QP Code : 31119

`(3 Hours)   [Total Marks : 80

Note: i.   **Q. No. 1** is compulsory.
        ii.   Attempt **any 3** out of **remaining.**
        iii. Support all **theory and numerical** with **neat sketches.**

1. a   If the basic runway length for an airport situated at elevation of 180 meter is 800 meter, find   (08)
       the actual runway length required if mean of average daily temperature and mean of maximum
       daily temperature is obtained as 36^0C and 42^0C respectively. Assume the effective gradient
       of 2% on the runway.

   b   Calculate all the elements of a turnout on B.G track if N = 8.5, d = 13.3 cm and angle of   (08)
       switch is 1^0 8' 0". Assume any other data if required.

   c   Draw Layout of artificial harbour and explain purpose of each component.   (04)

2. a   Explain various elements of railway track with fixtures and fastenings.   (08)
   b   Write a note on Dry docks.   (06)
   c   Explain zoning laws for an airport.   (06)

3. a   What are various air traffic control aids? Explain their role in safety in aircraft movements.   (08)
   b   Explain construction of new railway track.   (06)
   c   Describe numbering and markings on runway.   (06)

4. a   What would be the permissible speed on curve if on a 6^0 B.G track, average speed of trains is   (08)
       70 kmph and allowable cant deficiency is half that of maximum cant deficiency.
   b   Describe special features of airport drainage.   (06)
   c   Explain working of Semaphore signals   (06)

5. a   What do you mean by Interlocking of signal and points? How is it achieved?   (08)
   b   Explain various factors affecting capacity of an airport.   (06)
   c   Explain various Special Breakwaters.   (06)

6.   Write short note on (Any 4)   (20)
       a) Marshalling yard.
       b) Types of signals based on location.
       c) Theories of creep.
       d) Turning radius of an aircraft.
       e) Three controls of aircraft.

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