

3 Hours

Total marks :80

Q 1 is compulsory. Answer any three out of the remaining questions.

Neat, labeled sketches, legible handwriting & practical examples will be appreciated.

- Q.1 (20)
- Define gauge. What are its types? Give suitable examples in India.
 - Draw a neat labeled sketch of an artificial harbour. Give one example in India.
 - List out the surveys to be carried for selecting a site for an airport.
 - Draw and explain wind rose diagram type -I.
 - Explain with sketch coning of wheels and tilting of rails.
- Q.2 (20)
- Calculate all the necessary elements required to set out a 1 in 8.5 turnout, taking off from a straight BG track with its curve starting from the toe of switch i.e. tangential to the gauge face of the outer main rail and passes through theoretical nose of crossing. Take heel divergence (d) as 11.4 cms. 10
 - What do you mean by creep of rails. Explain various theories of creeps. What can be done to arrest creep? 10
- Q.3 (20)
- A 5° curve diverges out of a 2° main curve in opposite direction of a BG track. If speed is limited to 30 kmph on main line and permissible cant deficiency is 5.1 cms, what would be the speed limit on branch line? 08
 - Explain Marshalling yard along with its types. Draw a neat labelled sketch showing a typical marshalling yard. 07
 - Explain point and crossing with a neat labeled sketch. 05
- Q.4 (20)
- The length of a runway under standard conditions is 1750m. The airport reference temperature is 32°C and has an elevation of 400m. The runway is to be constructed with an equivalent gradient of 0.20%. Determine the corrected length of the runway. 08
 - Explain holding apron, taxiway and hanger with neat sketches. 07
 - Draw a neat labelled sketch of a right hand turnout 05
- Q.5 (20)
- Write a note on Airport markings. 08
 - Explain Instrumental landing system with a neat sketch. 07
 - State the functions of ballast. 05
- Q.6 (20)
- A taxiway is to be designed to accommodate an aircraft with following characteristics Determine the turning radius for which the taxiway should be designed. Wheel base = 17.6 m, Turning speed = 38 knph, coefficient of friction = 0.13, Tread of main gear = 6.6 m. 08
 - Write notes on : (Any three) 12
 - Breakwater.
 - Semaphore Signal
 - Jetty and wharf
 - Diamond crossing