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SE-6125

B. E. II (CH) (Sem. III) Examination

April / May – 2011

Basic Electronics

(Old Scheme)

Time : Hours] [Total Marks : **100**

Instruction :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. II (CH) (Sem. 3)**

Name of the Subject :

☛ **Basic Electronics**

☛Subject Code No. : **6 1 2 5** ☛Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

1 (a) Attempt following questions : **10**

(1) The knee voltage of silicon p-n junction diode is _____ .

(2) The Ripple factor of a full-wave rectifier is _____ .

(3) Define PIN.

(4) The emitter is _____ doped compared to collector. (Heavily / less)

(5) Best method for transistor biasing is _____ .

(6) If $\alpha = 0.99$, what should be the value of β ?

(7) At absolute zero temperature, semiconductor behave like _____ .

(8) What is the difference between semiconductor and insulator ?

(9) Common collector ckt is generally used for _____ .

(10) Define intrinsic semiconductor.

(b) Define : **3**

(i) Negative feedback

(ii) Positive feedback

(iii) Operating point.

(c) Describe the NPN X'tor action in detail with diagram. **7**

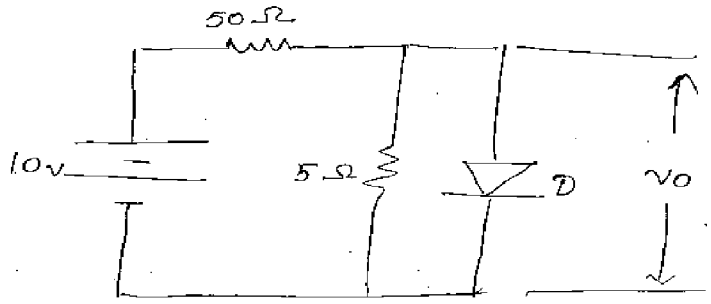
2 (a) With a neat sketch, explain the working of half wave rectifier. Derive the expression of the efficiency for the same. 8

(b) Draw and explain the $v-I$ char. of a P-N junction diode. 7

OR

2 (a) Explain the push pull amplifier with the ckt diagram and its operation, also states its advantages and disadvantages. 8

(b) 7



Find the current through diode in the ckt shown above. Also find out the o/p voltage.

3 Attempt any **three** : 15

(1) Classify the different technique of biasing and explain any one in detail.

(2) Short note on zener diode

(3) RC coupled amplifier

(4) UJT characteristic.

4 (a) Answer the following : 10

(1) Define digital signal.

(2) Senstivity of voltmeter is given in _____ .

(3) CRO is used to measure _____ .

(4) Define work function.

(5) A photo diode is normally _____ biased.

(6) The LED's are made up of _____ semiconductors.

(7) The work function of an oxide coated emitter is about _____ .

(8) The wein bridge oscillator is used for _____ frequency application. (low, high, medium)

(9) The material used to coat inside face of CRT is _____

(10) Define operating point.

(b) Explain the working of photo transistor. 5

(c) With the help of a neat diagram, explain RTD. 5

5 (a) Explain Richardson Dushman equation. 8

Also explain thermionic emission.

(b) Explain the working of Hartley oscillator. 7

Also list the application of it.

OR

5 (a) Draw and explain block diagram of CRO. 8

(b) Derive the equation of gauge factor for strain gauge. 7

6 Write short notes on : (any **three**) 15

(1) CRT

(2) Photo diode

(3) LVDT

(4) Photo conductive cell.
