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N22-02893

Reg.No.....
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER - 2022

BASIC ELECTRONICS

[Maximum marks: 100] (Time: 3 Hours)

PART – A

Maximum marks : 10

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

1. List the different passive components.
2. Mention the different types of capacitors
3. Define doping.
4. Draw the output waveform of bridge rectifier without filter.
5. Mention the different transistor modes. (5 x 2 = 10)

PART – B

Maximum marks : 30

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

1. Explain the working principle of a transformer with neat diagram.
2. Briefly explain the VI characteristics of a Zener diode.
3. With neat diagram explain the working of half wave rectifier and draw the various waveforms with and without filter.
4. Explain the working of positive clipper with necessary diagram.
5. Describe the working of a tunnel diode.
6. Draw the CE configuration of NPN transistor and draw its output characteristics.
7. Explain the working of a zener diode as voltage regulator. (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) Describe the different types of inductors used in electronic circuits. (8)

(b) Explain the colour coding of resistors with suitable example. (7)

OR

IV.(a) Describe the charging and discharging of capacitors. (8)

(b) Derive an expression for the effective capacitance for series and parallel combination with figures (7)

UNIT-II

V. (a) Explain the energy band diagram of conductors, insulators and semiconductors with neat sketch. (8)

(b) Explain the VI characteristics of PN diode. Also define knee voltage, static resistance and dynamic resistance. (7)

OR

VI. (a) Explain zener breakdown and avalanche breakdown with neat sketches. (8)

(b) Discuss drift and diffusion currents. (7)

UNIT-III

VII. (a) Explain with neat diagram working of centertapped fullwave rectifier with filter. (8)

(b) Define ripple factor and rectification efficiency. (7)

OR

VIII.(a) Explain the working of a fullwave voltage doubler. (8)

(b) Discuss the need of different filter circuits. (7)

UNIT-IV

IX. (a) Explain the working of BJT. (8)

(b) Draw the CE configuration of NPN transistor and explain. (7)

OR

X. (a) Define α *and* β and derive the relationship between them. (8)

(b) Compare the features of different transistor configurations. (7)

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