

- (ii) Calculate the actual length of runway from following data :
- Basic runway length - 500 m
 - Airport reference temperature - 30°C
 - Airport elevation - R.L. 100
 - Effective gradient - 0.6%
- (iii) Discuss development of transportation in twentieth century.
- (iv) Explain pipeline resistance.
- 3 Attempt any four : 16**
- (i) Aircraft stability
 - (ii) Propulsive force and Horse power
 - (iii) Factors affecting transport development
 - (iv) Carrier classification
 - (v) Guidance and maneuverability
 - (vi) Dependability and safety characteristics.
- 4 (a) Answer the following in short : (any five) 10**
- (i) Define runway and taxiway.
 - (ii) State elements in the design of taxiway.
 - (iii) Give classification of docks.
 - (iv) What are the requirements of a good harbour ?
 - (v) What are the different gauges employed on Indian Railways ?
 - (vi) Enlist types of gradient in railway track.
- (b) Explain with neat sketch elements of a harbour. 3**
- OR**
- (b) State factors affecting sleeper density. 3**
 - (c) Which are the corrections applied in basic runway length to get actual length of runway ? 4**
- 5 Attempt the following : (any three) 18**
- (i) Enumerate the classification of harbour based on location.
 - (ii) Explain wind rose diagram with neat sketch.
 - (iii) Give classification of sleepers.
 - (iv) Advantages and disadvantages of docks.

6 Write short notes on following : (any three)

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- (i) Classification of sleepers
 - (ii) Facilities at major ports
 - (iii) Aircraft parking
 - (iv) Importance of railway
 - (v) Harbour
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