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(Revision-2015/19)

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**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL-2021**

BASIC INSTRUMENTATION ENGINEERING

[Maximum marks: 75]

(Time: 2.15 Hours)

PART – A

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

1. Define relative limiting error.
2. State reciprocity theorem.
3. Define forbidden energy gap.
4. List out two advantages of bridge rectifier.
5. Define Peak Inverse Voltage.

(3 x 2 = 6)

PART – B

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

1. Explain Indicating, Recording and Controlling functions of instruments.
2. Explain dynamic characteristics of an instrument.
3. Explain self inductance and mutual inductance.
4. Explain extrinsic semiconductors.
5. Describe input and output characteristics of CB configuration.
6. Explain the working of half wave rectifier with neat diagram.
7. Compare half wave, full wave and bridge rectifier.

(4 x 6 = 24)

PART – C

(Answer *any of the three units* from the following. Each full question carries 15 marks)

UNIT –I

- III. (a) Draw and explain the block diagram of the generalized instrumentation system (10)
(b) Compare open loop and closed loop system with examples (5)

OR

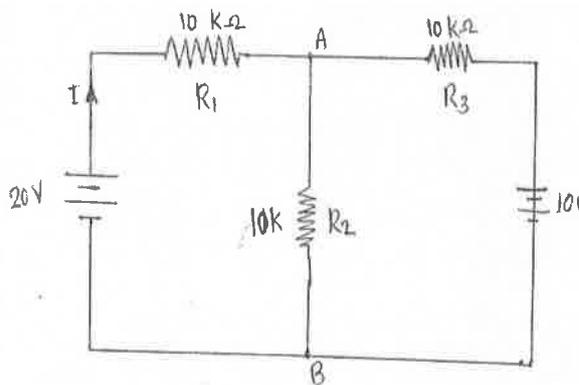
- IV. (a) Explain five static characteristics of an Instrument. (10)
(b) Explain Gross error, Systematic error and Random error. (5)

UNIT-II

- V. (a) Write short notes on Magnetizing Flux, Flux density and intensity of magnetization (12)
(b) State Superposition theorem (3)

OR

- VI.(a) Find voltage in the circuit using Thevenin's theorem (4)



- (b) Explain the procedure for finding Norton's equivalent circuit (7)
(c) Define Faraday's laws of electromagnetic induction. (4)

UNIT-III

- VII.(a) Differentiate active and passive components with examples (4)
(b) Describe forward and reverse characteristics of P-N junction diode. (11)

OR

- VIII.(a) Explain P-N junction diode (7)
(b) Explain the working of NPN transistor with neat diagram (8)

UNIT-IV

- IX. (a) Explain the working of full wave bridge rectifier with neat diagram (8)
(b) Describe the working of zener diode voltage regulator. (7)

OR

- X. (a) Explain the operation of FET and its characteristics (9)
(b) Explain the working of shunt capacitor filter (6)
