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**B.Tech. Mechanical Engg. (BTMEVI) / B.Tech
Electrical Engg (BTELVI) / B.Tech Computer
Science & Engg (BTCSEVI) / B.Tech Civil Engg
(BTCLEVI) / B.Tech. Electronics and
Communication Engg. (BTECVI)**

**Term-End Examination
December, 2013**

**BICE-001 : ELEMENTS OF ENGINEERING
SCIENCE**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks.

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1. Explain the Kirchhoff's laws and their applications to simple circuit with examples. Write the units of power and work. 10
 2. Discuss the concept of electricity. Explain the term voltage, current, potential difference, power and energy. How is energy related to power ? 10
 3. Discuss the role of Civil Engineer as site engineer for a project. Write different types of buildings with their major components. 10
 4. Discuss the procedure for adjustment of local attraction with an example. Explain the term ranging in Civil Engg. Survey. Draw the sketch for a line ranger. 10

5. What is the concept of base line, tie line and check line ? Explain the term offset. Draw a sketch for a cross staff. 10
6. Write the statements of first and second laws of thermodynamics. Draw the carnot cycle for heat engine, refrigeration and heat pump. 10
7. Write the difference between two stroke and four stroke IC engines. Explain the system, process and cycle in thermodynamic way. 10
8. Explain the term stress and strain. Discuss their types. What is Hook's law ? Draw stress-strain diagram for ductile materials. 10
9. What is Sheet Metal Forming ? List the advantages and disadvantages of sheet Metal Forming process. Discuss the working principle of lathe machine and power saw in short. 10
10. Write short notes (*any four*) 2.5x4=10
- (a) Grinding M/c
 - (b) Drilling M/c
 - (c) Ideal gas equations
 - (d) Use of tapes
 - (e) Non ferrous alloys
 - (f) Sheet Metal Cutting
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