

Enrollment No: \_\_\_\_\_

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

# C.U. SHAH UNIVERSITY

## Summer Examination-2019

**Subject Name: Electrical Power System**

**Subject Code: 4TE05EPS1**

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

**Semester : 5      Date: 19/03/2019**

**Time: 10:30 to 01:30**

**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) Which of the following materials is not used for transmission and distribution of electrical power?
  - (a) Copper
  - (b) Aluminium
  - (c) ACSR
  - (d) Tungsten.
- b) The corona is considerably affected by which of the following?
  - (a) Size of the conductor
  - (b) Shape of the conductor
  - (c) Surface condition of the conductor
  - (d) All of the above.
- c) Reactive power and apparent power are respectively represented by \_\_\_\_\_.
  - (a) KW and KVAR
  - (b) KVAR and KVA
  - (c) KVA and KVAR
  - (d) KW and KVA.
- d) The power factor of industrial loads is generally
  - (a) unity
  - (b) lagging
  - (c) leading
  - (d) zero.
- e) A 310 km line is considered as
  - (a) a long line
  - (b) a medium line
  - (c) a short line
  - (d) any of the above.
- f) Large industrial consumers are supplied electrical energy at
  - (a) 400 V
  - (b) 11 kV



- (c) 66 kV  
(d) 400 kV.
- g) Which of the following is usually not the generating voltage?  
(a) 6.6 kV  
(b) 8.8 kV  
(c) 11 kV  
(d) 13.2 kV.
- h) What do mean by interconnected grid system?  
i) Define load duration curve.  
j) Write two advantages of dc transmission over ac transmission system.  
k) Define plant capacity factor.  
l) Write two definition of power factor.  
m) Write advantages of gas turbine power plant.  
n) Write different methods of depreciation.

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

- Q-2 Attempt all questions (14)**  
a) Draw and explain hydro-electric power plant and write function different part of hydro-electric power plant.. (7)  
b) Write the site selection and give detail explain about thermal power plant. (7)
- Q-3 Attempt all questions (14)**  
a) Define the following (7)  
(1) Diversity factor (2) Demand factor (3) Load factor (4) Connected load  
(5) Peak load (6) Base load (7) Plant use factor.  
b) A power station has the following daily load cycle: (7)
- | Time in hours | 6-8 | 8-12 | 12-16 | 16-20 | 20-24 | 24-6 |
|---------------|-----|------|-------|-------|-------|------|
| Load in MW    | 20  | 40   | 60    | 20    | 50    | 20   |
- Plot the load curve and load duration curve. Also calculate the energy generated per day.
- Q-4 Attempt all questions (14)**  
a) Define tariff and write short note on tariff. (7)  
b) Write short note on corona and explain advantages and disadvantages of corona. (7)
- Q-5 Attempt all questions (14)**  
a) What is sag? Calculate sag when supports are at equal level and unequal levels. (7)  
b) Explain medium transmission line (i) Nominal T method (ii) Nominal pi method. (7)
- Q-6 Attempt all questions (14)**  
a) What is ABCD parameter? Derive equation of ABCD parameter for nominal Pi and nominal T method. (7)



b) Explain most economical power factor. (7)

**Q-7**      **Attempt all questions** (14)

a) Why suspension type insulator is better than pin type insulator? Explain types of insulator in power system. (7)

b) Draw and explain typical ac power supply scheme. (7)

**Q-8**      **Attempt all questions** (14)

a) Write a note on grading of cables. (7)

b) Explain methods of improving string efficiency. (7)

