

Enrollment No: \_\_\_\_\_ Exam Seat No: \_\_\_\_\_

# C.U.SHAH UNIVERSITY

## Summer Examination-2022

**Subject Name: EHVAC & HVDC Transmission**

**Subject Code: 4TE08HVT1**

**Branch: B.Tech (Electrical)**

**Semester: 8**

**Date: 05/05/2022**

**Time: 11:00 To 02:00**

**Marks: 70**

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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- Q-1 Attempt the following questions: (14)**
- a) Corona effect can be identified by (1)**
- (a) bushy sparks
  - (b) faint violet glow
  - (c) red light
  - (d) blue light
- b) Which of the following frequency variation for power frequency is as per IS? (1)**
- (a) 2.5%                      (b) 5%
  - (c)  $\pm 5\%$                       (d)  $\pm 2.5\%$
- c) Which of the following parameter can be neglected for a short line? (1)**
- (a) Resistance              (b) Inductance
  - (c) Reactance              (d) Capacitance
- d) The chances of corona are maximum in (1)**
- (a) domestic wiring
  - (b) distribution lines
  - (c) transmission lines
  - (d) all of the above
- e) In sphere gaps, the sphere are made of (1)**
- (a) aluminum
  - (b) brass
  - (c) bronze
  - (d) any of the above
- f) Which method of voltage control is applied for long line ac transmissions? (1)**
- (a) Switching by shunt capacitors
  - (b) Tap changing transformers
  - (c) Switching by shunt reactors
  - (d) Static Var sources
- g) 765 kV is termed as (1)**
- (a) Ultra high voltage.
  - (b) High voltage



- (c) Extra high voltage  
(d) Medium high voltage
- h)** A dc line carries (1)  
 (a) same power as an ac line (b) less power than an equivalent ac line  
 (c) more power than the ac line (d) both (a) and (c)
- i)** At what location are the shunt capacitors installed for voltages above 33 kV and above? (1)  
 (a) Are located near the motors  
 (b) Are installed in distribution substations  
 (c) Both (A) and (B)  
 (d) None of these.
- j)** Mostly the high voltage transmission is provided by overhead lines due to\_\_\_ (1)  
 (a) low cost (b) low losses  
 (c) easy installation (d) all of the mentioned
- k)** Write advantages of hvdc system. (1)
- l)** What is Ferro resonance? (1)
- m)** What are applications of hvdc transmission system? (1)
- n)** What do you mean by pole? (1)

**Attempt any four questions from Q-2 to Q-8**

- Q-2 Attempt all questions (14)**  
**a)** Draw and explain different types of hvdc link. (7)  
**b)** Compare ehv ac & hvdc transmission line. (7)
- Q-3 Attempt all questions (14)**  
**a)** Explain corona effect and corona loss formulas. (7)  
**b)** Draw and explain configuration of ehv ac transmission line. (7)
- Q-4 Attempt all questions (14)**  
**a)** Write advantages and disadvantages of corona effect and explain factor affecting corona losses. (7)  
**b)** Explain modern trends of ehv ac transmission lines. (7)
- Q-5 Attempt all questions (14)**  
**a)** Write application and advantages of extra ac high voltage. (7)  
**b)** Write short note on audible noise. (7)
- Q-6 Attempt all questions (14)**  
**a)** Discuss measurement of impulse voltage by sphere gap arrangement. (7)  
**b)** Write short not on cascaded transformer. (7)
- Q-7 Attempt all questions (14)**  
**a)** Explain protection against over currents and over voltage of HVDC transmission system. (7)  
**b)** Write short note on smoothing reactors. (7)



**Q-8**

**Attempt all questions**

**(14)**

**a)** Briefly explain starting and stopping of dc link. **(7)**

**b)** Write short note on converter station and choice of converter configuration. **(7)**

