

GUJARAT TECHNOLOGICAL UNIVERSITY

BE-7 SEMESTER – OLD PAPER – S22 TO S25 – QUESTION BANK

Subject Name & Code:

Port and Harbour Engineering- 3170623

Unit 1: Introduction to Water Transportation

Repeated Questions:

1. **Discuss the advantages and disadvantages / merits and demerits of water transportation.**
 - Appeared in: W22 (Q1a, 03 marks), S23 (Q2c, 07 marks), W23 (Q1b, 04 marks), W24 (Q1a, 03 marks)
2. **Classify harbours. / Give a detailed classification of harbours.**
 - Appeared in: S22 (Q1c, 07 marks), S23 (Q3c, 07 marks), S25 (Q1a, 07 marks), W23 (Q1c, 07 marks)
3. **List/Mention the factors considered for selection of location of a harbour. / Discuss the site selection and planning criteria for seaports.**
 - Appeared in: S23 (OR Q3a, 03 marks), S25 (Q1b, 07 marks), W24 (Q1c, 07 marks), W22 (Q1c, 07 marks)

Other Important Questions:

4. Write a critical note on water transportation. (S22 - Q1a, 03 marks)
5. Distinguish between natural and artificial harbours. (S22 - Q1b, 04 marks)
6. Explain the modern trends in water transportation in India. (W24 - Q1b, 04 marks)
7. List name of any four major ports and any six minor ports of India. (S23 - Q1a, 03 marks)
8. Enlist major ports of India. (W23 - Q1a, 03 marks)
9. Describe modern trends in water transportation system. (W22 - Q1b, 04 marks)
10. Compare Water Transportation and Land Transportation. (W24 - Q1a, 03 marks)
11. Define (1) Port (2) Harbour (3) Jetty. (S23 - Q3a, 03 marks)
12. Give a detailed classification of ports. (S23 - OR Q3c, 07 marks)
13. What are the requirements of a good harbour? (S23 - Q1b, 04 marks)
14. Discuss selection of site and planning of harbour. (W22 - Q1c, 07 marks)

Unit 2: Port Planning

Repeated Questions:

1. **Explain the surveys to be carried out for seaport / harbour planning.**
 - Appeared in: S22 (Q2c, 07 marks), W22 (Q2b, 04 marks), W24 (Q2b, 04 marks)
2. **Explain the principles of seaport planning.**
 - Appeared in: S22 (Q2b, 04 marks), W22 (Q2a, 03 marks)
3. **Draw the diagram / neat titled sketch of harbour layout showing all components.**
 - Appeared in: S25 (Q4a, 07 marks), W24 (Q2c, 07 marks), W22 (OR Q2c, 07 marks)

Other Important Questions:

4. Explain the term: Cargo handling capacity of a port. (S22 - Q2a, 03 marks)
5. Enlist and write the functions of bodies dealing with port administration in India. (W24 - Q2a, 03 marks)
6. List the names of bodies associated with port construction, management, maintenance and administration in Gujarat and at National level. Write the function of state level body. (S23 - Q2a, 03 marks)
7. State requirements for a harbor. (S25 - Q2a, 07 marks)
8. Mention facilities of a good port. (S25 - Q2b, 07 marks)
9. How is the: (1) Wave height within a harbour is determined? (2) Depth of a harbour is decided? (S23 - Q2b, 04 marks)
10. What is the importance, advantages and disadvantages of water transportation? (S23 - Q2c, 07 marks)
11. Write a short note on (1) Deendayal port and (2) JNPT Port. (S23 - OR Q2c, 07 marks)
12. Enlist functions of dry port. (W23 - Q2a, 03 marks)
13. Discuss the classification of harbour based on Utility & Location. (W22 - Q2c, 07 marks)

Unit 3: Natural Phenomena

Repeated Questions:

1. **Explain Spring tide and Neap tide.**
 - Appeared in: S22 (Q3a, 03 marks), S25 (Q3b, 07 marks), W24 (Q3a, 03 marks)
2. **Explain the Wind Rose diagram. / Explain wind rose, its construction and its use.**
 - Appeared in: S25 (OR Q3a, 07 marks), W24 (Q3c, 07 marks), S23 (OR Q4a, 03 marks), W23 (Q4b, 04 marks)
3. **Explain the phenomena of the breaking of waves. / Explain about ‘Wave breaking’.**
 - Appeared in: S22 (Q3b, 04 marks), S23 (Q4b, 04 marks)
4. **Define/Explain: Littoral drift**
 - Appeared in: S22 (Q3a, 03 marks), S23 (Q4a, 03 marks), W23 (OR Q3b, 04 marks)

Other Important Questions:

5. Explain dynamic effect of wave action in deep water and shallow water. (S22 - OR Q2c, 07 marks)
6. Explain Lunar day. Explain the causes of tides. (S25 - Q3a, 07 marks)
7. Define: Tidal Range, Tidal Bore and Clapotis. (W24 - OR Q3a, 03 marks)
8. Define: Tidal range, Clapotis, Neap Tides. (W23 - Q3a, 03 marks)
9. What are the causes of wave generation? Explain types of waves. Also explain characteristics of waves. (S23 - Q1c, 07 marks)
10. How are waves generated? Explain shallow and deep waves with sketches. (W24 - OR Q3c, 07 marks)
11. Explain about ‘Wave reflection’. (S23 - OR Q4b, 04 marks)
12. Draw the sketch showing Direction, Duration and intensity of wind. (W22 - Q3a, 03 marks)
13. Explain Mean Sea Level with sketch. (S25 - Q3b, 07 marks)
14. What are the different wind characteristics? Also explain wind rose diagram with its uses. (W24 - Q3c, 07 marks)

Unit 4: Harbor Infrastructures

Repeated Questions:

1. **Explain/Draw neat sketches of different types of breakwaters.**
 - Appeared in: S25 (OR Q3b, 07 marks), W24 (OR Q2c, 07 marks), W22 (OR Q3c, 07 marks), W23 (Q2c, 07 marks)
2. **Differentiate between Dry docks and Wet docks.**
 - Appeared in: S22 (OR Q3a, 03 marks), W24 (OR Q4a, 03 marks), W23 (Q4a, 03 marks)
3. **Explain common terms used in connection with ship characteristics. / Explain ship characteristics.**
 - Appeared in: S22 (OR Q3b, 04 marks), S25 (OR Q2b, 07 marks), W24 (Q3b, 04 marks), S23 (Q3b, 04 marks), S23 (OR Q3b, 04 marks)
4. **What are moorings? Mention the accessories. / Explain the types of moorings.**
 - Appeared in: S22 (Q4c, 07 marks), W24 (OR Q4b, 04 marks), W22 (Q4b, 04 marks)

Other Important Questions:

5. Explain with neat sketches how mound breakwaters are protected from wave action. (S22 - OR Q3c, 07 marks)
6. What considerations govern the size and position of harbour entrances? (S22 - Q3c, 07 marks)
7. Explain the terms: Jetty, Fender. (S22 - Q4a, 03 marks)
8. Explain the functions of Jetty, Dock fenders, Piers, Wharves and Dolphin. (W22 - Q4c, 07 marks)
9. Give the basic difference between wharves & jetty? (W23 - Q2b, 04 marks)
10. What do you understand by floating dock? Also Discuss the types of floating docks. (W22 - OR Q3c, 07 marks)
11. Explain working of dry dock having lock gates with a sketch. (S25 - Q5a, 07 marks)
12. Write short note on floating dock with a sketch. (S25 - Q5b, 07 marks)
13. What are the advantages and disadvantages of floating dry docks? (W24 - Q4a, 03 marks)
14. Enlist the different types of locks and explain any one. (W24 - Q4b, 04 marks)
15. Enumerate the different types of lock and explain any one. (W24 - OR Q4c, 07 marks)
16. State the uses of Wet dock. (W22 - OR Q3a, 03 marks)
17. Enlist the requirement of lock hydraulic system in brief. (W22 - OR Q3b, 04 marks)
18. Discuss in brief slipways. (W22 - OR Q4a, 03 marks)
19. Explain i) Littoral drift ii) lock iii) Wharves iv) fenders. (W23 - OR Q3b, 04 marks)
20. Enlist different types of ferries and explain any one in detail. (W23 - OR Q3c, 07 marks)
21. Discuss factors affecting size of turning basin. (S25 - OR Q4a, 07 marks)
22. Discuss factors affecting width of harbor entrance. (S25 - OR Q4b, 07 marks)
23. Explain function of 1) breakwater 2) Jetty. (W23 - Q5b, 04 marks)

Unit 5: Port Amenities & Operations

Repeated Questions:

1. **State the construction requirements for a transit shed. / What is a transit shed? What are purposes of it?**
 - Appeared in: S22 (Q4b, 04 marks), W22 (Q4a, 03 marks), W24 (OR Q5a, 03 marks)
2. **Discuss the necessity of providing facilities like aprons, transit sheds and warehouses at the ports.**
 - Appeared in: S22 (OR Q4b, 04 marks)

Other Important Questions:

3. Draw a neat sketch of RCC warehouse having many floors. (S22 - OR Q4a, 03 marks)
4. Write short note on warehouse. (W22 - OR Q4b, 04 marks)
5. Enlist different cargo handling equipment and explain anyone with sketch. (W23 - OR Q4c, 07 marks)
6. Write a short note on transfer bridge. (W24 - Q5a, 03 marks)

Unit 6: Navigational Aids

Repeated Questions:

1. **Explain/Discuss Buoys. / What are the different types of buoys?**
 - Appeared in: S22 (OR Q4c, 07 marks), W24 (OR Q5b, 04 marks), W22 (OR Q4c, 07 marks)
2. **What is a lighthouse? How is it constructed? / Draw neat sketch of light house.**
 - Appeared in: S22 (Q5a, 03 marks), W23 (Q4b, 04 marks)
3. **What are the purposes of providing navigational aids?**
 - Appeared in: S23 (Q4c, 07 marks), W23 (Q5a, 03 marks), W22 (OR Q5c, 07 marks)

Other Important Questions:

4. Describe various floating signals. (S22 - OR Q4c, 07 marks)
5. Discuss buoys, beacons, and light house. (W24 - Q4c, 07 marks)
6. Explain fixed type navigational aids. (S23 - Q4c, 07 marks)
7. Explain floating Navigational aids. (S23 - OR Q4c, 07 marks)
8. State uses of light house, buoys, bollard and dolphin. (S25 - OR Q5a, 07 marks)
9. What are the function of LORAN and RADAR? (W24 - Q5b, 04 marks)
10. Explain functions of LORAN and RADAR. (W23 - Q4a, 03 marks)
11. Enlist classification of navigational aids. Explain any two in detail. (W23 - OR Q4c, 07 marks)
12. What are Navigational aids? Why are they necessary in the harbour? (W22 - OR Q5b, 04 marks)
13. Enlist navigation aids and explain Beacon lights. (W22 - OR Q5c, 07 marks)

Unit 7: Seaport Maintenance

Repeated Questions:

1. **What is dredging? Classify different types of dredging works. / State purpose of dredging, types of dredging and their suitability.**
 - Appeared in: S22 (Q5b, 04 marks), S25 (OR Q5b, 07 marks), W23 (OR Q3a, 03 marks)
2. **List various shore protection works and explain sea walls. / List different coastal protection works.**
 - Appeared in: S22 (Q5c, 07 marks), S23 (OR Q5b, 04 marks), W24 (OR Q5c, 07 marks)
3. **What are the types of dredgers? / Enlist different types of dredger.**
 - Appeared in: W24 (Q5c, 07 marks), W22 (OR Q5c, 07 marks), W23 (Q5a, 03 marks)

Other Important Questions:

4. Distinguish between Dipper dredge and grapple dredge. (S22 - OR Q5a, 03 marks)
5. Explain the causes of beach erosion. (S23 - Q5b, 04 marks)
6. Write a short note on different methods of dredging. (S23 - Q5c, 07 marks)
7. Explain about different types of dredgers with neat sketch. (S23 - OR Q5c, 07 marks)
8. Explain Bulkhead with neat sketch. (W22 - Q5b, 04 marks)
9. Enlist uses of dredged materials. (W23 - Q3b, 04 marks)
10. Write short note on Harbour maintenance. (W23 - OR Q3c, 07 marks)
11. Explain causes of beach erosion in detail. (W23 - OR Q5c, 07 marks)
12. What are the criteria for selecting various types of dredgers? (W22 - OR Q5c, 07 marks)

Unit 8: Impact Analysis

Repeated Questions:

1. **Describe various indicators for economic evaluation of port project. / Explain any one method of Economic evaluation of port projects. / Discuss Economic evaluation of port project.**
 - Appeared in: S22 (OR Q5b, 04 marks), W22 (OR Q5a, 03 marks), S23 (Q5a, 03 marks), W23 (Q5c, 07 marks)
2. **Discuss the environmental impacts of port activities.**
 - Appeared in: S22 (OR Q5c, 07 marks), S23 (OR Q5a, 03 marks)

Other Important Questions:
