


<b>Name:</b>			
<b>Enrolment No:</b>			
<b>USES</b> <b>End Semester Examination, May 2023</b>			
<b>Course:</b> Safety in Rail & Road Transport <b>Program:</b> B Tech- Fire & Safety Engineering <b>Course Code:</b> HSFS4003 <b>Instructions:</b>		<b>Semester: VIII</b> <b>Time : 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
Sr. No.	Questions	Marks	CO
Q 1	Name the various component of the track.	4	CO1
Q 2	Enumerate the physical road user characteristics.	4	CO2
Q 3	Explain the factor affecting the choice of gauge.	4	CO2
Q 4	Differentiate psychological and environmental road user characteristics	4	CO3
Q 5	Brief the functions of rail track.	4	CO1
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Explain the cause or reasons for rail failures in Indian Railways.	10	CO4
Q 7	Discuss sight distance and its types. Also, discuss the factors affecting the sight distance.	10	CO2
Q 8	Being an expert, suggest the important consideration while planning and design of gradient,  OR  Wear and tear of rails are major concerns for the Indian Railways, Discuss in detail of cause of wear and tear of rails.	10	CO3
Q 9	Calculate safe SSD on a level road stretch for a design speed of 50kmph for; (a)Two-way traffic in two-lane road (b)Two-way traffic in single lane road Assume the coefficient of friction is 0.37 and the reaction time of the driver as 2.5 seconds.	10	CO5
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			
Q 10	Defend the application or usage of signaling in Indian Railways. Discuss the objective and types of signals.  OR  Do the assessment of various sleepers used in the Indian railways and conclude with the best-suited requirements with respect to safety.	20	CO4
Q 11	Based on the real condition evaluation of roadside incidences in India, highlight the safety measures adopted in the last five decades for minimizing road accidents.	20	CO2