Rajiv Gandhi University of Knowledge Technologies

Weekly Test 3 – Introduction to Electronics

Date: 01-09-2012 **Time:** 30 Min

Course: E2Sem1_(CSE-ECE) **Max Marks:** 10

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1. Application of Zener diode is X , Photo diode is Y and LED is Z . Where

(a) X = Reading of film sound track,
Y = Reference voltage,
Z = traffic signal

(b) X = Reference voltage,
Y = Reading of film sound track,
Z = traffic signal

(c) X = Reading of film sound track,
Y = traffic signal,
Z = Reference voltage

(d) X = traffic signal,
Y = Reading of film sound track,
Z = Reference voltage

2. X carriers constitute current in Photodiode with range in Y . Where

(a) X = Majority, $Y = mA$

(b) X = Minority, $Y = mA$

(c) X = Majority, $Y = \mu A$

(d) X = Minority, $Y = \mu A$

3. $2mA$ current is flowing through source resistance R_S. Find out the value of source resistance R_S. Use concept of linear piecewise diode model. (Assume $V_{Z_1} = 2V$, $V_{Z_2} = 4V$, Cut-in voltage for $D_1 = 0.2V$, Cut-in voltage for $D_2 = 0.6V$ and forward resistance of D_1 and D_2 is zero; *Refer Figure: 3*)

(a) $6.6k\Omega$

(b) $8.9k\Omega$

(c) $7k\Omega$

(d) None of these

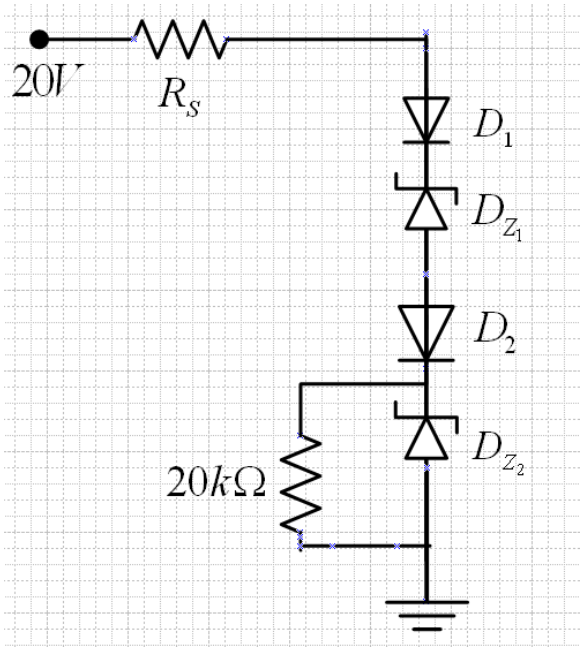

Figure: 3

4. $2mA$ current is passing through R_1 resistor, find out value of the R_1. Use concept of linear piecewise diode model.(Use the given assumption in question-3, *Refer Figure:4*)

(a) $2.3k\Omega$

(b) $1.7k\Omega$

(c) $7.7k\Omega$

(d) None of these

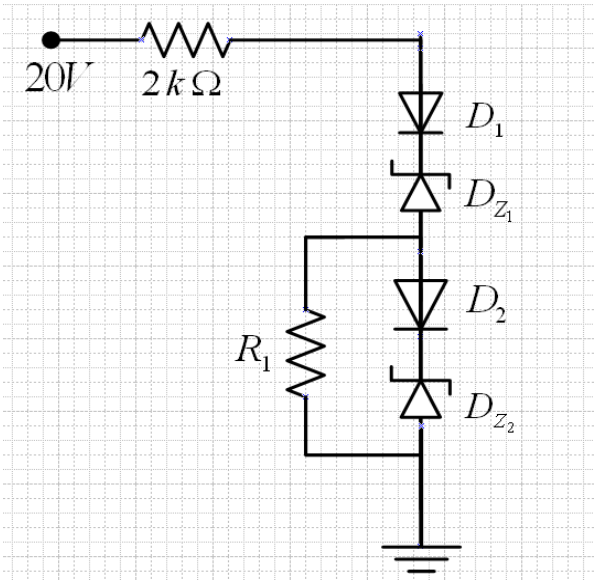

Figure: 4

5. If I is the leakage current, what is the approximate value and direction of the base current.(Assume Emitter and collector region are symmetrical)

(a) $2I$, flowing from X to Y

(b) $2I$, flowing from Y to X

(c) I , flowing from X to Y

(d) I , flowing from Y to X

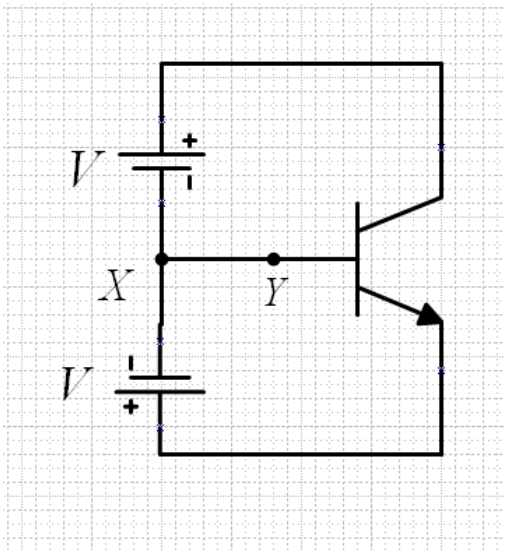

Figure: 5

6. Find out current passes through 4Ω resistor. (Assume voltage drop across base to emitter junction is $0.2V$, assume collector current is nearly equal to emitter current)

(a) $4.9A$

(b) $5.1A$

(c) $2A$

(d) Data insufficient

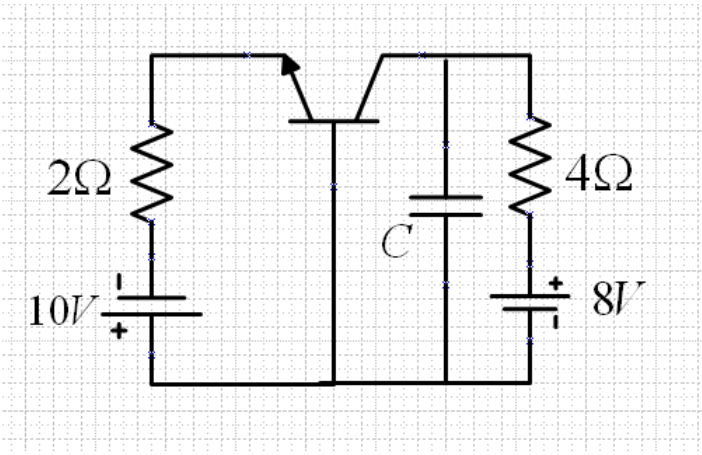

Figure: 6

7. For ***npn*** bipolar transistor, what is the main stream of current in the base region.

(a) Drift of holes

(b) Diffusion of holes

(c) Drift of electrons

(d) Diffusion of electrons

8. X is associated with diode and Y is associated with BJT. Where

(a) X = Forward resistance, Y = Active region

(b) X = Active region, Y = Forward resistance,

(c) Both **a** and **b**.

(d) Neither **a** nor **b**

9. Consider the following statement for photodiodes:

1. Its dark conductivity is small.

2. With absorption of radiation, equal no. of electrons and holes are produced.

Which of the statement(s) given above is/are correct?

(a) **1** only

(b) **2** only

(c) Both **1** and **2**

(d) Neither **1** nor **2**

10. Peak to peak value of the output voltage waveform appeared across the load resistance R_L is depend on which of the following ckt. parameters. Use concept of linear piecewise diode model when zener diodes are in forward bias. (Assume V_m is greater than zener voltages of two zener diodes, and forward resistance of zener diode is zero.; *Refer Figure:10*)

(a) Zener voltage of two diodes.

(b) Cut-in voltage of two diodes.

(c) Zener voltage of two diodes and load resistance R_L

(d) Zener voltage of two diodes, source resistance R_S

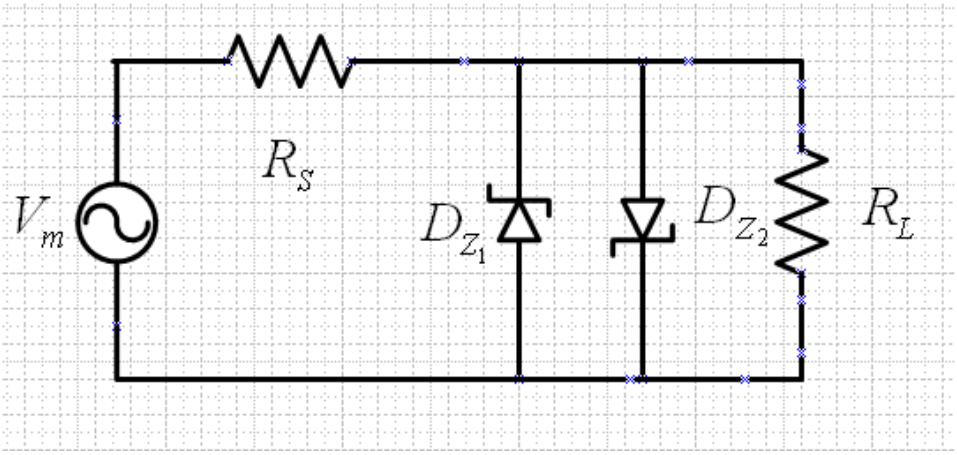

Figure: 10

Introduction to Electronics

Answer Key

1. (b)
2. (d)
3. (a)
4. (a)
5. (b)
6. (a)
7. (d)
8. (a)
9. (c)
10. (b)