

D 23514

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Name.....

Reg. No.....

**THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2011**

CE 04 306—ELECTRICAL AND ELECTRONICS ENGINEERING

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

- I. (a) (i) Three impedances $10\angle -30^\circ\Omega$, $20\angle 60^\circ\Omega$ and $40\angle 0^\circ\Omega$ are connected in parallel. Calculate their equivalent impedance.

(3 marks)

- (ii) Define electric potential, resistance and electric circuits.

(2 marks)

- (b) Explain the principle of operation of transformer and write V and I relations.

- (c) Explain different system of wiring.

- (d) Write the ratings for any five appliances.

- (e) (i) Define P, N type semiconductor.

- (ii) Explain about Avalanche, Zener breakdown.

- (f) Draw and explain the I/O characteristics of BJT in CE configuration.

- (g) Discuss about strain gauges.

- (h) Briefly explain about LCD. List the uses and advantage.

(8 × 5 = 40 marks)

- II. (a) The load on a 250 V supply is :

- (i) 12 amps at 0.8 p.f. lagging.

- (ii) 11 amps at 0.6 p.f. lagging.

- (iii) 14 amps at unity p.f.

- (iv) 20 amps at 0.5 p.f. leading.

Find the total load in kVA and its power factor.

Or

- (b) Explain the construction and working of single-phase induction motor.

- III. (a) Explain tube light wiring.

Or

- (b) Discuss about the fluorescent lighting with a neat sketch. Mention its advantages and disadvantages.

- IV. (a) Draw and explain the working of center-tapped FWR and derive the expression for average voltage and current, ripple factor.

Or

Turn over

(b) (i) Explain the working of shunt voltage regulator.

(7 marks)

(ii) Explain the principles of switching regulator.

(8 marks)

V. (a) Discuss about CRO.

Or

(b) Explain in detail the working of magnetic type recorder. List the advantages and disadvantages.

(15 marks)

[4 × 15 = 60 marks]