Seat No. : _____

JE-107

January-2016

B.Sc., Sem.-I

CC-3 – Paper-101 : Electronics

Time : 3 Hours] **[Max. Marks : 70**

Instructions : (1) **All** questions carry equal marks.

(2) Symbols have their own meanings.

1. (a) What is resistor ? Explain its types in detail. Also discuss colour code of resistance. Give the colour code of 1 mΩ $\pm$ 10%. **10**

OR

Explain different types of capacitors in detail. What will be the value of capacitance if '103' is written on it ?

(b) What is the meaning of sensitivity of a voltmeter ? **4**

OR

Explain the meaning of loading effect of a d.c. voltmeter using an example.

2. (a) Draw the circuit of diode clamper and explain its working. Also discuss about biased clamper and give its application. **8**

OR

Explain about voltage limiter and voltage doubler circuit.

(b) Write note on: (Any **one**) **6**

(1) Photo diode

(2) LASER diode

3. (a) What is harmonic distortion? Explain about three point method of calculating harmonic distortion. **8**

OR

What is "Decibel" ? Which are the other equations for "Decibel computation" ? Also explain about zero decibel reference level.

(b) Explain the concept of amplification. Give the formula for current, voltage and power gain. **6**

OR

Define 'Bel' & 'Decibel'. Explain about the use of a voltmeter as a decibel indicator.

4. (a) Perform 2's complement addition. (Any **one**) **4**

(1) 35, – 23

(2) – 78, –11

(b) Perform 2's complement subtraction. (Any **one**) **4**

(1) – 39, 27

(2) 85, 29

(c) Convert : (Any **one**) **4**

(1) $A234.56_{(16)}$ = _____ (2) = _____ (10)

(2) $953.24_{(10)}$ = _____ (2) = _____(16)

(d) Perform binary subtraction : (Any **one**) **2**

(1) 10101100 – 00111101

(2) 11010101 – 01101010

5. Answer the following : **14**

(1) What is the full form of LED ?

(2) Define "Clipper".

(3) What is shunt ?

(4) What would be O/P resistance of an ideal amplifier ?

(5) What is ASCII ?

(6) What is meant by open circuit ?

(7) Define Symmetric network.

(8) Define conversion efficiency.

(9) Write classes of amplifier operation.

(10) Draw the circuit of biased shunt clipper.

(11) What is Byte ?

(12) $A \cdot (A + B)$ = _____.

(13) Give 1's complement of 56.

(14) Name any two types of 'Relay'.