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Code : 15EC01T

Register Number | | | | | | | | | | |

I Semester Diploma Examination, March/April-2022

CONCEPTS OF ELECTRICAL AND ELECTRONICS ENGINEERING

: 3 Hours] [Max. Marks : 100

uctions : (i) Answer any **six** questions from **Part-A**. Each question carries **5** marks.
(ii) Answer any **seven** questions from **Part-B**. Each question carries **10** marks.

PART – A

Define Electric current and Electromotive force. Write the SI units. **5**

State and explain Kirchhoff's voltage law. **5**

State and explain Faraday's laws of electromagnetic induction. **5**

Draw AC voltage waveform and mark all the parameters. **5**

Calculate the maximum, RMS and average value of an AC voltage V = 10 sin 50t. **5**

Explain the different types of Transformers. **5**

Explain the working of transistor as a switch. **5**

What is a transistor ? Explain the types of transistor with symbols. **5**

efine an op-amp and explain op-amp as a non-inverting amplifier. **5**

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PART – B

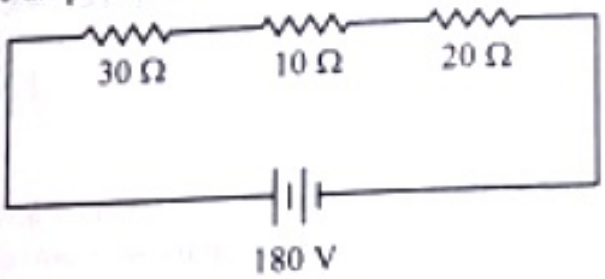
10. (a) State Ohm's law and write the three equations.

(b) In the given ckt find :

(i) Equivalent resistance

(ii) Current

(iii) Voltage drop across 30 Ω.



11. (a) Find the current flowing through an electric bulb of 100 watts, when connec to a 250 V supply.

(b) Define electric power and energy. Mention their practical units.

12. (a) List the comparison of DC and AC current.

(b) Define :

(i) Self-inductance

(ii) Mutual inductance

13. (a) Calculate :

(i) Capacitive Reactance

(ii) Impedance

(iii) Power Factor

(iv) Current in RC series circuit with C = 20 μF, R = 50 Ω connected to ar supply of 230 V and 50 Hz.

(b) Define Power factor.

Analyse behaviour of RLC series circuit for AC input. 10

a) Define impedance, inductive reactance and capacitive reactance. 6

b) List the applications of Stepper motor. 4

a) What is a Switch ? List the types of Switches with symbols. 6

b) What is a fuse ? Mention the type and ratings of fuse. 4

a) Explain the block diagram of op-amp. 6

b) Explain intrinsic and extrinsic semiconductors with examples. 4

a) Explain the working of full wave rectifier. 5

b) List the ideal characteristics of op-amp. 5

a) Explain conductors, insulators and semiconductors with examples. 6

b) Define UPS and explain the block diagram of UPS. 4