

01165

**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, 2012**

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

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Answer **any seven** questions in total. All questions carry  
equal marks.*

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1. (a) Explain the phenomenon of Temperature coefficient of Resistance 5
- (b) Explain the Ohm's Law of Resistance in series and in Parallel. 5
  
2. A factory has a 240-v supply from which the following loads are taken: 10  
Lighting: 300's-150-W, 400no's-100W  
heating : 100 kW  
Motors : A total of 44.76 kW with an efficiency of 75%

Assuming that the lighting load is on for a period of 4 hours/day, the heating for 12 hours per day. Calculate the weekly consumption of the factor in kWh when working on a 5 days week

3. (a) Explain the role of Civil Engineer in the development of the country. 5
- (b) What is the role of Civil Engineer while constructing a new proposed road ? 5
4. What are the different component parts of a residential building ? Also mention its functions. 10
5. (a) What is a Representative Fraction ? 3
- (b) What are the different types of scales ? Also explain differences between a plain scale and a diagonal scale. 7
6. Define the terms : 10
  - (a) True bearing
  - (b) Magnetic bearing
  - (c) Back bearing and
  - (d) Magnetic declination
7. Explain with neat sketch, functions of various component parts of Four Stroke Petrol Engine. 10

8. (a) What are the sources of errors in chain surveying and what precautions will you take to eliminate them ? 7
- (b) What is local attraction of prismatic Compass ? 3
9. (a) Define and distinguish between the First and second laws of thermodynamics 6
- (b) Explain the Carnot cycle of heat engines. 4
10. Write short note on *any two* of the following :  $2 \times 5 = 10$
- (a) Lathe Machine & Power Saw
- (b) Mechanical properties of mildsteel and cast iron
- (c) Fourier's law of heat conduction
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