

B.E. Civil Engineering (Model Curriculum) Semester - VII  
**PCC-4 - CE-704 : Transportation Engineering II**

P. Pages : 2

Time : Three Hours



**GUG/S/23/14287**

Max. Marks : 80

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- Notes :
1. All questions carry equal marks.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Diagrams and Chemical equation should be given wherever necessary.
  5. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What is meant by wear of rails? How do you classify the wear? Discuss the various causes of wear and suggest suitable measures to reduce the effect of wear on rails. 8
- b) Draw a typical cross-section of a permanent way. Discuss in brief basic functions of various components of railway track. 8

**OR**

2. a) What is creep of rail? What are its causes & preventive measures to be taken? 8
- b) Discuss the factors on which sleeper density depends. Using the sleeper density of  $n + 7$ . Find out the numbers of sleepers required for constructing a railway track 2560m long. (Assume B. G. Track) 8
3. a) What are the facility requirements of a railway station? Classify the railway stations. Draw a neat sketch of layout of any one type of station. 8
- b) Explain the necessity of gradients. Discuss all the types of gradients giving their permissible values adopted on Indian Railways. 8

**OR**

4. a) Draw a neat sketch of left-hand turnout and explain its various parts. 8
- b) Define sleeper density. Calculate the number of sleepers required for laying a B. G. track 8 of 640m length using sleeper density of  $(n+5)$ . 8
5. a) What is the necessity of railway tunnels? Draw a sketch to illustrate a single track railway. 8
- b) Describe the various methods of hard rock tunneling and mention the advantages & tunnel disadvantages of each of them. 8

**OR**

6. a) What are the objectives of tunnel ventilation? Discuss the requirement of a ventilation system. 8
- b) What are the objectives of providing a tunnel with permanent lining? Discuss various lining materials in brief. 8

7. a) The runway length required for landing at sea level in standard atmospheric condition is 3000m, runway length required for takeoff at a level site at sea level in standard atmospheric condition is 2500m. Aerodrome reference temperature is 25°C and that of standard atmosphere at aerodrome elevation of 150m is 14.25°C. If the effective runway gradient is 0.5% determines runway length. **10**
- b) Explain the various survey to be conducted and the data to be collected for airport site selection. **6**

**OR**

8. a) Discuss the orientation of runway with the help of wind-rose diagram comment on calm period. **8**
- b) Explain with neat sketches the limiting heights of objects in the approach and turning zones of an instrumental runway. **8**
9. a) What is the function of air traffic control? What different En-route aids and landing aids are used in modern air transport. **8**
- b) What is the function of a hangar? What are its two types? **8**

**OR**

- 10 a) Enlist various 'Airport lightings' with the neat sketch. **8**
- b) Describe various aircraft parking system. **8**

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