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UH-6151

B. E. - II (Sem. III) (Civil) Examination

May/June – 2012

Electronics & Instrumentation

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

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

Name of the Examination :

☛ B. E. - 2 (SEM. 3) (CIVIL)

Name of the Subject :

☛ ELECTRONICS & INSTRUMENTATION

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

Seat No. :

Student's Signature

(2) Attempt all the questions.

(3) Figure to the right indicate full marks.

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

(i) A semiconductor is formed by _____ bonds. (Covalent/ co-ordinate)

(ii) The reverse current in a diode is of the order of _____.

(iii) A zener diode gas _____ pn junction. (one/two/three)

(iv) A crystal diode is a bilateral device. (true/false)

(v) The maximum efficiency of a half-wave rectifier is _____.

(vi) The most widely used rectifier is _____.

(vii) A photo-diode is normally operated in the _____ biased.

(viii) A pn junction that radiater energy as light instead of as heat is called as _____ diode.

(ix) When the light increases, the reverse current in a photo diode is decreases. (true/false)

(x) In an mpn transistor, _____ are the minority carriers.

(b) Attempt any two : **10**

(i) Short note on : Tunnel diode.

(ii) Short note on : Optoisolator

(iii) Short note on : Varactor diode.

2 (a) Attempt any two : **10**

(i) What are the applications of LEDS describe each with proper diagram.

(ii) Derive the efficiency equation for half-wave rectifier.

(iii) Explain the V-I characteristic of Pn junction diode. With neat and clean diagram.

(b) Explain m.p.n. transistor in detail. **5**

3 Attempt any three : **15**

(i) What are the advantages of oscillator ?

(ii) What are the difference between the voltage and power amplifier.

(iii) Compare : Half wave, center-tap and bridge rectifier.

(iv) Explain : Zener diode characteristic.

(v) Explain : Zener diode as a voltage stabilizer.

4 (a) Explain the following terms : **16**

(i) Gross error

(ii) Resolution

(iii) Linearity

(iv) Precision

(v) Accuracy

(vi) Point accuracy

(vii) Accuracy as "percentage of scale range."

(viii) Resolution

(b) State salient feature and application of thermistor. **4**

5 (a) Draw the basic block diagram of CRO and explain each block in detail. **10**

OR

(a) Describe with diagram the operation of LVDT. **10**

(b) Write RTD. **5**

6 Attempt any three : **15**

(i) Explain semiconductor strain guage in detail.

(ii) Explain : Hot wine anemometer.

(iii) Classified transducer and explain in detail.

(iv) State five advantages and disadvantages of capacitive transducer.
