14990

Name: .....

Reg.No. .....

COMBINED I & II SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2010

EC 04108 – BASIC ELECTRONICS
(Common for EC, BM, BT, AI and IC)

Time : Three Hours **Maximum: 100 Marks**

I (a) Write a note on Electrostatic and Magnetic deflection sensitivities.
(b) Briefly explain the principle of operation of a triode.
(c) Explain the colour coding of resistors.
(d) Draw the DC equivalent model of a transistor and give its analysis.
(e) What is a Q point? Explain.
(f) Calculate the stability factor for a potential divider biasing circuit.
(g) Draw the circuit of a Half Wave rectifier and its waveforms. Also explain its principle of operation.
(h) Explain the operation of a series voltage regulator.

$(8 \times 5 = 40)$

II. (a) Derive an expression for the motion of an electron in
(i) Uniform electric field
(ii) Transverse magnetic field.

(OR)

(b) (i) With block diagram explain the operation of a CRO. Derive an expression for its deflection sensitivity.
(ii) With block diagram, explain the operation of a multimeter.

III. (a) (i) Compare the characteristics of various types of capacitors.
(ii) Draw the circuit of a clipper and clamper and explain its operation.

(OR)

(b) Explain the operation and applications of
(i) Common Emitter
(ii) Common Collector
(iii) Common Base
Configurations.

IV. (a) Discuss in detail about the various resistor biasing circuits.

(OR)

(b) Discuss in detail about the operation of a Bipolar function transistor with its characteristics.

V. (a) Derive the expressions for PIV, DC O/P voltage, ripple factor, efficiency and rectification factor of a full wave rectifier.

OR

(b) (i) What is the need for filters in rectifiers? Explain.
(ii) Explain the analysis of capacitor filters for rectifiers.

$(15 \times 4 = 60)$

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