1056

Code : 9EC-31

Register Number | | | | | | | |

III Semester Diploma Examination, Nov./Dec. 2014

ANALOG ELECTRONIC CIRCUITS

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

Note : (i) Question No. – **1** is *compulsory*.
(ii) Answer any **two** full questions each from remaining sections.

1. (a) Fill in the blanks : **5**
   (i) IC 723 is an example of _____ voltage regulator.
   (ii) Maximum Efficiency of Series fed Class-A amplifier is _____.
   (iii) CMRR stands for _____.
   (iv) The Electronic circuit which produces a periodic waveform is called _____.
   (v) The basic instrumentation amplifier has _____ no. of amplifiers.

   (b) Write a note on Schmitt trigger circuit. **5**

SECTION – A

2. (a) Explain with neat diagram the operation of SMPS. **8**

   (b) Explain the operation of the half-wave rectifier. **7**

3. (a) In a half-wave rectifier circuit, the secondary voltage of transformer is 6 volts. Find the dc voltage V_{dc} and ripple factor of circuit. **6**

   (b) Explain off-line UPS System with diagram. **5**

   (c) List different types of feedback principles. **4**

4. (a) State & Explain Barkhausen criterion for sustained oscillations. **6**

   (b) Explain the operation of Colpitts Oscillator with neat circuit diagram. **6**

   (c) What is piezoelectricity ? **3**

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SECTION – B

5. (a) What is biasing ? Explain voltage divider biasing for FET. **7**

   (b) What is operating point ? Explain it. **5**

   (c) List the types of power amplifier. **3**

6. (a) Explain the operation of Complementary push-pull class-B amplifier with diagram. **7**

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

   (c) List the disadvantages of class-B amplifier. **3**

7. (a) Explain the operation of Simple Shunt-Clipper with neat circuit and waveforms. **6**

   (b) Explain the operation of R-C integrator circuit with waveforms. **5**

   (c) List the applications of clippers and dampers. **4**

SECTION – C

8. (a) Derive an expression for voltage gain of inverting amplifier using Op-Amp. **6**

   (b) Draw and explain block diagram of Op-Amp. **5**

   (c) List the characteristic of ideal- Op-Amp. **4**

9. (a) Explain the operation of differentiator using Op-Amp. **6**

   (b) The Summing amplifier using Op-Amp has the following inputs :

   5V, 3V and 1V and feedback resistor R_F is 20 kΩ and each input resistor is 2 kΩ. Calculate the o/p voltage. **5**

   (c) Define the following terms with respect to Op-Amp : **4**

   (i) Input offset voltage
   (ii) Slew rate
   (iii) Input bias current
   (iv) Gain-bandwidth product

10. (a) Describe the Instrumentation amplifier circuit. **7**

    (b) Explain the operation of PLL with diagram. **4**

    (c) List the applications of PLL. **4**
