

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course Name: Safety in Rail and Road Transport
Programme: B Tech- Fire & Safety Engineering
Course Code: HSFS 4003

Semester: VIII
Time: 03 Hours
Max. Marks: 100

SECTION A

1. Each Question will carry 4 Marks
2. Write only the short answers.

Sr. No.	Question	CO
Q 1	Highlight the major causes of rail accidents.	CO2
Q 2	What are the ruling gradient and momentum gradient?	CO1
Q 3	Distinguish between repeater and coaching signals	CO2
Q 4	Explain permanent way and their components.	CO2
Q 5	List out the factors effecting choice of a gauge.	CO1

SECTION B

Each question will carry 10 marks

Q 6	Explain the key figures and stats of Indian Railways.	CO3
Q 7	Apart from the conventional findings, share your insight over the problems caused by the changing of gauge.	CO2
Q 8	For a sleeper density (n+5), find out the number of sleepers required for a BG track of 640m. OR Being track inspector, create safety inspection checklist for installation and operation of track.	CO5
Q 9	Discuss classification of rail flaws and also name the various tests for rails.	CO1

SECTION C

1. Each Question carries 20 Marks.
2. Instruction: Write long answer.

Q 10	a. Find an expression for a BG track if 19 sleepers are used under each rail. b. Show the cross-section of a road in the embankment and indicate the road margins. OR Do the assessment of various sleepers used in the Indian railways and conclude with the best suited requirements with respect to safety.	CO4
Q 11	a. Explain in detail of Indian rail track classification and reasons behind the classification. b. Highlight the requirements of an ideal track and its benefits.	CO2