

Code: CE2T4

I B.Tech-II Semester-Regular Examinations - July 2013

**BASIC ELECTRICAL & ELECTRONICS
ENGINEERING
(For Civil Engineering)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

- 1 a) What are the factors that affect the energy stored in a capacitor. 3 M
- b) If two inductors $L_1 = 10 \text{ mH}$ and $L_2 = 20 \text{ mH}$ are connected in parallel and this combination is connected in series with an inductor $L_3 = 100 \text{ mH}$ find out the equivalent inductance of the above combinations. 6 M
- c) Distinguish between ideal and practical sources. 2 M
- d) Derive the expression for energy stored in an inductor. 3 M
- 2 a) What are the applications of DC motors ? 7 M
- b) Explain operation of three point starter, with neat sketch. 7 M

- 3 a) Why the transformer rating is mentioned in KVA but not in KW. 6 M
- b) Define regulation and efficiency of transformer and derive the condition for maximum efficiency. 8 M
- 4 a) Explain the principle of operation of alternators. 5 M
- b) Define slip of an induction motor 3 M
- c) Compare transformer and induction motor. 6 M
- 5 a) Enlist the advantages and disadvantages of moving iron Instruments 7 M
- b) Derive the expression for torque produced in DC measuring instrument. 7 M
- 6 a) Explain operation of full wave bridge rectifier with waveforms 7 M
- b) Draw the VI-characteristics of Zener diode. 7 M
- 7 a) Describe the operation of CB configuration and analyze the current components in a transistor. 7 M
- b) Derive the relationship between alpha and beta in a transistor. 7 M

- 8 a) Explain the principle and operation of CRO 6 M
- b) Mention the application of CRO. 4 M
- c) Determine the velocity of the electron beam in an oscilloscope when the voltage applied to each accelerating anode is 2500 V. 4 M