

S.B. Roll No.....

**ELECTRICAL POWER-I**  
**5<sup>th</sup> Exam/Electrical/EEE/2527/May'18**

**Duration: 3Hrs.**

**M.Marks:75**

**SECTION-A**

**Q1. Fill in the blanks.**

**15x1=15**

- a. With the increase in voltage in transmission, the voltage regulation of the line\_\_\_\_\_
- b. For a particular power, the current flowing through the line decreases when the transmission voltage\_\_\_\_\_
- c. The skin effect is \_\_\_\_\_for stranded conductors than solid conductors.
- d. A line which connects distribution to the substation is called \_\_\_\_\_.
- e. For the erection of H.T. (above 66 kv) line \_\_\_\_\_type insulators are employed.
- f. If the conductor diameter increases, the inductance of the line\_\_\_\_\_
- g. ACSR conductor means \_\_\_\_\_
- h. Step up substation/transformers are setup near \_\_\_\_\_.
- i. The power factor is the ratio of \_\_\_\_\_ power to \_\_\_\_\_ power.
- j. The area of cross-section of conductor decreases with \_\_\_\_\_ in transmission voltage.
- k. Which type of insulator is used in transmission lines at the river and road crossing? \_\_\_\_\_.
- l. Power factor of resistive load is always \_\_\_\_\_
- m. In order to increase the flexibility \_\_\_\_\_ Conductors are used.
- n. By increasing the sag on the transmission line, the tension will \_\_\_\_\_
- o. Corona loss can be minimized if the size of conductor is \_\_\_\_\_.

**SECTION-B**

**Q2. Attempt any five questions.**

**5x6=30**

- i. Discuss the various types of faults in overhead power system.
- ii. Explain the string efficiency of a suspension type insulator and how it can be improved.
- iii. State the advantages of high voltage transmission.
- iv. Explain transposition of conductors in overhead lines. Explain why transposition is done?
- v. What are the disadvantages of low power factor?
- vi. Explain how we can improve the power factor by using capacitor banks.
- vii. Explain feeder, distributor and service mains.
- viii. What is Sag? Derive the formulae for sag.

**SECTION-C**

**Attempt any three questions.**

**3x10=30**

- Q3.** Explain the effect of wind and ice on sag and also explain the factors which affect sag in overhead lines.
- Q4.** a) What is corona? What is its effect? How it can be reduced?  
b) State skin effect and proximity effect.
- Q5.** A two wire D.C distributor is 1.2 km long and is loaded as under
- |   |     |     |      |
|---|-----|-----|------|
| Distance from feeding point A (in meters) | 300 | 900 | 1200 |
| Load (in amperes)                         | 100 | 50  | 30   |
- The resistance of each conductor is 0.05 ohm per 1000 meter. Calculate the voltage at each load point if the voltage at the feeding point A is maintained at 250 V.
- Q6.** Explain Murray loop test for location of earth faults in underground cables.
- Q7.** Compare the weight of conductor material required in 3-phase, 3 wire AC system with DC two wire system with one conductor earthed.