Subject Code: XXXXX

Roll No:

BTECH

(SEM-7) RAILWAYS, WATER AND AIRPORT ENGINEERING 2021-22

TIME:3 HOUR ***Total Marks: 100***

Instruction: Attempt the questions as per the given instructions. Assume missing data suitably.

SECTION - A

Attempt *All Parts* in Brief **2*10 = 20**

Q1	Questions	Marks
(a)	Define the route of Group A lines.	2
(b)	What are spikes ?	2
(c)	Define formation in track.	2
(d)	Write treated and untreated wooden sleepers.	2
(e)	Define caution indicators.	2
(f)	What do you understand by high speed track ?	2
(g)	Define Jet blast.	2
(h)	What are wheel arrangement in aircraft ?	2
(i)	Define Harbour of Refuge ?	2
(j)	Draw neat sketch of natural harbour.	2

SECTION - B

Attempt ***Any Three*** of the following		3*10 = 30
Q2	**Questions**	**Marks**
(a)	Discuss the merits and demerits of diesel and electric traction.	10
(b)	Two high-level platforms are to be provided on the inside as well as the outside of a 2° curve on a BG track with a super elevation of 100 mm. What should be the required extra clearances for these platforms, both on the inside and outside of the curve, Length of bogie = 21, 340 mm, clc bogie distance =14, 785 mm, height of platform = 840 mm.	10
(c)	Briefly describe the absolute block system of controlling the movements of trains for single and double lines.	10
(d)	Explain with neat sketches, various marking on a run way.	10
(e)	Give the advantages and disadvantages of direct labour method.	10

SECTION - C

Attempt ***Any One*** of the following		5*10 = 50
Q3	**Questions**	**Marks**
(a)	With neat sketches explain Coach Screw of rail screw and Elastic spikes.	10
(b)	Using a sleeper density of N + 5 find out the number of sleepers required for constructing a railway track (BG) 1000 m long.	10
Q4	**Questions**	**Marks**
(a)	The wheel base of a vehicle moving on a BG track is 6 m. The diameter of the wheels is 1524 mmn and the flanges project 32 mm below the top of the rail. Determine the extra width of the gauge required if the radius of the curve is 168 m. Also indicates the extra width of gauge actually provided as per Indian Railways Standards.	10
(b)	Calculate the maximum permissible speed on a 1° curve on a Rajdhani route with a maximum sanctioned speed of 130 km hr. The superelevation provided is 50 mm and the transition length is 60 m. The transition length of curves cannot be increased to the proximity of the yard.	10
Q5	**Questions**	**Marks**
(a)	Explain the principle and functions of interlocking.	10
(b)	Discuss about the following : i. Linear motion, and ii. Tracked Air Cushion Vehicle.	10
Q6	**Questions**	**Marks**

(a)	What do you understand by the term airport capacity ? What are the factors which affect the airport capacity?	10
(b)	What are the different design methods that is followed for Airfield pavement design ? Explain.	10
Q7	**Questions**	**Marks**
(a)	Write a short note on littoral transport with erosion and deposition of sediments.	10
(b)	Explain following with neat sketch; i. Sea walls. ii. Dolphins.	10