

UNIT –II
RAILWAY ENGINEERING

1	Define the term railway engineering and how our Indian railways are broadly classified.	[L1][CO2]	[12M]
2	a. Differentiate between Roadways and Railways b. Advantages & disadvantages of Railways c. Few significant records of Indian Railways	[L1][CO2]	[12M]
3	What are the various engineering surveys to be conducted in selection of permanent way?	[L1][CO2]	[12M]
4	Define a gauge. Explain briefly about different gauges that are adopted for construction of railways.	[L2][CO2]	[12M]
5	Define the term rail. What are all its function, requirements and types adopted in Indian Railways?	[L2][CO2]	[12M]
6	Briefly explain about the following: a. Coning of wheels b. Various defects in rails and its detection methods.	[L1][CO2]	[12M]
7	What is the role of a sleeper in railway? Explain in detail about (i) Cast-iron sleeper and (ii) Steel sleepers mentioning their advantages and disadvantages	[L1][CO2]	[12M]
8	What is the role of a sleeper in railway? Explain in detail about (i) Wooden sleeper and (ii) concrete sleepers mentioning their advantages and disadvantages	[L1][CO2]	[12M]
9	What is the role of ballast in railways? Explain in detail about their function, requirements, characteristics and various properties to be satisfied.	[L2][CO2]	[12M]
10	Explain in detail about various track fittings used in railways	[L2][CO2]	[12M]

UNIT –III
DESIGN OF RAILWAY ENGINEERING

1	Explain in detail about various components of points and crossings with a neat sketch.	[L2][CO3]	[12M]
2	Using Coles method, derive an expression for Curve Lead (CL), Switch Lead (SL), Lead of Crossing (L), Radius of curvature (R) and heel divergence (d)	[L3][CO3]	[12M]
3	What are the various types of turnout used in railway? Explain with a neat sketch	[L1][CO3]	[12M]
4	What is a level crossing? Explain its types, inspection and maintenance of them	[L1][CO3]	[12M]
5	Define a railway yard and discuss the different types of station yards with a brief description	[L1][CO3]	[12M]
6	What is a marshalling yard? With a neat sketch, describe the working of a typical Marshalling yard.	[L1][CO3]	[12M]
7	What are the factors that should be considered for selecting a site for railway station?	[L1][CO3]	[12M]
8	Explain the following terms: a. Way side stations c. Junctions b. Terminals d. Block stations	[L2][CO3]	[12M]
9	Explain any few types of fixed signals with a neat diagram	[L2][CO3]	[12M]
10	How the stations in Indian railways are classified according to operational characteristics and functional characteristics	[L2][CO3]	[12M]

UNIT –IV
AIRPORT ENGINEERING

1	What are the factors affecting in the selection of a site for an airport? Explain.	[L2][CO4]	[12M]
2	Explain briefly about layout and functions of airport.	[L2][CO4]	[12M]
3	What is an airport master plan? Briefly describe the steps in it formulation.	[L1][CO4]	[12M]
4	Give a typical layout of a single runway airport showing all the components.	[L1][CO4]	[12M]
5	Explain the various surveys to be conducted and the data to be collected for airport site collection.	[L2][CO4]	[12M]
6	What are the basic patterns of runway configurations? Discuss each pattern in detail.	[L2][CO4]	[12M]
7	(a) Draw a typical Airport layout showing different components? (b) What are the different systems of aircraft parking? Explain its suitability	[L1][CO4]	[12M]
8	Explain with neat sketches, about the Airport markings in detail	[L2][CO4]	[12M]
9	Define: i. Apron ii. Shoulders iii. Anchorage iv. Terminal area	[L1][CO4]	[12M]
10	Briefly explain the concept of Wind Rose diagram.	[L2][CO4]	[12M]

UNIT –V
DOCK AND HARBOUR ENGINEERING

1	Enumerate the various Site investigation involved in harbour construction	[L1][CO5]	[12M]
2	a) Briefly explain the historical development of water transportation in India. b) Briefly explain about various breakwater failures.	[L2][CO5]	[12M]
3	Classify harbours on broad basis and on the basis of utility and explain them	[L2][CO5]	[12M]
4	a) Differentiate between port and harbour. b) What considerations are taken in selecting the location of a harbour?	[L1][CO5]	[12M]
5	What is meant Docks. Explain the dry docks and wet docks with neat sketch	[L2][CO5]	[12M]
6	a) Distinguish between natural and artificial harbour. Draw a neat sketch of different types of Harbour. b) Define break water and explain its classification.	[L1][CO5]	[12M]
7	a. Mention the advantages and disadvantages of floating dry dock. b. Why it is necessary to provide facilities like apron, transit shed and wave house at ports?	[L1][CO5]	[12M]
8	Write short notes on a. Wharves b. Jetties c. Quays d. Dolphins	[L1][CO5]	[12M]
9	a) What is jetty? Explain open jetties, piled jetties & cylinder jetties b) What are the steps involved in maintenance of lock gates and caissons?	[L2][CO5]	[12M]
10	a) Define dredging. What are the different types of dredging operations? b) Define the terms. i) Port ii) harbour iii) docks	[L1][CO5]	[12M]

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