

E / CIVIL / SEM 6 / CBCS

(3Hours)

Total marks=80

22 MAY 2019

- Note
1. Question No 1 is compulsory.
  2. Attempt Any 3 out of remaining
  3. Assume any suitable data wherever required.

Q.1

- i. \_\_\_\_\_ is used for servicing and repairs of the aircraft 10
  - ii. The runway length after correcting for elevation and temperature is 2845m. If the effective gradient on runway is 0.5% then the revised runway length will be \_\_\_\_\_
  - iii. Distance between inner faces of the flanges, is kept slightly less/ equal/ more than gauge distance.
  - iv. Bearings are provided in bridges to \_\_\_\_\_
  - v. Every port is a harbor. True / False
- b. Explain Negative Super elevation by a neat sketch. 5
  - c. As per ICAO classify various types of airports? Enlist some of the Airports in India 5

- Q 2
- a. What is ballast? Why is it used in the railway track? Briefly describe the various types of ballast used? 10
  - b. Design the Exit runway joining a runway and a parallel main taxiway. The total angle of turn is  $35^\circ$  and the maximum turn-off speed is 80 Kmph 10

- Q.3
- a. Explain the different types of Railway yards and their functions with neat diagrams. 10
  - b. Design a turnout of 1 in 8.5 for a BG track assuming the curve is tangential to tongue rail, it springs up from the heel of switch at  $1^\circ 8' 0''$  and ends TNC. Assume heel divergence = 13.3. 10

- Q.4 a
- The length of runway under standard condition is 2100m. It is to be at elevation of 410 mts above the M.S.L. The ART is  $32^\circ\text{C}$ . The construction plan provides the following data. Calculate the corrected length. Also apply check 10

End to End runway (m)	0-300	300-900	900-1500	1500-1800	1800-2100	2100-2700	2700-3000
Grade %	+1.0	-0.50	+0.50	+1.00	-0.50	-0.04	-0.10

- b. Explain in detail Airport obstructions with neat sketches? 10
- Q.5
- a. What would be the Equilibrium Cant on BG track of  $7^\circ$  for an average speed of train 80 kmph? Also calculate the maximum permissible speed after allowing the maximum cant deficiency? 10
  - b. Explain the working of Semaphore Signals with neat sketch 10
- Q.6
- a. Explain Wind rose diagram? What is its utility and its types? Explain each type with neat sketches? 10
  - b. Define Breakwaters and mention various breakwater 5
  - c. Describe with neat sketch (i) Diamond crossing (ii) cross over 5