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**Question Paper Code: 35103**

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 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. What are the functions of sleepers?
2. List different conventional methods of surveys for track alignment.
3. Write a brief note on automated track maintenance.
4. What are the advantages of electric traction?
5. Bring out the advantages and limitations of air transportation.
6. What are the different types of airport parking system?
7. What are the passenger facilities to be provided in an airport?
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  $5^\circ$  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) How stations are classified? Explain the features of each station. (16)

Or

(b) Explain in detail, the conventional and mechanized method of track maintenance. (16)

13. (a) Explain in detail the socio-economic characteristics of catchment areas with respect to airport planning (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) 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) List the common types of breakwaters in use, and bring out the advantages of each of them. (16)