

Predicted Exam Paper 2025

Total Marks: 115 | **Time:** 3 Hours

Section A (Short Answer) - 2 Marks Each

- Q1.** Define a code of ethics and state one reason for its significance in a professional context.
- Q2.** Identify one cause of an accident and state a related preventive measure.
- Q3.** Identify one common cause of accidents and state one related preventive measure.
- Q4.** Briefly explain the concept of 'whistleblowing' as it relates to engineering ethics.
- Q5.** State two significant ways in which engineering projects, when viewed as social experiments, differ from standard laboratory experiments.
- Q6.** Briefly explain how Kohlberg's theory of moral development is considered an extension of Piaget's theory.
- Q7.** List the three main levels of moral reasoning proposed by Lawrence Kohlberg.
- Q8.** Briefly describe the primary goal of a code of engineering ethics.
- Q9.** Describe one cause of an accident and one way to prevent it.
- Q10.** Briefly explain the concept of 'whistleblowing' as it relates to engineering ethics.

Section B (Medium Answer) - 5 Marks Each

- Q1.** Causes of accidents and preventive measures taken to reduce accident
- Q2.** Describe the Challenger disaster with the moral issues involved in taking the decision to launch the vehicle.
- Q3.** What is the purpose of Engineering Ethics? Describe Engineering as a social (16) experimentation.

Q4. What is the purpose of Engineering Ethics? Describe Engineering as a social (16) experimentation.

Q5. Which theory suggests that the best way to solve a current ethical problem is to compare it with similar problems from the past and their outcomes?

a. Rights Theory b. Casuist Theory c. Virtue Theory d. Duty Theory

Q6. Aristotelianism

Q7. Explain the need for ethical codes for professionals.

Q8. Causes of accidents and preventive measures taken to reduce accident

Q9. Types of Enquiry and their importance

Q10. Explain with example the various ethical theories available for 'right of action'.

Q11. What is the purpose of Engineering Ethics? Describe Engineering as a social (16) experimentation.

Q12. Describe the Jean Piaget's theory of moral development by mentioning the thought process of two groups of children on different aspects.

Q13. An engineer, Priya, is overseeing the construction of a public bridge. She discovers that a key structural component, while unlikely to fail, does not meet the specified safety grade outlined in the engineering code. Her project manager, concerned about budget overruns and deadlines, instructs her to approve the component, arguing that the risk is statistically negligible and a replacement would cause a major delay. Analyze the primary ethical conflict Priya is facing. Using the concepts of professional responsibility and public safety from engineering codes of ethics, describe two potential courses of action she could take and evaluate the ethical implications of each.

Q14. Analyze the following scenario using the moral development theories of Kohlberg and Piaget: An 11-year-old child, Alex, witnesses their best friend cheating on an important test because the friend is under immense pressure from their parents to get good grades. Contrast the reasoning Alex might use to decide whether or not to report the cheating if they are operating at Kohlberg's Stage 3 ("Good Interpersonal Relationships") versus Piaget's stage of Autonomous Morality. Explain how the focus on social approval in

Kohlberg's stage would differ from the consideration of intentions and situational context in Piaget's stage.

Q15. A project manager for a new public bridge suggests using a slightly lower grade of steel than specified in the original, approved design to save costs and meet a tight deadline. This alternative steel meets the bare minimum legal safety standards but significantly reduces the bridge's long-term durability and factor of safety. As the lead structural engineer, analyze this situation using the fundamental canons of engineering ethics. What is your primary ethical obligation in this case, and what specific actions should you take to resolve this dilemma?

Section C (Long Answer) - 10 Marks Each

Q1. (10 Marks)

- a) Explain in detail the distinction between personal ethics and professional ethics. Discuss the significance of a formal "code of conduct" in bridging the gap between an individual's personal values and the standardized expectations of a profession. (6 marks)
- b) Analyze a potential scenario where a professional's personal ethics might conflict with their professional code of conduct. Describe the process and ethical considerations they should follow to navigate and resolve this dilemma responsibly. (4 marks)

Q2. Question:

- a) Explain in detail the process of value formation by describing four primary governing factors that shape an individual's value system. Ensure your answer includes factors from both socio-cultural and personal domains. (6 marks)
- b) Discuss the dynamic nature of a value system. Explain how potential conflicts between these governing factors can lead to a re-evaluation and evolution of an individual's core values over their lifetime. Illustrate your answer with a suitable example. (4 marks)