No. of Printed Pages : 3

BICE-001

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

00512 **Term-End Examination**

December, 2017

BICE-001 : ELEMENTS OF ENGINEERING SCIENCE

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***seven*** *questions. Draw suitable diagrams wherever necessary.*

1. (a) Define the terms Current and Unit of current. *5*

(b) Distinguish between Potential Difference and Potential Gradient. *5*

2. What do you understand by an energy source and energy converter ? Give two examples of each. How is energy related to power ? Write the units of power and energy. *10*

3. What are the different types of structural design ? Also state the importance of framed structured design of multistorey buildings. *10*

4. What is Local Attraction ? How is it detected and eliminated ? *10*

5. (a) What is the role of a civil engineer while constructing a new proposed road ? *5*

   (b) Write different types of buildings with their major components. *5*

6. Explain with neat sketches, the functions of various component parts of a four-stroke petrol engine. *10*

7. (a) Define and distinguish between the First and Second laws of thermodynamics. *6*

   (b) Define the terms : *4*

   (i) Elasticity

   (ii) Young's modulus

8. Explain the terms Drilling, Boring, Grinding and Milling. Discuss the mechanical properties for steels and cast iron. *10*

9. Explain in short, Welding, Soldering, Casting and Forging manufacturing processes. *10*

10. Write short notes on any ***four*** of the following : $4 \times 2\frac{1}{2} = 10$

(a) Ohm's Law of Resistance

(b) Back Bearing

(c) Representative Fraction

(d) Lathe Machine

(e) Stefan-Boltzmann Law

(f) First Law of Thermodynamics