

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM****IV B. Tech I Semester Advanced Supplementary Examinations March 2025****SAFETY ENGINEERING**

(Open Elective)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions. **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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**UNIT-I**

1. a) Explain speed and its effect on the road safety. [7M]  
b) Discuss the road safety improvement strategies in India. [7M]  
(OR)

2. a) Explain the multi casual dynamic systems approach to road safety. [7M]  
b) Discuss the elements of a road safety plan. [7M]

**UNIT-II**

3. a) Define "black spots" in road safety, and discuss how are they identified through crash data. [7M]  
b) Explain the objective of accident investigation. [7M]  
(OR)

4. a) Discuss the advantages and disadvantages of using the Before-After method in crash analysis. [7M]  
b) Analyze the importance of Statistical testing and understanding the role of chance in road safety. [7M]

**UNIT-III**

5. a) Explain the key elements involved in a road safety audit and their significance in identifying potential safety hazards. [7M]  
b) Discuss the key steps involved in crash investigation and analysis. [7M]  
(OR)

6. a) Evaluate the importance of a work zone safety audit in preventing accidents. [7M]  
b) Describe the process of conducting a road safety audit in improving road safety. [7M]

**UNIT-IV**

7. a) Discuss the variables involved in pedestrian crashes. [7M]  
b) Describe the basic information that can be obtained from the roadway surface. [7M]  
(OR)

8. a) Discuss the variables involved in jump and flip crashes. [7M]  
b) Explain a case study involving crash reconstruction. [7M]

**UNIT-V**

9. a) Discuss the Highway Safety Measures during construction. [7M]  
b) Analyze the challenges and safety measures involved in ensuring road safety in urban areas? [7M]

(OR)

10. a) Discuss the importance of road design in accident prevention. [7M]  
b) Evaluate the importance of stakeholder involvement in road safety initiatives. [7M]

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