

**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)**

00546 Term-End Examination

June, 2015

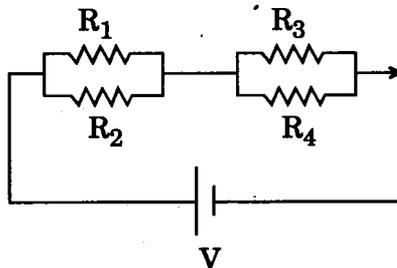
BICE-001 : ELEMENTS OF ENGINEERING SCIENCE

Time : 3 hours

Maximum Marks : 70

Note : Answer any seven questions.

1. With a suitable sketch, explain the Kirchhoff's voltage law and current law. Explain its simple application. 10
2. (a) Four resistors R_1 , R_2 , R_3 and R_4 in a circuit are connected in the following manner. Find the equivalent resistance of the system. 5



- (b) In the above circuit, if $R_1 = R_3 = 5 \Omega$ and $R_2 = R_4 = 2 R_1$, a voltage of 200 V is applied. Find the current flowing in the circuit. 5
3. Explain in detail the role of a civil engineer at different levels of a project. 10
4. (a) Write a short note on different areas of Civil Engineering. 5
- (b) With reference to prismatic compass, explain base line, tie line and check line. 5
5. (a) Explain the Carnot's cycle with reference to a P - V diagram and its applicability for a heat pump. 5
- (b) With suitable examples, explain First and Second laws of Thermodynamics. 5
6. (a) With suitable diagrams, explain the different parts of a two-stroke petrol engine. 5
- (b) State and explain Fourier's law of conduction. 5
7. (a) With a block diagram, explain design cycle. 5
- (b) Explain the mechanical properties and their importance for Alloy steels and Cast irons. 5
8. With a suitable sketch, explain the working principle of a Centre Lathe. 10

9. (a) Explain any one type of Arc welding process with suitable sketch. 5
- (b) Differentiate between Soldering and Brazing processes. 5
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