

(3Hours)

Total marks=80

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

**Q.1**

- a.
  - i. \_\_\_\_\_ is used for servicing and repairs of the aircraft **10**
  - ii. The runway length after correcting or 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 in 2100mt. It is to be at elevation of 410 mts above the M.S.L. The ART is  $32^{\circ}$  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**