

TRANSMISSION AND DISTRIBUTION OF ELECTRICAL POWER
3K-DSN-04

Time : 3 Hrs.

M.M. : 100

Note :—

1. Part 'A' may be attempted in first 6 pages of Answer Sheet.
भाग 'क' के सभी उत्तर, उत्तर-पुस्तिका के प्रथम छः पृष्ठों में ही करने हैं।
2. Part 'B' in rest of the Sheets of Answer Sheet.
भाग 'ख' के उत्तर, उत्तर-पुस्तिका के अगले शेष पृष्ठों में लिखिये।
3. Answers may be given in English or Hindi.
प्रश्नों के उत्तर अंग्रेजी अथवा हिन्दी में दीजिये।

PART - A

1. Attempt any 10 questions:

(10 × 2 = 20)

- (i) Name various types of insulator in transmission lines ✓
- (ii) What is the range of length and transmission voltage for a medium transmission line? ✓
- (iii) Give at least 2 effects of CORONA in transmission lines. ✓
- (iv) What is the volage of HT and LT in 3-phase distribution system? ✓
- (v) What is the term "ARMOURING" in HT cables? ✓
- (vi) What is a feeder in a distribution system? ✓
- (vii) What do you mean by Jumpers in C pole mounted substation? ✓
- (viii) What is load shedding? ✓
- (ix) Which equipment is used for locating fault in overhead line between 80 — 160 km length? ✓
- (x) Describe ground fault in cables. ✓
- (xi) What is the main cause of low power factor? ✓
- (xii) How can a synchronous motor improve the power factor of its system? ✓
- (xiii) What is block rate tariff? ✓
- (xiv) Name the law used to determine optimum size of conductor in distributor. ✓

2. Attempt any 5 questions:

(5 × 4 = 20)

- (i) What is the effect of ice coating on the Sag? ✓
- (ii) Describe briefly suspension type insulators. ✓

- (iii) Describe how underground service main is provided. ✓
- (iv) Explain ring main system of distribution. ✓
- (v) What is Grid substation? ✓
- (vi) Name any two type of faults in underground cables and explain them briefly.
- (vii) Explain disadvantages of low power factor. ✓
- (viii) Explain two part tariff. ✓

PART- B

Attempt any 3 questions:

(3 × 20 = 60)

- 3. (i) Compare overhead and underground transmission system.
(ii) Define sag and derive the sag formula for calculation of sag.
- 4. (i) For a transmission line, explain effect of increase of voltage on:
(a) weight of copper, (b) efficiency of line
(ii) Explain construction of HT underground cable.
- 5. (i) Explain construction of overhead transmission line.
(ii) Compare between 3-phase and single-phase system.
- 6. (i) Draw the layout of 33/11kv distribution substation.
(ii) Discuss various types of faults in overhead and underground system.
- 7. Write short notes on the following (Any two):
 - (i) Economics of power factor improvement.
 - (ii) HVDC transmission lines.
 - (iii) Laying of underground cables.