

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2025

Subject Code:3170625

Date:08-05-2025

Subject Name:Environmental Impact Assessment

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

Marks

- Q.1** (a) Explain how Environmental Impact Assessment (EIA) is integrated into the planning process for industrial development projects in India. Why is it considered crucial for sustainable development? **03**
- (b) Describe the structure of a typical EIA report for a construction project in India, outlining the key components that must be included according to Indian regulations. **04**
- (c) Create a comprehensive Environmental Management Plan (EMP) for a proposed industrial park in Gujarat, addressing key environmental concerns, mitigation strategies, and monitoring protocols. Ensure that the plan aligns with State and county's environmental regulations and standards. **07**
- Q.2** (a) Explain the purpose of defining the environmental setting when conducting an Environmental Impact Assessment (EIA). How does it contribute to the assessment process? **03**
- (b) Why is it important to define the baseline environment before starting a construction project? Explain how baseline data collection helps in environmental impact assessment (EIA). **04**
- (c) Evaluate the effectiveness of India's Environmental Impact Assessment (EIA) process in addressing the environmental concerns of large infrastructure projects, such as highways or dams. Discuss the strengths and weaknesses of the current system. **07**
- OR**
- (c) Analyze the role of public participation in the Environmental Impact Assessment (EIA) process. Discuss how public involvement can influence project outcomes and decision-making, using relevant examples. **07**
- Q.3** (a) List the steps involved in the Environmental Impact Assessment (EIA) process. **03**
- (b) How can the use of hydrological modeling be applied to predict the potential impacts of a new industrial project on the water environment in Gujarat? Discuss specific modeling techniques that could be utilized. **04**
- (c) Analyze the challenges faced in implementing the Environmental Impact Assessment (EIA) process in India, considering aspects such as regulatory framework, capacity building, and stakeholder engagement. Provide recommendations to improve the effectiveness of the EIA process. **07**
- OR**
- Q.3** (a) What are the key environmental attributes considered in the Environmental Impact Assessment (EIA) process in India? **03**
- (b) Describe how the Air Quality Index (AQI) can be applied to predict the impact of a proposed urban development project in Gujarat. What measures can be taken to mitigate potential air quality issues arising from this project? **04**

- (c) Analyze the impact of industrialization on environmental sustainability in India, considering both positive and negative effects. Discuss how effective Environmental Impact Assessments (EIAs) can mitigate negative impacts while promoting sustainable industrial development. **07**

Q.4 (a) What is the purpose of conducting baseline studies in the Environmental Impact Assessment (EIA) process? **03**

(b) What are the primary objectives of conducting an Environmental Impact Assessment (EIA) for a proposed project? **04**

(c) The Environmental Impact Assessment (EIA) process in India is essential for identifying potential environmental impacts associated with proposed projects. It provides critical insights that help decision-makers understand how a project might affect various environmental components, such as air quality, water resources, and local ecosystems. By fostering stakeholder engagement, the EIA ensures transparency and incorporates diverse perspectives, which are vital for making informed project decisions. Mitigation measures, which are strategies designed to reduce or eliminate negative environmental impacts, play a significant role in the EIA process. When effectively implemented, these measures not only help comply with environmental regulations but also enhance the project's viability and public acceptance. They can lead to sustainable practices, protecting natural resources while fostering community well-being. Additionally, mitigation measures that consider local cultural values and economic needs can strengthen community ties and promote sustainable development. **07**

Based on the above paragraph, Analyze the impact of effective mitigation measures on environmental sustainability in India's EIA process. How can these measures contribute to long-term ecological balance?

OR

Q.4 (a) What are the main components of an Environmental Management Plan (EMP) in the context of EIA? **03**

(b) How can project developers in India apply the findings of an Environmental Impact Assessment (EIA) to improve their project designs? **04**

(c) The role of Environmental Impact Assessment (EIA) in India extends beyond merely evaluating projects; it is a vital tool for promoting sustainable development. By assessing potential environmental impacts, the EIA process encourages developers to adopt more sustainable practices from the outset. This proactive approach not only aids in complying with environmental regulations but also fosters innovation in project design. For example, projects that integrate green technologies, such as solar panels or rainwater harvesting systems, often emerge from a thorough EIA process that emphasizes environmental stewardship. Furthermore, the continuous monitoring of environmental parameters during project execution ensures that mitigation measures remain effective, allowing for timely adjustments to minimize harm to the environment. This dynamic process reinforces the importance of sustainability in economic development, balancing the needs of present and future generations. **07**

Based on the above paragraph, Analyze how the integration of green technologies in project planning, supported by the EIA process, contributes to environmental sustainability in India.

Q.5 (a) How would you apply the guidelines from the EIA Notification of September 2006 to categorize a new industrial project in Gujarat? Provide an example of the **03**

categorization process.

- (b) Which authorities are responsible for granting environmental clearance for projects in India as per the EIA Notification of September 2006? **04**
- (c) Environmental Impact Assessment (EIA) plays a pivotal role in sustainable development in India by evaluating the potential environmental consequences of proposed projects before they are executed. The EIA process, mandated by the EIA Notification of September 2006, encompasses a systematic examination of various environmental attributes, including air quality, water resources, noise levels, and ecological impacts. By requiring project proponents to identify, assess, and mitigate adverse environmental impacts, the EIA fosters responsible planning and decision-making. Furthermore, the involvement of public participation in the EIA process ensures that the voices of local communities are heard, allowing for a more comprehensive understanding of potential effects and promoting transparency in environmental governance. Ultimately, the successful application of EIA methodologies can significantly enhance the quality of environmental protection in India while balancing development needs. **07**

Based on the above paragraph, Evaluate the effectiveness of the Environmental Impact Assessment (EIA) process in promoting sustainable development in India. What are the strengths and limitations of the current EIA framework?

OR

- Q.5**
- (a) What is the primary purpose of conducting an Environmental Impact Assessment (EIA) in the context of development projects in India? **03**
 - (b) List the types of projects that typically require a full Environmental Impact Assessment (EIA) under the EIA Notification of September 2006 in India. **04**
 - (c) The Environmental Impact Assessment (EIA) process is a crucial mechanism for assessing the potential environmental effects of proposed development projects in India. As outlined in the EIA Notification of September 2006, EIA serves multiple purposes, including identifying, predicting, and evaluating the environmental impacts of projects before they are approved. This process not only involves the assessment of various environmental attributes such as air, water, and soil but also emphasizes the importance of public participation in decision-making. By engaging local communities and stakeholders, the EIA process ensures that the concerns of those affected by the project are taken into account, promoting transparency and accountability. Additionally, the findings from the EIA help project developers formulate mitigation measures to minimize adverse impacts, thereby supporting sustainable development practices. Ultimately, the EIA process in India aims to balance development needs with environmental protection, ensuring that projects contribute positively to economic growth while safeguarding natural resources. **07**

Based on the above paragraph, How would you apply the findings of an Environmental Impact Assessment (EIA) to develop a mitigation plan for a proposed mining project in India?
