

B.E. CIVIL ENGINEERING THIRD YEAR SECOND SEMESTER EXAM 2023/  
B.E. INFORMATION TECHNOLOGY THIRD YEAR SECOND SEMESTER EXAM 2023/  
B.E. METALLURGICAL AND MATERIAL ENGINEERING THIRD YEAR SECOND SEMESTER EXAM 2023/  
B.E. CONSTRUCTION ENGINEERING FOURTH YEAR SECOND SEMESTER EXAM 2023/  
B.E. COMPUTER SCIENCE AND ENGINEERING FOURTH YEAR SECOND SEMESTER EXAM 2023/  
B.E. ELECTRICAL ENGINEERING FOURTH YEAR SECOND SEMESTER EXAM 2023/  
B.E. ELECTRONICS AND TELE-COMMUNICATION ENGINEERING FOURTH YEAR SECOND SEMESTER EXAM 2023/  
B.E. INSTRUMENTATION AND ELECTRONICS ENGINEERING FOURTH YEAR SECOND SEMESTER EXAM 2023/  
B.E. POWER ENGINEERING FOURTH YEAR SECOND SEMESTER EXAM 2023

**SUBJECT: SUSTAINABLE DEVELOPMENT AND LOW CARBON TECHNOLOGY**

**Time: 3 Hours**

**Full Marks: 100**

**ANSWER ANY TEN QUESTIONS**

- Q1. a) Mention the different global indicators for the goal of gender equality.  
b) How consumerism and economic growth put pressure on environment? [7+3]
- Q2. a) State the targets to achieve the goal of clean water and sanitation.  
b) With a suitable diagram explain "Triple Bottom Line" concept of sustainability. [7+3]
- Q3. a) Name the indicators to estimate the Index of SDG 8 (decent work and economic growth) in India according to SDG India Index and dashboard 2019-20 report.  
b) What are the different challenges in India to carry out the goal for good health and well being? [7+3]
- Q4. a) Briefly discuss contemporary challenges of the concept of sustainable development.  
b) Write the definition of sustainable development stated by the Brundtland Commission in its report "Our Common Future" (1987). [8+2]
- Q5. a) What is the importance of circular economy in present day?  
b) Differentiate between the "biological nutrients" and the "technical nutrients"?  
c) How the "survival of the fittest" has changed into "survival of the 'fittingest'" in Cradle to Cradle design? [3+4+3]
- Q6. a) What are the 5Rs of circular economy (CE)?  
b) Write a short note on ZED (zero effect and zero defect) manufacturing in India.  
c) What are the issues and challenges in Plastics Waste Management in India? [2+3+5]
- Q7. a) State the relationship of sustainable development goals 6, 7 and 8 with the sustainable waste management and circular economy in a tabular format.  
b) What are impacts of end-of-life vehicles (ELV) on the environment?  
c) Name few of the policies of India where circular economy is visible. [6+2+2]

[Please turn over]

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- Q8. a) What are the salient features of Low Carbon Technology?  
b) With a flow chart show the three phases of Low Carbon Development.  
c) Briefly explain about the concept of “Low Carbon Economy”.  
[4+3+3]
- Q9. a) How GHGs emission can be reduced from material production through both supply and demand-side measures?  
b) Justify the statement “prevailing building methods and designs result in higher carbon footprints compared to lighter buildings”.  
c) How can emission savings be made from material efficiency in cars?  
[2+3+5]
- Q10. a) State the ultimate objective of UNFCCC (United Nations Framework Convention on Climate Change) according to Article 2.  
b) Name the feasible wedges of “50 year triangle” of energy supply?  
c) How energy efficiency technology can contribute to immediate emission reduction?  
[2+3+5]
- Q11. a) State the three main targets of India’s INDC (Intended Nationally Determined Contributions).  
b) How can supercritical and ultra-supercritical coal-based power generation technologies help India achieve INDC?  
c) Which challenges are transforming into opportunities to achieve the INDC of India?  
[3+3+4]
- Q12. a) What are the major safety and environmental concern of nuclear energy?  
b) Mention the major technical obstacles in free air sequestration technologies (FAST) systems.  
c) Write a short note on “Cap and Trade system to reduce pollution in atmosphere”.  
[3+4+3]

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