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(Revision – 2015/19)

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Reg. No……………………
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2024

ELECTRICAL POWER UTILIZATION AND SYSTEM PROTECTION

[Maximum Marks: **100**] [Time: **3** Hours]

PART-A

[Maximum Marks: **10**]

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

1. Describe the any two characters of fuse elements.
2. Define circuit breaker.
3. List the materials used for electric heating.
4. Define electric drive.
5. List the methods of electric braking. (5 x 2 = 10)

PART-B

[Maximum Marks: **30**]

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

1. State any six advantages of fuse.
2. Differentiate fuse and circuit breaker.
3. State the basic requirements of protective relay system.
4. List the six applications of dielectric heating.
5. Describe the objectives of street lighting.
6. Classify the electric drive.
7. Explain the rheostatic breaking in series motor and shunt motor. (5 x 6 = 30)

PART-C

[Maximum Marks: **60**]

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

UNIT – I

III. a. Explain the working of an oil circuit breaker with a neat sketch. (8)

b. State the advantages and disadvantages of HRC fuse. (7)

OR

IV. a. With a neat sketch, explain the working and advantages of SF6 circuit breaker. (8)

b. Explain the classification of circuit breaker. (7)

UNIT – II

V. a. Describe the working of Buchholz relay of a transformer with a neat diagram. (8)

b. Explain different methods of neutral earthing. (7)

OR

VI. a. Explain with a neat sketch, the construction of an induction type over current relay. (8)

b. Explain Horn-Gap lightning arrester and write its advantages. (7)

UNIT- III

VII. a. Explain with neat sketch, direct and indirect arc furnace. (8)

b. State and explain the requirement of good heating element of a material. (7)

OR

VIII. a. Explain with neat sketch direct and indirect resistance heating. (8)

b. Explain the field of applications of electrolysis. (7)

UNIT - IV

IX. a. Sketch the speed-time curve of electric traction system and explain the different regions. (8)

b. List out the limitations of group drives. (7)

OR

X. a. Explain the method of regenerative braking of DC shunt and series motor. (8)

b. List the requirements of traction motor. (7)

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