.2 Which FACTS device is used to regulate voltage in an AC transmission system?
- a) TCSC                              b) SVC
- c) Thyristor                        d) Circuit breaker
- Q.3 STATCOM is used for:
- a) Series compensation
- b) Voltage regulation
- c) Converting AC to DC
- d) Increasing transformer efficiency

- Q.4 SVC is primarily used for:
- a) Reducing transmission line reactance
  - b) Controlling reactive power & voltage regulation
  - c) Power factor correction
  - d) DC transmission

- Q.5 Which of the following converters is used in HVDC transmission?
- a) Cycloconverter
  - b) Voltage Source Converter (VSC)
  - c) Buck Converter
  - d) Fly back Converter

- Q.6 The conversion of AC to DC in an HVDC system is done by a :
- a) Transformer                      b) Rectifier
  - c) Inverter                              d) Circuit breaker

**SECTION-B**

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 HVDC transmission is preferred over AC transmission for \_\_\_\_\_ distance power transmission.

- Q.8 The device used to convert DC back to AC in an HVDC system is called an \_\_\_\_\_.
- Q.9 The losses in HVDC transmission lines are \_\_\_\_\_ compared to AC transmission lines.
- Q.10 STATCOM in a FACTS device primarily used for \_\_\_\_\_ regulations in a power system.
- Q.11 HVDC transmission is less efficient than AC transmission for long distances.(T/F)
- Q.12 HVDC transmission does not require transformer. (T/F)

**SECTION-C**

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Write down the advantages of HVDC transmission over HVAC transmission..
- Q.14 Write a short note on monopolar Bipolar and homopolar HVOC Transmission system.
- Q.15 Explain the principle of dc Link Control.
- Q.16 Explain the role of smoothing reactors and filters in HVDC transmission.
- Q.17 Discuss the starting and stopping of DC Link.
- Q.18 Define FACTS. Write down the benefits of using FACTS devices in a modern power system.