



Seat No. : _____

TI-117
B.Sc. Sem.-I Examination
May-2013
101 : ELECTRONICS
(Old Course)

Time : 3 Hours]

[Max. Marks : 70

1. What is “Resistor” ? Discuss the color-code method to calculate the value of resistance with atleast two examples. Suppose color-bands are “Green, Yellow, Red, Silver”, then what will be its value ? **14**

OR

Draw the circuit diagram for “Shunt type ohm meter” and explain its working clearly.

2. What is “Voltage Doubler” ? Discuss the “Half-wave Voltage Doubler” in detail. **14**

OR

List the special types of diode and discuss any two in detail with suitable diagrams.

3. What is “Distortion” ? Discuss the three point method to calculate the total harmonic distortion in detail with appropriate figures and graphs. **14**

OR

What is “Decibel” ? Which are the other equations for decibel computations ? Explain the zero decibel reference level using suitable diagrams.

4. What is “Transistors” ? Draw its structure and explain the working and action for the transistor in detail. **14**

OR

What is “CE, CC and CB” ? Compare them clearly and discuss why the CE configuration is widely used in amplifier circuit Draw frequency response curves for all.

5. Answer the following :

- (1) What is “Capacitor” ?
 - (2) What is “Inductor” ?
 - (3) Write the types of Transformer.
 - (4) Draw Variable Capacitor.
 - (5) Draw Air Core Transformer.
 - (6) Define : Clamper.
 - (7) Draw : LED.
 - (8) Define : Conversion efficiency
 - (9) Define : Voltage gain.
 - (10) What is “Load line” ?
 - (11) What is “Heat Sink” ?
 - (12) Define : Thermal Run-away.
 - (13) Draw phase-relationship in amplifier.
 - (14) What is “Multi-meter” ?
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- Instructions :** (1) All questions carry equal marks.
(2) Symbols denotes their usual meaning.
(3) Number to the right denotes marks.

1. What is “Capacitors” ? Classify them and discuss each in detail. 14

OR

What is “PCB” ? Declare its types and explain them in detail. Draw its Board construction and write the steps to make a PCB.

2. What is “Clippers” and what is “Clampers” ? Discuss the “Series Clippers” with suitable circuit diagrams and wave forms. 14

OR

What is “Opto electronics” ? Give their examples and discuss the “LED” in detail using appropriate circuit diagrams and symbols.

3. What is “amplification” ? Define the voltage gain, current gain and power gain. Draw neat and clean circuits for input resistance and output resistance and derive their formulas. 14

OR

What is “Harmonic Distortion” ? Discuss the five point method to calculate the total harmonic distortion.

4. Define the “Binary Number System, Decimal Number System, Octal and Hexa-decimal Number System and do as directed for following : 14

(1) $(25)_{10} = (?)_2$

(2) $AEH = (?)_{10}$

(3) $(10110101)_2 = (?)_{16}$

(4) $(1011.01101)_2 = (?)_8$

5. Answer the following :

14

- (1) BCD stands for what ?
 - (2) What is "ASCII" ?
 - (3) How Hexa-Decimal is differ than Decimal Number System ?
 - (4) What is "Reset-and-carry" ?
 - (5) What is "Resistor" ?
 - (6) If color bands are given as "Red, Red, Orange, Golden" then what will be the value of this resistor ?
 - (7) Draw the color-code designation for "Resistor".
 - (8) Declare the color-code designation for 100Ω .
 - (9) If 5 mA meter movement with an internal resistance of 200Ω is to be converted into a 0-100 mA ammeter. Determine the shunt resistance required.
 - (10) Draw "Series type ohm-meter".
 - (11) Draw "Half-wave voltage doubler".
 - (12) Draw the symbol for "Tunnel diode".
 - (13) Define : Decibel.
 - (14) Write the formula for "Impedance correction factor".
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