

Code: CE2T4

I B.Tech-II Semester-Regular Examinations - July 2014

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

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Define an electrical circuit. 2 M
- b) If two resistances $R_1=10\Omega$ and $R_2=20\Omega$ are connected in parallel and this combination is connected in series with a resistance of $R_3=100\Omega$ find out the equivalent resistance of the above combinations. 6 M
- c) What is an active circuit element. Mention them with examples. 3 M
- d) Draw the VI characteristics of an Ideal current source. 3 M
2. a) Explain the principle of operation of DC generator and derive emf equation of DC generator. 7 M
- b) Explain why a starter is required for starting a dc motor? 7 M
3. a) Derive emf equation of a single phase transformer and classify different types of transformers. 7 M

- b) What are the various losses occur in transformers and write necessary mathematical formula in support of losses. 7 M
4. a) Explain the method of obtaining regulation of the alternator by synchronous impedance method. 7 M
- b) Draw the slip torque characteristics of a 3 phase induction motor. 7 M
5. a) Enlist the advantages of Permanent magnet moving coil meters. 7 M
- b) What is essential difference between a moving coil and moving iron instrument. 7 M
6. a) Explain how the process of avalanche break down occur in a pn-junction diode. How it is different from zener break down. 7 M
- b) Draw the VI-characteristics of PN junction diode. 7 M
7. a) Draw a sketch of an npn junction transistor. 7 M
- b) Explain how transistor acts as an amplifier. 7 M
8. a) Explain the principle and operation of CRT. 7 M
- b) Explain the motion of charged particles in magnetic field and mention their path. 7 M