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**Question Paper Code: 35103**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

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. Mention the types of railway stations.
4. List the various types of gradients that are adopted in laying a railway track.
5. Bring out the advantages and limitations of air transportation.
6. What are the different types of airport parking system?
7. What is meant by orientation of runway?
8. Define taxiway.
9. List out the coastal protection works.
10. What is a break water?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) What are the functions of sleepers? Describe the different types of sleepers used?

(8)

- (ii) How do you arrive at the alignment of a new railway line? Discuss the application of GIS and GPS technologies. (8)

Or

- (b) A  $5^\circ$  curve diverges from a main curve of  $4^\circ$  in an opposite direction in the layout of a BG yard. Determine speed restriction on the main line if speed on the branch line is restricted to  $40 \text{ km/h}$ . Assume permissible deficiency in cant as  $7.5 \text{ cm}$ . (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) Discuss air transport characteristics and socio-economic characteristics of catchment areas. (16)

Or

- (b) Enlist and explain the factors to be considered for the selection of site for an airport. Discuss the critical issues involved. (16)

14. (a) (i) Explain the various runway and taxiway markings. (8)  
(ii) Explain in detail about air traffic control. (8)

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)