

GUJARAT TECHNOLOGICAL UNIVERSITY

DI -4 SEMESTER – OLD PAPER – S23 TO S25 – QUESTION BANK(English)

Subject Name & Code:

Basic Transportation Engineering- 4340604

Unit I - Introduction

Repeated Questions:

1. **Explain various modes of transportation.**
 - Appeared in: W24 (Q1a, 03 marks), S25 (Q1a, 03 marks)
2. **Write down classifications of Airport.**
 - Appeared in: S23 (Q2b, 04 marks), S25 (Q1b, 04 marks)

Other Important Questions:

1. Define: Harbour, Bridge, Airport.
 - Appeared in: S24 (Q1a, 03 marks)
2. Write the Advantages and Disadvantages of Air Transport.
 - Appeared in: W24 (Q1b, 04 marks)
3. List out any six component for Both Road and Harbour.
 - Appeared in: S23 (Q1b, 04 marks)
4. Relate Effect of Obligatory Point factor for Road Alignment.
 - Appeared in: S23 (Q1a, 03 marks)
5. State the need for good roads.
 - Appeared in: W23 (Q1a, 03 marks)
6. What is road alignment? Write the need for good Alignment.
 - Appeared in: W23 (Q1b, 04 marks)
7. Describe the role of Civil Engineers in construction and Maintenance of Railways.
 - Appeared in: W24 (Q1c, 07 marks)
8. Describe the Components of harbor with a neat sketch and give their functions.
 - Appeared in: W24 (Q1c-OR, 07 marks)

Unit II - Road Transportation

Repeated Questions:

1. **Explain Camber and Purpose of providing Camber with a sketch. / Explain Camber and Super Elevation in Roads with Sketch.**
 - Appeared in: W24 (Q2b, 04 marks), S25 (Q2c, 07 marks)
2. **Explain with a neat sketch about Cross Section of Road and its Component in detail. / Draw the cross section of Road in embankment showing all the components and explain all components in detail.**
 - Appeared in: S24 (Q1c, 07 marks), S25 (Q1c-OR, 07 marks), W24 (Q2c, 07 marks)
3. **Distinguish between Flexible pavements and rigid pavements. / Give Difference Rigid and Flexible Pavement.**
 - Appeared in: S23 (Q3a, 03 marks), S25 (Q2b, 04 marks), S24 (Q5b-OR, 04 marks)
4. **Write a short note on – “Pavement components and its functions”. / Describe the Pavement components with their functions.**
 - Appeared in: W24 (Q2a-OR, 03 marks), S24 (Q2c-OR, 07 marks)

Other Important Questions:

1. Define: Sight Distance, Design speed, Super Elevation.
 - Appeared in: W24 (Q2a, 03 marks)
2. Write requirements of good roads.
 - Appeared in: S25 (Q2a, 03 marks)
3. Write factors affecting road alignment.
 - Appeared in: S25 (Q2a-OR, 03 marks)
4. Describe importance of road maintenance.
 - Appeared in: S25 (Q2b-OR, 04 marks)
5. What is Soil Stabilization? List out Methods of Soil Stabilization.
 - Appeared in: S25 (Q2c-OR, 07 marks)
6. Write a short note on: Causes of Failure of Flexible pavements.
 - Appeared in: W24 (Q2c-OR, 07 marks)
7. Explain softening point test for bitumen.
 - Appeared in: S25 (Q1c, 07 marks)
8. Enlists Various tests on Bitumen.
 - Appeared in: S24 (Q5a-OR, 03 marks), S23 (Q3b(2), 02 marks)
9. Explain PIEV Process in Detail.
 - Appeared in: S24 (Q3a, 03 marks)

10. Define Impact value of Aggregate. Explain Aggregate Impact Test in detail.
 - Appeared in: S24 (Q3c, 07 marks)
11. Enlists Various tests on Aggregates.
 - Appeared in: S24 (Q2b-OR, 04 marks)
12. A vehicle is having maximum speed of 60 Kmph and the radius of curve is 150 M. Find Super Elevation for this road with friction factor of 0.15.
 - Appeared in: W23 (Q2a, 05 marks)
13. Calculate Stopping Sight Distance for design speed of 50 Kmph for two lane two-way traffic. Take friction factor = 0.35 and reaction time = 2.5 sec.
 - Appeared in: W23 (Q1c-OR, 07 marks)
14. Define 1) Prime Coat 2) Tack Coat 3) Seal coat 4) Tar.
 - Appeared in: W23 (Q2b-OR, 04 marks)
15. Show any 3 types of Failure in Flexible Pavement.
 - Appeared in: S23 (Q3a-OR, 03 marks)

Unit III - Drainage system and Bridges

Repeated Questions:

1. **Explain importance of drainage for road. / Discuss about Requirements of Good Drainage.**
 - Appeared in: S25 (Q3a-OR, 03 marks), S23 (Q2a, 03 marks)
2. **Write the requirement of good drainage. / Write a short note on – “Importance of Bridges”**
 - Appeared in: S25 (Q3b, 04 marks), S24 (Q3b, 04 marks), W23 (Q2c-OR, 04 marks)
3. **Explain components of bridge with neat sketch. / Draw C/S of Bridge showing all of its components and write functions of major component in short.**
 - Appeared in: S25 (Q3c-OR, 07 marks), W23 (Q2c, 07 marks)
4. **Write factors affecting selection for site of Bridge. / Discuss about Factor affecting on Selection of Bridge site. / Enlists the various factors to be considered in selection of Bridge site.**
 - Appeared in: S25 (Q3b-OR, 04 marks), S23 (Q2a-OR, 03 marks), S24 (Q2b, 04 marks)

Other Important Questions:

1. Write function of Weep Holes, Piers, and Abutments. / Explain the functions of Pier, Abutment and Weep hole.
 - Appeared in: S25 (Q3a, 03 marks), W24 (Q4a, 03 marks)
2. Explain method of surface drainage with neat sketch.
 - Appeared in: S25 (Q3c, 07 marks)
3. Under what circumstances would an underground Drainage system be required?
 - Appeared in: W23 (Q3a-OR, 03 marks)
4. Classify Bridge according to Purpose.
 - Appeared in: W23 (Q3b-OR, 04 marks)
5. What is Bearing? Discuss about Free Bearing.
 - Appeared in: W23 (Q3c-OR, 07 marks)
6. Write the requirements of an ideal Bridge.
 - Appeared in: S24 (Q1b, 04 marks)
7. Make use of Bridge engineering Knowledge and Select the Important Factor to be Considered for Choice of Bridge Site.
 - Appeared in: S23 (Q2c, 07 marks)
8. Organize the Data to be collected for Location of Bridge Site.

- Appeared in: S23 (Q2c-OR, 07 marks)

9. Describe Maintenance of Surface and Sub surface Drainage.

- Appeared in: S23 (Q3c(1), 03 marks)

10. Describe Lowering of Water Table Method of Subsurface Drainage System.

- Appeared in: S23 (Q3c(1)-OR, 03 marks)

Unit IV - Permanent ways

Repeated Questions:

1. **Explain the Left hand turnout in Detail. / Draw a neat sketch of the left side turn out and show each of its parts. / Draw the neat & clean figure Left Hand Turnout showing all its Component Parts.**
 - Appeared in: S24 (Q4b-OR, 04 marks), W23 (Q4c, 07 marks), S23 (Q4c, 07 marks)
2. **Explain the Right hand turnout in detail.**
 - Appeared in: S24 (Q4b, 04 marks)
3. **Write a short note on – “Railway gauge and its types” / Define: Gauge.**
 - Appeared in: S24 (Q4a-OR, 03 marks), W23 (Q4a(1), Part of 03 marks)
4. **Write a short note on: “Requirements of an ideal permanent way”. / Give requirements of an ideal permanent way.**
 - Appeared in: S24 (Q2a, 03 marks), W23 (Q2d-OR, 07 marks)

Other Important Questions:

1. Explain the function of rails with their types.
 - Appeared in: S25 (Q4b, 04 marks)
2. Define gauge with neat sketch. Write advantages of uniformity of gauges in railway.
 - Appeared in: S25 (Q4c, 07 marks)
3. Write any three surface defects on railway and give its remedial measures.
 - Appeared in: S25 (Q4a-OR, 03 marks)
4. Explain scissors crossing with neat sketch.
 - Appeared in: S25 (Q4b-OR, 04 marks)
5. Explain with sketch component of B.G. railway track as per IRC.
 - Appeared in: S25 (Q4c-OR, 07 marks)
6. Write Function of following 1) Ash pit 2) Turn table 3) Water column.
 - Appeared in: W23 (Q4a, 03 marks)
7. Discuss the factors affecting the choice of railway gauge.
 - Appeared in: W23 (Q4b, 04 marks)
8. Define 1) Gauge 2) Rail 3) Point and Crossing.
 - Appeared in: W23 (Q4a-OR, 03 marks)
9. Explain the types of railway track maintenance.
 - Appeared in: W23 (Q4b-OR, 04 marks)
10. Draw label sketch of Source of water in a Railway Track.
 - Appeared in: W23 (Q4c-OR, 07 marks)

11. Impact of Gauge Uniformity on Economy of Railway Transportation.
 - Appeared in: S23 (Q4a, 03 marks)
12. Give your suggestion for Arrangement & Utilization of Turn table for Railway.
 - Appeared in: S23 (Q4a-OR, 03 marks)
13. Identify the case and give type of Gradient for Following two cases. (1) The Gradient use for Both side of Bridge Approach (2) The Gradient use for Hill Road Design.
 - Appeared in: S23 (Q4b-OR, 04 marks)
14. Discuss about all Basic Requirement of Railway Station.
 - Appeared in: S23 (Q4c-OR, 07 marks)
15. Name the types of Rail Crossing.
 - Appeared in: S23 (Q3c(2), 04 marks)
16. List out types and Function of Rail Joint.
 - Appeared in: S23 (Q3c(2)-OR, 04 marks)

Unit V - Water Transportation and Airway

Repeated Questions:

1. **State requirement of good harbour. / Write the requirements of a good Harbour. / Explain the requirement of good harbour.**
 - Appeared in: S25 (Q5a, 03 marks), S24 (Q2a-OR, 03 marks), W23 (Q5a, 03 marks)
2. **Draw neat sketch showing all the components of a port. / Draw a labeled Sketch showing the components of a Harbour and list out different components of Harbour. / Outline the Harbour showing all component Parts.**
 - Appeared in: S25 (Q5b, 04 marks), W23 (Q5c, 07 marks), S23 (Q5b-OR, 04 marks)
3. **Describe the requirement of an ideal airport layout with sketch. / Plan Ideal Airport Layout.**
 - Appeared in: S25 (Q5c-OR, 07 marks), S23 (Q5a-OR, 03 marks)
4. **Explain wind rose diagram with neat sketch.**
 - Appeared in: S25 (Q5c, 07 marks)

Other Important Questions:

1. Explain runway lighting.
 - Appeared in: S25 (Q5a-OR, 03 marks)
2. Draw a layout of harbour and show its components.
 - Appeared in: S25 (Q5b-OR, 04 marks)
3. Write functions of Passenger yards.
 - Appeared in: S25 (Q4a, 03 marks)
4. Define : Apron, Hanger, Clearway.
 - Appeared in: S24 (Q5a, 03 marks)
5. Explain various types of Airports in detail.
 - Appeared in: S24 (Q5b, 04 marks)
6. Explain the various components of an Aircraft with a neat sketch.
 - Appeared in: S24 (Q5c, 07 marks)
7. Describe in detail about the various factors affecting Airport Site selection.
 - Appeared in: S24 (Q5c-OR, 07 marks)
8. List the factors controlling taxiway lay-out.
 - Appeared in: W23 (Q5b, 04 marks)
9. Give the requirement of fender.
 - Appeared in: W23 (Q5a-OR, 03 marks)
10. Classify different types of break water and Explain Rubble Mound type break water.
 - Appeared in: W23 (Q5b-OR, 04 marks)
11. Draw sketch showing component part of an Aeroplane and write function of Fuselage and Flaps in short.
 - Appeared in: W23 (Q5c-OR, 07 marks)
12. Organize the Point according to Priority which are to be kept in mind for selection of Site for Harbour.
 - Appeared in: S23 (Q5a, 03 marks)
13. Outline the Aeroplan showing all component Parts.
 - Appeared in: S23 (Q5b, 04 marks)
14. (1) State requirement of Good Harbour. (2) Define term: Efflux and Free board.
 - Appeared in: S23 (Q5c, 07 marks)

15. (1) Define the Term related to Air way Transportation
(a) Aeroplan (b) Apron (c) Clearway (d) Elevator (e) Hangar (2) Write Importance of Drainage.
○ Appeared in: S23 (Q5c-OR, 07 marks)
16. Write the types and uses of jetty.
○ Appeared in: S24 (Q4a, 03 marks)
17. Explain various types of crossing in detail.
○ Appeared in: S24 (Q4c-OR, 07 marks)
