

II B.Tech I Semester(RR) Supplementary Examinations, May/June 2010
MECHANICAL AND ELECTRICAL SCIENCE
(Civil Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are the factors that impose limitations on the compression ratio used in the petrol engines?
(b) List the relative merits and demerits of 2-stroke over 4-stroke engines? [6+10]
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? [10+6]
3. (a) Define welding and discuss the classification of welding.
(b) Discuss the advantages and disadvantages of gas cutting and arc cutting. [6+10]
4. (a) Discuss briefly the use of the following parts of the shaper.
 - i. Column
 - ii. Ram
 - iii. Drives
 - iv. Tool head.
(b) What are the different types of drilling machines classified based on their general construction? Explain their applications. [8+8]
5. (a) What are the factors effecting the output of power shovel ? Discuss any two.
(b) What types of materials can be handled by Pneumatic Conveyors? [8+8]
6. Explain the building of the emf in a shunt generator. [16]
7. A 250V, dc shunt motor on no-load runs at a speed of 1000 rpm and takes a current of 5A. The armature and shunt field resistance are 0.2Ω and 250Ω respectively. Calculate the speed when the motor is on-load and is taking a current of 50A. [16]
8. Draw the general schematic of a single phase transformer and explain its working principle. [16]
