PAPER ID-410525

Subject Code: KCE070

Roll No: | | | | | | | | | | | | | |

B.TECH.

(SEM VII) THEORY EXAMINATION 2021-22

RAILWAYS, WATERWAY AND AIRPORT ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Define the route of Group A lines	2	1
b.	What are spikes?	2	1
c.	Define formation in track.	2	2
d.	Write treated and untreated wooden sleepers	2	2
e.	Define caution indicators.	2	3
f.	What do you understand by high speed track?	2	3
g.	Define Jet blast.	2	4
h.	What are wheel arrangement in aircraft?	2	4
i.	Define Harbour of Refuge?	2	5
j.	Draw neat sketch of natural Harbour.	2	5

SECTION B

2. Attempt any *three* of the following:

Q no.	Question	Marks	CO
a.	Discuss the merits and demerits of diesel and electric traction.	10	1
b.	Two high-level platforms are to be provided on the inside as well as the outside of a 2^0 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, c/c bogie distance =14,785 mm , height of platform =840 mm	10	2
c.	Briefly describe the absolute block system of controlling the movements of trains for single and double lines.	10	3
d.	Explain with neat sketches , various marking on a run way.	10	4
e.	Give the advantages and disadvantages of direct labour method .	10	5

SECTION C

3. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	With neat sketches explain Coach Screw of rail screw and Elastic spikes.	10	1
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	1

4. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	The wheel base of a vehicle moving on a BG track is 6 m. The diameter of the wheels is 1524 mm 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. Alos indicates the extra width of gauge actually provided as per Indian Railways Standards.	10	2

b.	Calculate the maximum permissible speed on a 1^0 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	2

5. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Explain the principle and functions of interlocking.	10	3
b.	Discuss about the following : (i) Linear motion and (ii) Tracked Air Cushion Vehicle	10	3

6. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	What do you understand by the term airport capacity? What are the factors which affect the airport capacity?	10	4
b.	What are the different design methods that is followed for Airfield pavement design ? Explain	10	4

7. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Write a short note on littoral transport with erosion and deposition of sediments.	10	5
b.	Explain following with neat sketch; (i) Sea Walls (ii) Dolphins	10	5