Retest Examination – 2020

Element of Electronic Engineering

Full Marks: 70

Time: Three hours

Subject code: Et - 304 (Old)

The figures in the margin indicate full marks for the questions.

PART - A

Marks - 25

All questions of PART - A are compulsory 1x10=10

1. Fill in the blanks

i) Silver is a_____.

ii) The base of a transistor is_____doped.

iii) A transistor has_____junction.

iv) The element that has the biggest size in a transistor is_____.

v) Reverse bias is a condition that essentially_____.

vi) The most commonly used semiconductor element is_____.

vii) An amplifier is stable if the absolute magnitude of_____.

viii) The unit of electrical conductance is_____.

ix) A transistor is a_____operated device.

x) A (n)_____is the simplest of semi-conductor devices.

1x10=10

2. Write true or false :

i) Vacuum tube will only conduct if its anode is kept at a positive terminal with respect to cathode.

ii) Example of an active device in electric bulb.

iii) Integrated circuits are passive components.

iv) The control element in a basic short voltage regulator is a Zener diode.

v) The feedback component in an op-amp integrator is a capacitor.

vi) A zero level detector is a type of comparator circuit.

vii) Transformer coupling is used for voltage amplification.

viii) A radio receiver has more than one stage of amplification.

ix) Transformer coupling provides the maximum voltage gain.

x) R.C. coupling is used for voltage amplification.

1x5=5

3. Choose the correct answer :

i) The number of depletion layers in a transistor is

a) four b) three c) one

ii) In a PNP transistor, the current carries are

a) acceptor ions b) donor ions c) holes

iii) A crystal diode has

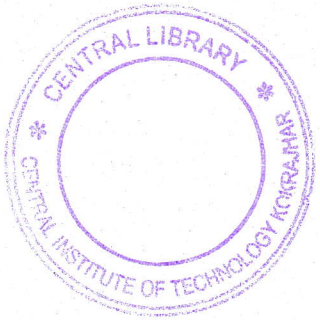
a) one Pn junction b) two Pn junction c) three Pn junction

iv) The forward current in a diode is of the order of

a) KA b) mA c) uA

v) A vaccum diode can be used as

a) rectifier b) amplifier c) oscillator



PART - B

Marks – 45

(Any five from part-B)

4. (a) What is electron emission ? What are the different types of electronic emission? 6
   (b) What are the active and passive components in electronic circuits? 3

5. (a) What is a vaccum diode ? 3
   (b) Describe the construction and working principle of a Zener diode. 6

6. (a) Explain the input and output characteristics of a transistor is CE configuration. 6
   (b) Define α and β for a transistor. 3

7. (a) Describe with circuit diagram, the operating principle of a full wave Center tapped rectifier. 6
   (b) Why filter circuits are used at the rectifier output ? 3

8. (a) Draw the input and output characteristics of a transistor in CC configuration and mark the cutoff saturation and active regions. 6
   (b) State the advantage of optocouples. 3

9. What is an amplifier? Based on the transistor configuration how amplifiers are classified. 3+6=9

10. Write short notes on any three of the following : 3x3=9
    a) Photo diode
    b) Multistage amplifier
    c) Bipolar Junction Transistor
    d) Formation of P-N junction