Total No. of printed pages = 6

RETEST EXAMINATION–2019

Semester : 5th

Subject Code : CAI-506

ELECTRONIC CIRCUITS AND DEVICES-II

Full Marks – 70

Time – Three hours

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

Instructions :

1. *All* questions of PART–A are compulsory.
2. Answer any *five* questions from PART–B.

PART – A

Marks – 25

1 Fill in the blanks : 1×10=10

(a) Voltage gain of inverting amplifier is _____.

(b) Frequency of operation of passive filters is _____.

(c) Band pass filter has _____ pass band and two stop bands.

[Turn over

(d) Band pass filter is called as ____ feedback filter.

(e) Clock uses ____ oscillator.

(f) Tuned amplifiers are used to design ____.

(g) Differential amplifier provides _____ input impedance.

(h) Twin-T oscillator is a _____ feedback oscillator.

(i) Output voltage of IC 7912 is _____.

(j) Regulation in shunt regulator is _____.

2. Write true or false : 1×10=10

(a) Precision rectifier is a circuit with operational amplifier which behave like a FET.

(b) Output resistance of differential amplifier is RC.

(c) PSRR is differential gain to common mode gain.

(d) Single tuned amplifier uses one parallel tuned circuit.

(e) Tank circuit uses resistance and capacitor.

(f) In double tuned amplifier two inductively coupled tuned circuits are employed.

(g) Common mode gain is very low.

(h) Line regulation is the change in the output voltage for a given change in the input voltage.

(i) RC coupled amplifiers are employed for amplification of low frequency signals.

(j) An ideal op-amp has large CMRR.

3. Choose the correct answer : 1×5=5

(a) Voltage gain of voltage follower is

(i) less than one

(ii) equal to one

(iii) more than one

(iv) None of the above

(b) SCR can be used as

(i) Rectifier (ii) Inverter

(iii) Amplifier (iv) All of the above

(c) Active filters are sensitive to

(i) Input frequency

(ii) Phase

(iii) Temperature

(iv) All of the above

(d) At low frequencies oscillator used is

(i) Crystal oscillator

(ii) LC oscillator

(iii) RC oscillator

(iv) None of the above

(e) Passive filters

(i) provide voltage gain

(ii) provide voltage loss

(iii) provide finite bandwidth

(iv) None of the above

PART – B

Marks – 45

4. (a) Name the circuit configuration of differential amplifier. 3

(b) Describe DC analysis of BJT differential amplifier. 6

5. (a) What is tuned amplifier ? Give the classification of tuned amplifier. 3

(b) With the help of a neat circuit diagram explain double tuned amplifier. 6

6. Explain the operation of the following :

(i) Wein bridge oscillator

(ii) Phase shift oscillator 6+3=9

7. (a) Explain the operation of full wave precision rectifier with circuit diagram and give its waveform. 6

(b) Differentiate between active filters and passive filters. 3

8. (a) Design a + 9 V voltage supply using bridge rectifier, capacitive filter and IC regulators. 6

(b) Draw the block diagram of following feedback configuration :

(i) Voltage series feedback

(ii) Current series feedback 3

9 (a) Explain the characteristics of an ideal Op-amp. 5

(b) Explain in brief how op-amp can be used as a filter. 4

10 Explain the working of SCR giving its construction and V-I characteristics. 9

11 With the help of AC analysis find differential voltage gain of dual input balanced output differential amplifier. 9