

Total No. of Questions: 6

Total No. of Printed Pages: 2

Enrollment No.....



Faculty of Engineering  
End Sem Examination May-2024  
CE3CO22 Transportation Engineering -I

Programme: B.Tech.

Branch/Specialisation: CE

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.


- Q.1 i. The longitudinal movement of the rails in a track is technically known as- **1**  
(a) Buckling (b) Creeping (c) Hogging (d) None of these
- ii. For main cities and routes of maximum intensities, the type of gauge adopted is- **1**  
(a) Broad gauge (b) Meter gauge  
(c) Narrow gauge (d) All of these
- iii. To hold the adjoining ends of rails in correct horizontal and vertical planes, the rail fastenings used are- **1**  
(a) Fish plate (b) Spikes  
(c) Bearing plate (d) Anchor
- iv. The flow of rail metal due to abnormally heavy loads is called- **1**  
(a) Hogging (b) Buckling (c) Wear of rail (d) Creeping
- v. The main functions of marshalling yard is- **1**  
(a) Reception (b) Sorting (c) Departure (d) All of these
- vi. The station at which a railway line or one of its branches terminates or continuity of a line stops, is known as \_\_\_\_\_. **1**  
(a) Junction station (b) Terminal station  
(c) Non junction station (d) Flag station
- vii. Which of the below does not affect the site-selection of an airport site? **1**  
(a) Adequate access (b) Air traffic potential  
(c) Sufficient airspace (d) Number of ground staff
- viii. The first warning signal seen by the driver is known as- **1**  
(a) Home signal (b) Disc signal  
(c) Routing signal (d) Outer signal

[2]

- ix. Among the following, which doesn't belong to tunnel classification? **1**  
(a) Firm ground (b) Running ground  
(c) Rocky ground (d) Soft ground
- x. Which method can be adopted in case of rock tunnelling? **1**  
(a) Full face method (b) Benching  
(c) Tracing (d) Back bearing method
- Q.2 i. Name the different types of ballast. **2**  
ii. Explain the different types of creep. **3**  
iii. Explain the different types of rails and rail sections with the help of neat sketches. **5**
- OR iv. Describe the types of sleepers and its functions in detail. **5**
- Q.3 i. What do you understand by wear of rails and causes of wear of rails? **2**  
ii. A 6° curve of broad gauge track. If the speed of branch line is 50 kmph. Determine superelevation and maximum allowable speed. **8**
- OR iii. Define geometric design of tracks with gradient and grade compensation with the help of diagram. **8**
- Q.4 i. Define crossing and state types of crossing. **3**  
ii. Define objectives of signalling with the types of signals in detail. **7**
- OR iii. Explain the classification of station and station yard. **7**
- Q.5 i. Explain wind rose diagram. **4**  
ii. Explain different types of runway lighting in detail with neat sketches. **6**
- OR iii. Explain the various factors considered during the selection of a site for airport. **6**
- Q.6 Attempt any two: **5**  
i. Explain different types of lining in detail. **5**  
ii. Discuss any one method of tunnelling in hard rock. **5**  
iii. Write short note on- **5**  
(a) Shape size of tunnel  
(b) Drainage and ventilation of tunnel

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- Q1
- (i) (b) CREEPING
  - (ii) (a) BROAD GAUGE
  - (iii) (a) FISH PLATE
  - (iv) (c) WEAR OF RAIL
  - (v) (d) ALL
  - (vi) (b) TERMINAL STATION
  - (vii) (d) NUMBER OF GROUND STAFF
  - (viii) (d) OUTER SIGNAL
  - (ix) (c) ROCKY GROUND
  - (x) (a) FULL FACE METHOD

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- Q.2 (i) Each type of BALLAST GIVE ONE MARK  $\rightarrow 2 \times 1 \Rightarrow 2$   
 (ii) Each type of CREEP GIVE ONE MARK  $\rightarrow 3 \times 1 \Rightarrow 3$   
 (iii) TYPE OF RAIL  $\rightarrow 2.5$  MARKS  
 TYPE OF RAIL SECTION  $\rightarrow 2.5$  MARKS  
 (iv) TYPES OF SLEEPER  $\rightarrow 2.5$  MARKS  
 FUNCTIONS  $\rightarrow 2.5$  MARKS

- Q.3 (i) WEAR OF RAIL  $\rightarrow 1$  MARK  
 CAUSE  $\rightarrow 1$  MARK  
 (ii) CORRECT FORMULA  $\rightarrow 2$  MARKS  
 SUPER ELEVATION ANS  $\rightarrow 3$  MARKS  
 MAX ALLOW. SPEED.  $\rightarrow 3$  MARKS  
 (iii) GEOMETRIC DESIGN  $\rightarrow 3$  MARKS  
 GRADE COMPENSATION  $\rightarrow 3$  MARKS  
 DIAGRAM  $\rightarrow 2$  MARKS

- Q.4 (i) CROSSING  $\rightarrow 1$  MARK  
 TYPES OF CROSSING  $\rightarrow 2$  MARKS  
 (ii) OBJECTIVE OF SIGNALLING  $\rightarrow 2$  MARKS  
 TYPES OF SIGNAL  $\rightarrow 5$  MARKS  
 (iii) CLASSIFICATION OF STATION  $\rightarrow 3.5$  MARKS  
 CLASSIFICATION OF STATION YARD  $\rightarrow 3.5$  MARKS

- Q.5 (i) WIND ROSE DIAGRAM  $\rightarrow 4$  MARKS  
 (ii) RUNWAY LIGHTING TYPE  $\rightarrow 3$  MARKS  
 DIAGRAM  $\rightarrow 3$  MARKS  
 (iii) Each factor give ONE MARK  $\Rightarrow 1 \times 6$   
 $= 6$  MARKS

- Q.6 (i) TYPES OF TUNNELS  $\rightarrow$  1X5  $\Rightarrow$  5 MARKS  
(ii) Method of TUNNELING  $\rightarrow$  5 MARKS  
(iii) Shape size of TUNNEL  $\rightarrow$  2.5 MARKS  
Drainage & Ventilation  $\rightarrow$  2.5 MARKS

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