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RN-6125

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

May / June – 2010

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. - 2 (Sem. 3) (Chemical)**

Name of the Subject :

☛ **Basic Electronics**

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

Seat No. :

Student's Signature

(2) Attempt all questions.
(3) Figures to the right indicate full marks.
(4) Assume suitable data wherever necessary and specify your assumption clearly.

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

(i) A bridge type rectifier has _____ diodes.

(ii) A pentavalent impurity has _____ valence electrons.

(iii) Define :

(a) PIV

(b) Filters

(c) Cut in voltage

(iv) At room temperature, an intrinsic semiconductor acts as _____.

(v) A zener diode is used as a _____.

(vi) The ripple factor of a half wave rectifier is _____.

(vii) The relation between B and D is _____.

(viii) In a transistor, signal is transferred from a _____circuit.

(b) Explain half wave rectifier and derive equation for its efficiency. **6**

(c) Define filter and compare various filters. **4**

2 (a) Explain with the help of neat diagram transistor working as an amplifier. 8

(b) Describe with the characteristics, the voltage stabilization of zener diode. 7

OR

2 (a) Define biasing of transistor. List the various methods of biasing and explain voltage divider biasing. 8

(b) Describe the working of following filters 7

(i) Capacitive filter

(ii) π filter.

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

(i) Comparison of CE, CB, CC configuration of transistor.

(ii) Classification of amplifiers

(iii) Uni-junction transistor

(iv) Push pull amplifier.

SECTION - II

4 (a) (i) An astable multivibrator_____ 1

(a) Gives one output pulse for every two input pulse.

(b) Give a timed output pulse for trigger input.

(c) Gives a train of output pulses for trigger input.

(d) Gives four output pulses for single input pulse.

(ii) The electrons emitted by a thermionic emitter are called _____. 1

(a) Free electron

(b) Loose electron

(c) Thermionic electron

(d) Bound electron

(iii) In signal generators energy is converted from simple _____ source into _____ energy at some specific frequency. 2

(iv) Define work function. 2

(v) What is full form of LED? 2

(vi) What is deflection sensitivity of CRT? 2

(b) (i) List various devices used for measurement of temperature. 4

(ii) What is field emission? 3

(iii) Give merits and demerits of multimeter. 3

5 (a) What is secondary Emission? Explain with labelled diagram. 7

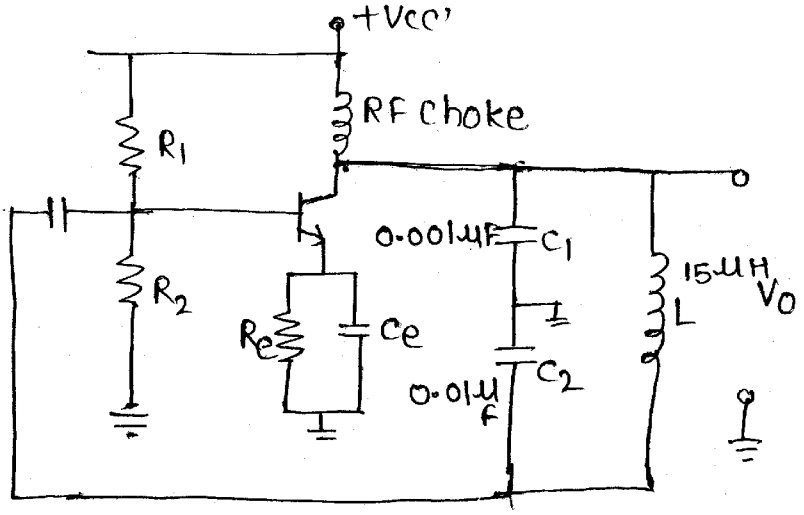
(b) Explain function of internal parts of CRT with diagram. 8

OR

5 (a) Determine frequency of oscillation and feedback fraction for colpitts oscillator. 8

Given $C_1 = 0.001$ Micro Faeade, $C_2 = 0.01$ Micro faeade

L = 15 Micro henry



(b) Explain Barkhausen criteria with neat block diagram. 7

6 Any **three** : 15

(i) Explain frequency measurement using CRO. 5

(ii) What is Photo Electric emission? Explain with diagram. 5

(iii) Write about Thermionic Emitter. 5

(iv) Write a note on photodiode with characteristics. 5