

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

P. Pages : 2

Time : Three Hours



**GUG/W/22/14287**

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.

1. a) What do you understand by gauge of railway track. Draw a typical cross-section of permanent way. Discuss in brief basic functions of various components of railway track. 8
- b) Explain the various types of rail failure with neat sketches. 8

**OR**

2. a) Discuss the function and requirements of rails in a railway track. 6
- b) What do you mean by ‘coning of wheels’ discuss the necessity of coning. 5
- c) Discuss the purpose of spikes. Explain any one with neat sketch. 5
3. a) Derive the relationship of super elevation with gauge, speed and radius of curve. 8
- b) Briefly explain different types of gradients used in railway ? What is grade compensation. Give the permissible value of gradients adopted in Indian railway. 8

**OR**

4. a) Determine the length of transition curve and draw the offsets at every 15 m. Given that design speed of the train on curve in 90 kMPH on a BG track. 7
- b) Draw a neat diagram of simple right hand turnout and show its various components parts. 5
- c) Write a short note on railway track function. 4
5. Write short note on **any four**. 16
  - i) Hauling capacity
  - ii) Crossing
  - iii) Modern techniques of maintenance of railway track.
  - iv) Tunneling in hard rock.
  - v) Tunnel ventilation.

**OR**

- |    |    |  |   |
|----|----|--|---|
| 6. | a) | State the various methods of plate laying and explain the method of plate laying widely used in India. | 7 |
|    | b) | State the different types of shape commonly used in tunnel with neat sketch.                           | 5 |
|    | c) | State the importance of tunnel lining.   | 4 |
| 7. | a) | Explain the various survey to be conducted and data to be collected for airport site selection.        | 6 |
|    | b) | Explain the necessity of airport lighting.   | 5 |
|    | c) | What are the characteristics of an ideal airport layout.   | 5 |

**OR**

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|----|----|---|---|
| 8. | a) | Explain with neat sketches the limiting heights of objects in approach and turning zones of an instrumental runway. | 8 |
|    | b) | Discuss the orientation of runway with the help of wind-rose diagram comment on calm period.                        | 8 |
| 9. | a) | What do you understand by terminal area ?   | 4 |
|    | b) | What are the different parking systems for an aircraft ? Discuss any one in detail.                                 | 8 |
|    | c) | What is the function of hanger ?  | 4 |

**OR**

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|-----|----------------------------------|----------------------------|----|
| 10. | Write notes on <b>any four</b> . |                            | 16 |
|     | i)                               | Runway markings.           |    |
|     | ii)                              | Airport lightings          |    |
|     | iii)                             | Exit taxiway               |    |
|     | iv)                              | Hanger                     |    |
|     | v)                               | Three control of aircraft. |    |

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