

II B.Tech I Semester – Supplementary-Examinations May-2005
MECHANICAL AND ELECTRICAL SCIENCE
(Civil Engineering)

Time: 3 hours

Maximum marks: 80

Answer THREE questions from each part
All questions carry equal marks

(Part –A – Electrical Science)

1. Explain the construction of a DC machine with a neat sketch.
2. From the fundamental, derive the expression for the Torque.
3. Explain the phasor diagram of a transformer 'on load' with lagging pf.
4. Derive from first principles the emf equation of an alternator.
- 5.a) Explain the advantages and disadvantages of Moving Iron instruments.
b) Explain the working of moving iron attraction type instruments.

(Part –B – Mechanical Science)

- 1.a) Define:
 - i) Bore
 - ii) Stroke
 - iii) Displacement of an I.C. Engine and mention their units.
b) With neat sketches explain the working of 4-stroke cycle petrol engine.
- 2.a) Differentiate between physical and thermodynamic properties of a refrigerant. Explain which are more important giving specific examples.
b) What is a secondary refrigerant? Where it is used?
- 3.a) What are the different types of welding? Discuss their applications?
b) Describe working principle and operation of oxygen cutting.
- 4.a) Enumerate difference between shaper and planer.
b) What are different operations than can be performed on shape and planer?
- 5.a) Discuss how the size of a power shovel is determined.
b) Give two advantages of Conveyor Installations?

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