

**1082****Code : 15EC31T**Register  
Number

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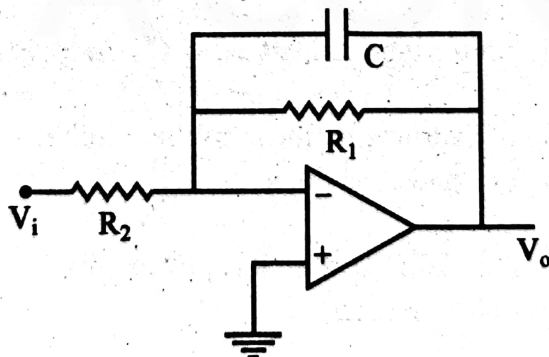
**III Semester Diploma Examination, Oct./Nov.-2019**  
**ANALOG ELECTRONIC CIRCUITS**

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

- Instructions :** (i) Answer any **six** questions from Part – A  
(ii) Answer any **seven** full questions from Part – B.

**PART – A**

1. Define Regulator. Explain the need for voltage regulator in power supply. 5
2. Show mathematically the ripple factor of Bridge rectifier is 0.48. 5
3. Define : 5
  - (a) Amplification
  - (b) Gain
  - (c) Frequency Response
  - (d) Band Width
  - (e) Input Impedance
4. Explain the principle of operation of transistor as Amplifier. 5
5. List any five ideal characteristics of Op-Amp. 5
6. Construct an Op-Amp circuit that converts square wave into triangular wave and explain briefly. 5
7. Calculate cut-off frequency and gain of the following filter circuit. Given : 5  
 $R_1 = 10 \text{ k}\Omega$ ,  $R_2 = 2 \text{ k}\Omega$  and  $C = 0.01 \mu\text{F}$

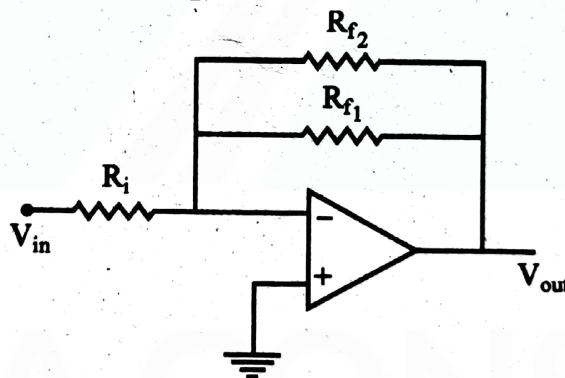


8. List the applications of clipper and clippers. 5
9. Compare RC oscillator with LC oscillator. 5



## PART - B

10. Explain the working of Bridge rectifier with circuit diagram input-output waveform. Mention the difference between centre tap transformer full wave rectifier and Bridge rectifier. 10
11. (a) Differentiate SMPS and RPS. 5  
(b) Explain the working of offline UPS with block diagram. 5
12. (a) What is biasing a BJT ? Explain the need for Biasing. Explain voltage divider bias for BJT amplifier. 5  
(b) Classify Power Amplifiers. 5
13. (a) Explain the working of Common Emitter RC Coupled Amplifier. 5  
(b) Sketch and label frequency response plot of RC coupled amplifier. 5
14. (a) Demonstrate how Op-Amp can be used as voltage comparator. 5  
(b) Estimate the gain in the following circuit. Given :  
 $R_i = 1 \text{ k}\Omega$ ,  $R_{f1} = 10 \text{ k}\Omega$ ,  $R_{f2} = 10 \text{ k}\Omega$  5



15. Explain the working of Schmitt trigger circuit using Op-Amp. Sketch hysteresis plot. 10
16. (a) Explain the working of instrumentation amplifier circuit. 5  
(b) Explain the working of Band Pass Filter. 5
17. (a) Explain the operation of PLL. Mention its applications. 5  
(b) List the applications of active filters. 5
18. (a) Calculate the operating frequency of Colpitt's oscillator using BJT. 5  
(b) Show how Colpitt's oscillator can be converted to Hartley oscillator. 5
19. Explain positive and negative shunt clipper circuits using diode. 10