

**Code : 9EC31**

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**III Semester Diploma Examination, April/May 2018**

**ANALOG ELECTRONIC CIRCUITS**

**Time : 3 Hours ]**

**[ Max. Marks : 100**

- Note :** (i) Section – A is compulsory.  
(ii) Answer any two full questions each from Sections – B, C, D.

**SECTION – A**

1. (a) Fill in the blanks : 5
- (i) The conduction angle of class A amplifier is \_\_\_\_\_.
  - (ii) The input resistance of an Ideal op-amp is \_\_\_\_\_.
  - (iii) IC LM317 is a \_\_\_\_\_ regulator.
  - (iv) \_\_\_\_\_ IC 79xx are \_\_\_\_\_ voltage regulators.
  - (v) An oscillator circuit requires \_\_\_\_\_ feedback.
- (b) Explain the working of a transistor series voltage regulator. 5

**SECTION – B**

2. (a) Explain the block diagram of a regulated power supply. 6
- (b) Define the following : 4
- (i) RIPPLE FACTOR
  - (ii) EFFICIENCY
- (c) Explain the working of a capacitor filter. 5
3. (a) Explain the working of a Hartley oscillator. 7
- (b) Explain the operation of a monostable multivibrator using IC 555. 8
4. (a) Explain IC 723 as a voltage regulator. 7
- (b) Explain with a neat diagram the operation of an online UPS. 6
- (c) Define load regulation. 2

## SECTION – C

5. (a) Explain with a neat circuit diagram the working of a class A Power Amplifier. 6  
 (b) Classify the amplifiers based on 3×2=6  
 (i) Coupling  
 (ii) Frequency  
 (iii) Mode  
 (c) Write a note on cross over distortion. 3
6. (a) Explain the working of a complimentary symmetry push pull amplifier. 7  
 (b) What is a multi-stage Amplifier? Define its gain. 4  
 (c) Write a note on stabilization in a voltage divider bias circuit. 4
7. (a) Explain the operation of a RC integrator circuit with a waveform. 6  
 (b) Explain the working of a positive series clipper circuit. 5  
 (c) What are the applications of clippers and clampers. 2 + 2 = 4

## SECTION – D

8. (a) What are the ideal characteristics of an op-amp? 5  
 (b) Explain the first order butter worth active band pass filter. 6  
 (c) Explain the output voltage expression of a voltage follower circuit using op-amp. 4
9. (a) Derive the output voltage expression of an inverting amplifier using op-amps. 7  
 (b) Obtain the output voltage expression of a summing Amplifier using op-amp. 8
10. (a) Explain the working of a PLL circuit. 7  
 (b) Mention the applications of PLL. 3  
 (c) Explain the circuit of frequency multiplier using PLL. 5