Total No. of printed pages = 6

RETEST EXAMINATION–2019

Semester : 3rd (Old)

Subject Code : Et-305

ANALOG ELECTRONIC –I

Full Marks – 70

Time – Three hours

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

Instruction :

1. *All* questions of PART–A are compulsory.

PART – A

Marks – 25

1. (a) Fill in the blanks with appropriate words : 1×10=10

(i) When a trivalent impurity is added to a pure semiconductor, it becomes _____.

(ii) A semi-conductor is formed by _____ bonds.

[Turn over

(iii) The reverse current in a diode is of the order of _____.

(iv) The efficiency of half wave rectifier is _____.

(v) _____ number of diodes are used in a fxull wave bridge rectifier.

(vi) In a transistor, the lead marked with the arrow is _____.

(vii) In a NPN-transistor, the current carriers are _____.

(viii) A multistage amplifier consists of _____ than one transistor.

(ix) LED stands for _____.

(x) Most widely used transistor configuration is _____.

(b) Write true or false : 1×5=5

(i) To remove the AC components in a rectifier circuit, a *filter circuit* is used.

(ii) The most commonly used semi-conductor is Germanium.

(iii) Best biasing method for transistor biasing is voltage divider method.

(iv) Most commonly used transistor configuration is CC configuration.

(v) α value of a transistor is always greater than 1.

(c) Choose the correct answer from the choices given below : 1×5=5

(i) When a pentavalent impurity is added to a pure semi-conductor, it becomes _____.

(a) An insulator

(b) An intrinsic semi-conductor

(c) p-type semi-conductor

(d) n-type semi-conductor

(ii) An ideal diode appears as an _____ when reversed biased.

(a) infinite resistance (b) zero resistance

(c) conductor (d) capacitor

(iii) Which of the following correctly determines the relation between α and β ?

(a) $\beta = \alpha/(1-\alpha)$

(b) $\alpha = \beta/(1-\alpha)$

(c) $\beta = \alpha/(1-\beta)$

(d) None of the mentioned

(iv) For common emitter configuration, which of the following is the correct relation ?

(a) $I_C < I_E$

(b) $I_C = \beta I_B$

(c) $I_C = \alpha I_E$

(d) All of the mentioned

(v) The phase difference between the output and input voltages of a CE amplifier is _____.

(a) 0° (b) 90°

(c) 180° (d) 270°

(d) Match each of the item from LIST – A with each item in LIST – B : 1×5=5

LIST – A	LIST – B
(a) Semiconductor	(i) trivalent
(b) Boron	(ii) zener diode
(c) BJT	(iii) silicon
(d) Hartley	(iv) oscillator
(e) Special Purpose Diodes	(v) bipolar

PART–B

Marks – 45

2. Answer any *five* questions : 5×5=25

(a) Discuss formation of N-type semi-conductor.

(b) Explain and draw V-I characteristics of diode.

(c) Explain a full wave rectifier with circuit diagram.

(d) Classify the different types of transistor amplifier.

(e) What is biasing ? Name the different types of biasing circuits of transistor. Draw any one of it.

(f) A cascaded voltage amplifier having Gains A_{v1}=10, A_{v2}=15, A_{v3}=20. Determine overall voltage gain and Gain in Decibels.

(g) Explain Voltage divider bias with a neat Circuit diagram.

(h) Draw an oscillator tank circuit and explain.

3. Answer any *two* questions : 10×2=20

(a) Explain with diagram the input and output characteristics of a transistor in CE configuration.

(b) What is coupling ? Explain any one of coupling amplifiers ? Explain any one.

(c) Explain the working of push pull power amplifier with a neat circuit.

(d) What is positive feedback amplifier ? Find its gain.