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Q.3 HVDC transmission is preferred for : (CO2)

- a) Short-distance power transfer
- b) High-voltage, long-distance transmission
- c) Low-voltage applications
- d) Local distribution networks

Q.4 Which of the following is a major component of an HVDC System ? (CO2)

- a) Rectifier
- b) Inductor
- c) Transformer
- d) Circuit breaker

Q.5 FACTS devices are used to : (CO4)

- a) Improve power quality
- b) Enhance power transmission capability
- c) Reduce losses in AC transmission
- d) All of the above

Q.6 FACTS devices are classified into : (CO3)

- a) Series compensation
- b) Shunt compensation
- c) Combined series-shunt compensation
- d) All of the above

## 6th Sem / ELECTRICAL

### Subject : HVDC and Flexible AC Transmission Systems

Time : 3 Hrs.

M.M. : 60

#### SECTION-A

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

Q.1 The main advantage of HVDC transmission over AC transmission is : (CO1)

- a) Lower cost of transformers
- b) Reduced transmission losses
- c) Higher insulation requirements
- d) Increased line reactance

Q.2 In HVDC transmission, power is transmitted using : (CO1)

- a) Three-phase AC
- b) Single-phase AC
- c) Direct Current (DC)
- d) Pulsating DC

(1)

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(2)

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## SECTION-B

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

Q.7 In an HVDC system, the conversion of AC to DC is done by a \_\_\_\_\_. (CO1)

Q.8 A key component in an HVDC system that smooths out DC voltage variations is called a \_\_\_\_\_. (CO1)

Q.9 FACTS technology is mainly implemented using \_\_\_\_ devices for fast switching and control. (CO3)

Q.10 HVDC eliminates reactive power loss issues that occur in AC transmission systems. T/F (CO4)

Q.11 HVDC systems can provide better stability to the power grid than AC transmission. T/F (CO2)

Q.12 Expand FACTS. (CO4)

## SECTION-C

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

Q.13 Compare AC and DC Transmission Systems. (CO1)

Q.14 What are the applications of DC transmission System. (CO1)

(3)

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Q.15 Explain the advantages and disadvantages of HVDC Transmission systems. (CO2)

Q.16 Explain the types of dc link. (CO2)

Q.17 Describe the working of an HVDC system with a block diagram. (CO2)

Q.18 What are the objections of FACTS. (CO3)

Q.19 Explain the Concept of FACTS. (CO3)

Q.20 What is the need of Compensation? (CO4)

Q.21 Discuss the classification FACTS Controllers (CO4).

Q.22 Explain the principle of operation of unified power flow Controller (CO4)

## SECTION-D

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

Q.23 Explain the equipments of HVDC Transmission Systems in details. (CO1)

Q.24 Define the FACTS. Explain its importance in modern Power systems (CO3)

Q.25 Explain the Shunt and Series Compensation with diagrams (CO4)

(3040)

(4)

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