Code : 15EC31T

Register
Number

III Semester Diploma Examination, Nov./Dec.-2018
ANALOG ELECTRONIC CIRCUITS

Time : 3 Hours]   **[Max. Marks : 100**

Instructions :   (1)   Answer any **six** questions from Part – **A.**

                   (2)   Answer any **seven** full questions from Part – **B.**

## PART – A

1. Explain the need for rectifier in DC regulated power supply, sketch the output waveform of half wave rectifier for sine input.   5

2. Describe the working of C-filter with circuit and waveform.   5

3. Define biasing of BJT and explain need for biasing.   5

4. Write a note on ideal characteristics of Op-Amp.   5

5. Explain the block diagram of Op-Amp.   5

6. Describe the working principle of basic differential amplifier circuit.   5

7. Define Active filter and mention its classification.   5

8. Explain positive shunt clipper circuit using diode.   5

9. Explain the role of Tank circuit in an oscillator.   5

            [Turn over

PART – B

10. Define :   **10**

    (a)   Rectification

    (b)   Ripple factor

    (c)   Ripple frequency

    (d)   Efficiency

    (e)   Peak inverse voltage

with respect to Rectifiers.

11.   (a)   Illustrate how UPS keeps power supply uninterrupted.   **5**

    (b)   List applications of SMPS and RPS.   **5**

12.   (a)   Explain the working of Class B push-pull amplifier.   **5**

    (b)   List the features of RC-coupled amplifier.   **5**

13.   (a)   Establish relation between gains of individual stages and overall gain in a multistage amplifier.   **5**

    (b)   Explain the working of class C amplifier.   **5**

14. Define :   **10**

    (a)   Input offset voltage

    (b)   Power supply rejection ratio

    (c)   CMRR

    (d)   Gain-Bandwidth product

    (e)   Slew rate

with respect to Op-Amp.

15. (a) If V_{in} = 2V, R_1 = R_2 = 1kΩ, find the output voltage and voltage gain of the following circuit : 5
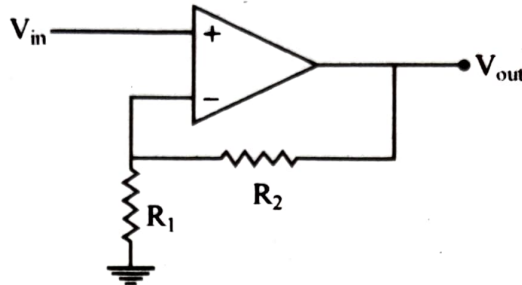
(b) Mention the applications of Active Filter. 5

16. Construct first order High Pass Filter with cut-off frequency of 1 kHz and sketch its frequency response and its pass band. Gain is 10. 10

17. (a) Show how Band Elimination Filter can be realized using LPF and HPF. 5

(b) Mention the applications of PLL. 5

18. Explain the working of simple positive clipper and positive clamper. 10

19. (a) List the expression for oscillating frequency for Hartley, Collpit's, RC-Phase shift and Wien Bridge oscillator. 8

(b) State Barkhausen criterion. 2