



Reg. No. :

--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : X 60254

B.E./B.Tech. DEGREE EXAMINATIONS, NOV./DEC. 2020
Fifth/Eighth Semester
Civil Engineering
CE 2303/CE 52/10111 CEE 49 – RAILWAYS, AIRPORTS AND HARBOUR
ENGINEERING
(Regulations 2008/2010)

(Common to PTCE 2303/10111CEE49 – Railways, Airports and Harbour Engineering for
B.E. (Part-Time) Fourth/Seventh Semester – Civil Engineering – Regulations 2009/2010)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. What are the uses of Remote Sensing in route alignments ?
2. Mention the functions of formation.
3. What are the sources of moisture in a railway track ?
4. List the various types of gradients that are adopted in laying a railway track.
5. List any two factors which affect the run away design.
6. What is Air Traffic Potential ?
7. What is the purpose of a hangar ?
8. List the various types of marking on runway.
9. Define littoral drift.
10. Write the use break water.

PART – B

(5×16=80 Marks)

11. a) i) Explain the role of remote sensing and GIS technology in track alignment. (8)
ii) Explain super elevation giving its relationship with gauge, speed and radius of the curve. (8)
- (OR)
- b) i) Explain the widening of gauge on curves with the formula. (8)
ii) A 5° curve diverges from a 3° main curve in the opposite direction in BG yard. If the speed on the branch line is restricted to 35 kmph, what should be the speed permitted on the main line ? (8)



12. a) A 5° curve diverges from a main curve of 4° in an opposite direction in the layout of a B.G. yard. If the speed on the main curve is restricted to 54.53 kmph, determine the speed restriction on the branch line. Assume permissible cant deficiency as 7.5 cm. **(16)**

(OR)

- b) Describe the operations involved in plate laying by the telescopic method. **(16)**

13. a) i) Length of a runway at mean sea level, standard temperature and Zero gradients is 1600 m. The site has all elevation of 320 m, with a reference temperature 33.6°C. The runway has to be constructed with, an effective gradient of 0.25%. Determine the actual length of the runway at the site. **(10)**

- ii) Write the construction procedure of the wind rose diagram (ii type). **(6)**

(OR)

- b) i) Following are average wind data for 10 years when wind intensity is above 6 Km/hr. An airport is to be designed for a single runway. Determine the best runway orientation and calculate total wind coverage and draw the wind rose diagram.

Wind direction	N	NNE	NC	ENE	E	ESE	SE	SSE	S	SSW
Percentage of time	10.9	8.3	4.2	1.3	0.9	0.3	8.1	7.9	14.6	9.8
Wind direction	SW	WSW	W	WNW	NW	NNW				
Percentage of time	5.6	1.8	0.3	0.2	7.5	5.7				

- ii) Write short notes on : **(2×4=8)**

1) Airport drainage **(4)**

2) Factors considered in taxiway design. **(4)**

14. a) Write a detailed note on visual aids in airports. **(16)**

(OR)

- b) What are the factors to be considered for the selection of site of an airport ? Explain the importance of each factor. Discuss the critical issues involved. **(16)**

15. a) Explain about the different types of break waters with the sketches. **(16)**

(OR)

- b) What are the types of Navigational Aids ? Discuss the fixed navigation structures and floating navigation aids. **(16)**