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**Question Paper Code: 31513**

B.E. / B.Tech. DEGREE EXAMINATION, NOVEMBER 2015

Fifth Semester

Civil Engineering

01UCE503 – RAILWAYS, AIRPORTS AND HARBOUR ENGINEERING

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. List out the types of gauges in a railway track.
2. What is meant by gradient in a railway track?
3. What are different methods of tunneling in railways?
4. Mention the types of railway stations.
5. How airports are classified?
6. List out the objectives of airport planning.
7. What is meant by orientation of runway?
8. Define taxiway.
9. Distinguish between harbor and port.
10. List out the coastal protection works.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the various conventional surveys for track alignment. (16)

Or

(b) A  $8^\circ$  curved track diverges from a main curve of  $5^\circ$  on opposite direction in the layout of a B.G yard. Calculate super elevation and speed on branch line if the speed on the main line is  $45\text{kmph}$ . (16)

12. (a) (i) Explain ventilation and drainage in tunnels. (8)

(ii) Discuss briefly earthwork in track construction. (8)

Or

(b) Discuss the conventional methods of track maintenance. (16)

13. (a) Explain parking and circulation areas in an airport. (16)

Or

(b) Discuss air transport characteristics and socio-economic characteristics of catchment areas. (16)

14. (a) Length of runway at MSL is  $1600\text{m}$ . The site has an elevation of  $320\text{m}$  with a reference temperature  $33.6^\circ\text{C}$ . The runway has to be constructed with an effective gradient of  $0.25\%$ . Determine actual length of runway. (16)

Or

(b) Discuss various runway and taxiway markings. (16)

15. (a) Write notes on the following coastal structures (i) piers (ii) wharves (iii) jetties (iv) quays. (16)

Or

(b) Explain the classification of harbors. (16)