TED (15) – 6031 Reg. No.....

(REVISION — 2015) Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL. 2019

ELECTRICAL POWER UTILIZATION AND SYSTEM PROTECTION

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define the term fusing factor.
2. Define pickup current of a relay.
3. Mention about soil resistivity.
4. List any two applications of electrolysis.
5. Define the average speed. (5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Explain the terms :

   (a) Pre - arcing time (b) Arcing time (c) Prospective current
2. List the advantages of vacuum circuit breaker.
3. Explain the basic requirements of protective relaying.
4. List any six advantages of electric heating.
5. Explain spot welding with a neat sketch.
6. Define about tractive effort. Write the equation for each term for total tractive effort.
7. What are the advantages of electric braking ? (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) Describe the inverse current characteristic of fuse. 8

(b) Explain about the circuit breaker ratings. 7

OR

IV (a) Explain advantages, disadvantages and application of SF_6 circuit breaker. 8

(b) Explain about arc voltage, restriking voltage and recovery voltage. 7

UNIT — II

V (a) Explain the working of distance relay with a neat diagram. 8

(b) Explain the Horn gap lightning arrester with neat diagram. 7

OR

VI (a) Explain the types of neutral grounding with necessary sketches. 8

(b) Explain internal and external causes of over voltage. 7

UNIT — III

VII (a) Explain the direct core type induction furnace with a neat sketch. 8

(b) Explain Faraday's Law of electrolysis. 7

OR

VIII (a) Explain the principle of Butt, Seam and Spot welding with neat figure. 8

(b) Explain flood lighting scheme and mention the need of flood lighting. 7

UNIT — IV

IX (a) List any seven advantages and disadvantages of individual drive. 8

(b) Mention the requirements of traction motor. 7

OR

X (a) Explain the methods of rheostatic braking in DC shunt and series motor. 8

(b) List the factors affecting specific energy consumption. 7