* K C - 6 1 2 5 *

KC-6125

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

November/December – 2012

Basic Electronics

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. II (Sem. III) (CHE)**

Name of the Subject :

☛ **Basic Electronics**

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

Seat No. :

Student's Signature

(2) Attempt all questions.

(3) Figures to the right indicates full marks.

(4) Assume suitable data wherever necessary.

1 (a) Answers of the following : **10**

(i) A PN junction acts as a _____ (unidirectional, bidirectional)

(ii) The ripple factor of a half rectifier is _____. (0.48, 2, 1.21, 2,5)

(iii) Find the value of β if α = 0.99.

(iv) Define negative feedback.

(v) Relation between α and β is _____.

(vi) Full form of UJT is _____.

(vii) $I_C = \beta I_B +$ _____

(viii) When pure semiconductor heated, its resistance _____. (goes up, goes down, remain constant)

(ix) In breakdown region, a zener diode behaves like a _____ source. (constant current, constant voltage)

(x) Define Transistor Biasing.

(b) Derive the relation between α and β for common emitter connection. **4**

(c) Transistor load line analysis in CE configuration. **6**

2 (a) What is filter ? Explain π filter with circuit diagram, input and output waveform. **7**

(b) Explain push pull amplifier with circuit diagram and its operation. **8**

OR

2 (a) Explain Full wave bridge rectifier with its circuit diagram, operation, advantages and disadvantages. **10**

(b) Class B power amplifier in detail. **5**

3 Explain any three : **15**

(i) Half wave rectifier with circuit diagram.

(ii) UJT characteristic with diagram.

(iii) V-I characteristic of diode

(iv) Class A power amplifier

(v) Zener diode

4 (a) Answer the following : **10**

(i) Define Holding current.

(ii) Define latching current.

(iii) Explain Barkhausen criteria.

(iv) How does SCR differ from ordinary rectifier ?

(v) Explain the difference between Diac and Triac.

(b) Draw and explain the operation and the V-I Characteristic of Triac. **10**

5 (a) Draw and explain the V-I characteristic of SCR. **8**

(b) Explain the working of CRT with neat diagram. **7**

OR

5 (a) What do you mean by thermionic emission ? Explain Richardson-Dushondu equation. **8**

(b) Explain Hartley oscillator with neat diagram. **7**

6 Write short note on any three : **15**

(i) SCR

(ii) Application of UJT

(iii) Multimeter

(iv) Diac

(v) Photo Conductive cell.
