

Code No: R204101Q

R20

SET - 1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Regular/Supplementary Examinations OCT/NOV 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

UNIT-I

1. a) Define road accident and list the major causes and trends of road accidents in India. [7M]
b) Explain how human factors and vehicle conditions influence highway safety. [7M]
(OR)
2. a) What are the limitations of road users that affect safety performance? [7M]
b) Explain the elements of a road safety plan and their role in improving overall traffic safety. [7M]

UNIT-II

3. a) Explain the procedure for accident investigation and the types of data collected. [7M]
b) Discuss the statistical testing and role of chance in interpreting accident data. [7M]
(OR)
4. a) Describe the role of statistical methods in interpreting crash data with suitable examples. [7M]
b) Describe the process of crash data collection and recording for analysis. [7M]

UNIT-III

5. a) Define Road Safety Audit (RSA) and explain its key stages. [7M]
b) Describe the importance of work zone safety audits in minimizing road user risk. [7M]
(OR)
6. a) Differentiate between Road Safety Audit and Road Safety Inspection? [7M]
b) Discuss the methods used for identifying hazardous road locations. [7M]

UNIT-IV

7. a) Explain the principles of crash reconstruction and the types of physical evidence available on roadway surfaces. [7M]
b) Evaluate the influence of friction, drag, and acceleration on the reconstruction of vehicle crashes. [7M]
(OR)
8. a) Evaluate how pedestrian crash reconstruction differs from vehicle-to-vehicle crash analysis? [7M]
b) Explain an improved crash reconstruction model incorporating roadway and environmental conditions. [7M]

UNIT-V

9. a) Analyze a set of design measures that can minimize road accidents in urban areas? [7M]
b) Evaluate the role of highway safety measures during construction? [7M]
(OR)
10. a) Describe the stakeholders' involvement and policy-making process in improving road safety. [7M]
b) Discuss public transport safety and suggest strategies for improving it in urban areas. [7M]
