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**Question Paper Code : 91314**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Sixth Semester

Civil Engineering

CE 6604 – RAILWAYS, AIRPORTS AND HARBOUR ENGINEERING

(Regulations 2013)

Common to : PTCE 6604 – Railways, Airports and Harbour Engineering for B.E.  
(Part-Time) – Fourth Semester – Civil Engineering – Regulations – 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. Compare any two characteristics of Railways with that of Roads.
2. Draw the cross section of permanent way.
3. What are the methods to improve the poor subgrade soil ?
4. What is a marshalling yard ?
5. What are the components of airports ?
6. Write the objectives of ICAO.
7. What is Airport Reference Temperature ?
8. Write short note on Approach Zone.
9. What is the difference between a harbour and a port ?
10. Write short note on Coastal Regulation Zone.



## PART - B

(5×13=65 Marks)

11. a) Describe the functions and requirements of sleeper.  
(OR)
- b) What is points and crossing ? List their types. Draw a neat sketch of right hand turnout and explain.
12. a) Write short notes on :
- Railway Track Maintenance. (5)
  - Tunnelling methods in Hard rock. (8)
- (OR)
- b) How are railway stations classified ? Explain the features of each station.
13. a) i) Discuss the merits and demerits of air transport. (5)  
ii) Explain the planning concept of airport buildings. (8)
- (OR)
- b) Explain the factors to be considered for the selection of site for an airport.
14. a) Following is the average wind data for ten years, when wind intensity is above 6km/hr. An airport is to be designed for two runways. Determine the best runway orientation and calculate total wind coverage.

Wind direction	Percentage of time
N	6.5
NNE	10.4
NE	8.0
ENE	4.2
E	1.7
ESE	0.6
SE	0.7
SSE	3.9
S	7.5
SSW	14.5
SW	10.2
WSW	5.9
W	4.2
WNW	0.3
NW	0.2
NNW	4.8

(OR)



b) Length of a runway at mean sea level, standard temperature and zero gradients is 1600 m. The site has an elevation of 320 m. with a reference temperature 33.6 degree centigrade. The runway has to be constructed with an effective gradient of 0.25%. Determine the actual length of runway at the site.

15. a) Explain the design aspects to be considered in selection of a harbour. (13)

(OR)

b) Discuss the following :

- i) Types of Docks. (3)
- ii) Breakwaters. (6)
- iii) Littoral Drift. (2)
- iv) Quays. (2)

PART - C

(1×15=15 Marks)

16. a) Explain the various method of Railway Track Construction.

(OR)

b) With neat sketch explain Runway and Taxiway Marking.

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