



**KC-6151**

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

**November / December – 2012**

**Electronics & Instrumentation**

Time : Hours]

[Total Marks : 100

**Instructions :**

(1)

नीचे दशावलि निशानीवाणी विगतो उत्तरवही पर अवश्य लभवी.  
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) Figures to the right indicate full marks.  
(4) Make suitable assumption if needed.

1 (a) Attempt the following

10

- (1) The most commonly used semiconductor is \_\_\_\_\_.  
(carbon / silicon)
- (2) The leakage current across a PN junction is due to majority carrier.  
(True / false)
- (3) A PN junction diode has \_\_\_\_\_ pn junction.  
(One / two / three)
- (4) The maximum efficiency of a center-tap full wave rectifier is \_\_\_\_\_.
- (5) The forward voltage drop across a silicon diode is about \_\_\_\_\_.  
(0.1 v / 0.7 v)
- (6) A crystal diode is used as a \_\_\_\_\_.  
(voltage regulator / amplifier / rectifier)

- (7) A photo diode is normally operated in the \_\_\_\_\_ biased.
- (8) When the light increases the reverse current in a photo diode is \_\_\_\_\_.  
(increase / decrease)
- (9) A crystal diode is an unilateral device.  
(True / False)
- (10) A zener diode is always \_\_\_\_\_ connected.  
(Forward / Reverse)

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

- (1) Short note on : Photo diode.
- (2) Short note on : Characteristics of tunnel diode.
- (3) Short note on : Shockley diode.

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

- (1) Explain the working principle of PNP transistor.
- (2) Describe in detail: bridge rectifier
- (3) Explain the V-I characteristic of zener diode.

(b) Derive the efficiency equation for center tap full wave rectifier. **5**

**3** Attempt any three **15**

- (1) Explain half wave rectifier with 'C' filter.
- (2) Explain: applications of photodiode.
- (3) What are the advantages of oscillator.
- (4) Explain : LED.
- (5) Explain : Optoisolator.

- 4 (a) Explain the following terms : 10
- (1) Precision
  - (2) Point accuracy
  - (3) Electronic instrument
  - (4) Linearity
  - (5) Accuracy as "percentage of scale range".
- (b) State salient feature and application of thermistor. 5
- (c) State 5 advantages and disadvantages of LVDT. 5
- 5 (a) Derive the strain gauge factor equation  $Gf = (1 + 2V)$  with proper derivation. 8
- (b) Draw the basic block diagram of CRO and explain each block in detail. 8
- OR**
- 5 (a) Explain in detail thermocouple with neat diagrams. Give the principle of working of thermocouples. 8
- (b) Describe with diagram the operation of LVDT. 8
- 6 (a) Write any two : 10
- (1) RTD
  - (2) Explain semiconductor strain gauge in detail.
  - (3) State five advantages & disadvantages of capacitive transducer.
- (b) Classified transducer & explain in detail. 4
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