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# SINDH BOARD OF TECHNICAL EDUCATION KARACHI

DIPLOMA OF ASSOCIATE ENGINEER 3rd YEAR

## MODEL PAPER FOR

ANNUAL EXAMINATION 2021

Technologies: ELECTRICAL

### SUBJECT: ET 335 TRANSMISSION DISTRIBUTION AND PROTECTION OF ELECTRICAL POWER SYSTEM

#### SECTION "A" OBJECTIVE

Instructions:

- Attempt all questions.
- All questions carry equal marks.
- Question paper must be returned back to invigilator within the scheduled time.

TIME: 40 Minutes  
MAX. MARKS:100

#### Q1.(a) Fill In the Blanks

Max Marks 60

1. In Pakistan \_\_\_\_\_ system is adopted for Transmission line of electrical power.
2. \_\_\_\_\_ voltage is used for power transmission as matter of economy.
3. DC Transmission is \_\_\_\_\_ to AC Transmission.
4. The Economic size of conductor is determined by \_\_\_\_\_.
5. The Economic transmission voltage \_\_\_\_\_ the distance of transmission.
6. Cross – arms are used on pole or tower to provider \_\_\_\_\_ to the insulator.
7. By using a guard ring string efficiency is \_\_\_\_\_.
8. The most commonly used material for insulator of overhead line is \_\_\_\_\_.
9. Sag is provide in overhead line so that \_\_\_\_\_.
10. When an insulator breaks down by puncture it is \_\_\_\_\_ longed.
11. A neutral plane is one where \_\_\_\_\_ is zero.
12. The skin effect is \_\_\_\_\_ for start conductor them the solid conductor.
13. The power less in an overhead Transmission line is mainly due to \_\_\_\_\_.
14. The D.C resistance of line conductor is \_\_\_\_\_ that it's A.C resistance.
15. In short Transmission line the effects of \_\_\_\_\_ are neglected.

#### Q.1(b) Encircle "T" for true and "F" for false:

Max Marks 20

1. The line constant of Transmission line are distributed. (T / F)
2. The capacitor of Transmission line is a shunt Element. (T / F)
3. The generalized constant A and D of the Transmission line have dimension of ohms. (T / F)
4. If the supply frequency increases its capacitance is decreased. (T / F)
5. In single phase overhead line, the natural plane lies at (T / F)
6. The disc of strain insulator are used in vertical plane. (T / F)
7. Corona effect is less pronounced in stormy weather as compared to fair weather. (T / F)
8. The longer arms the cross arms the reduced the straight efficiency. (T / F)
9. The higher the Transmission Voltage the lesser is the conductor material required. (T / F)
10. The annual charge of Transmission line can be expressed a  $P_1+P_2+Z$  (T / F)

**Q1.(c) Multiple choice questions:**

**Max Marks 20**

1. Shunt capacitor is suspension insulator can be decreased by increasing the distance of.  
(a) Directly (b) Permanently (c) Mutual
2. In a Transmission line AD-BC.  
(a) 1 (b) Negative (c) Both
3.  $\sqrt{9 < 90 \times 4 < 10+} =$  \_\_\_\_\_.  
(a)  $8 < 60$  (b)  $6 < 50$  (c) No-dimension
4. Reactor are added in a system.  
(a) To reduce copper loss (b) To reduce short circuit (c) Both
5. A distributor is designed from.  
(a) Voltage drop (b) High voltage (c) Low voltage
6. A Fuse is a device.  
(a) Protective (b) Auto-Switching (c) Heating device
7. A circuit breaker is a device.  
(a) Circuit interrupting (b) Manual (c) Switching
8. Voltage is Transformed in a Transformer by  
(a) Manual (b) Self-induction (c) Thermal induction
9. Transposition of a 3-phase Transmission line help.  
(a) Equalizing (b) Less (d) Increase.
10. HP the underground voltage is not recommended for over  
(a) 440v (b) 11 K.V (c) 33 K.V

Signature of Candidate

Seal of Examination Centre

Signature of Invigilator



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**SUBJECT: ET 335 TRANSMISSION DISTRIBUTIONS AND PROTECTION OF  
 ELECTRICAL POWER SYSTEM**

**SECTION "B" & "C"**

**TIME: 2.40 HOURS**

**MAX. MARKS: 100**

**Section "B"**

**(Short Answer Questions)**

**Max. Marks: 60**

**Q2: Attempt any Six questions from the following. All questions carry equal marks.**

1. Draw a single line diagram of a typical A-C power supply scheme.
2. Discuss the advantages of high Transmission voltage.
3. Compare the volume of conductor material required in the single and three phase A.C system.
4. What do you understand by the constant
5. Derive an expression for the loop inductor of single phase.
6. Discuss the various types of line supports.
7. Discuss the desirable properties of insulator.
8. Name the important component of an overhead Transmission line.
9. What are the factors which effects corona.
10. Explain how the electrical breakdown can occur in an insulator.

**Section "C"**

**(Descriptive Answer Questions)**

**Max. Marks: 40**

**Q3: Attempt any Two questions from the following. All questions carry equal marks.**

- Q1. Explain the Kelvin Law for size of conductor for Transmission line discusses its limitation.

OR

What is a sag in overhead line Discuss the disadvantage of providing too small or too large Sag on a line.

- Q2. Discuss the various types of line supports.

OR

What do you understand by long Transmission lines, How Capacitor effect are taken into account in such line

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