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12. a) Explain in detail various methods of railway yards with its operations.

(OR)

b) Explain in brief the vital characteristics of different types of railways for urban transportation.

13. a) Length of a runway at mean sea level, standard temperature and zero gradients is 1790 m. The site has an elevation of 310 m with a reference temperature 35 degree centigrade. The runway has to be constructed with an effective gradient of 0.25%. Determine the actual length of the runway at the site by assuming all relevant data.

(OR)

b) Explain in detail the vital factors to be kept in mind as an Airport Planner for selecting a suitable site for an international airport.

14. a) Draw a layout of Chennai airport and explain its salient features with provision of all basic and desirable amenities provision.

(OR)

b) Write in detail the various design elements to be considered in taxi-way laying as per International Standards.

15. a) Draw a layout of Chennai harbor and explain its salient features and list out various terminal facilities normally to be provided.

(OR)

b) Write short notes on the following :

• Wave action on coastal structures. (6)

• Environmental concern on port operations. (7)

PART – C

(1×15=15 Marks)

16. a) With a flow chart explain the activities involved in new railway track laying. Also explain the defects in rails.

(OR)

b) With a case study explain about the planning and design of harbours.