

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VIII EXAMINATION – SUMMER 2026

Subject Code:2180602

Date:01-06-2026

Subject Name:Harbour & Airport Engineering

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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|------------|-----|--|-----------|
| Q.1 | (a) | Explain in detail factors affecting site selection of a harbor. | 03 |
| | (b) | Differentiate the following i) Dock and Harbour ii) Military harbor and refuge Harbour. | 04 |
| | (c) | Which are the components of a harbor? Explain functions of harbor components with neat sketch | 07 |
| Q.2 | (a) | Explain importance of harbor maintenance at periodic interval. | 03 |
| | (b) | Enlist different facilities required at the terminal building. Draw a layout of an airport terminal building. | 04 |
| | (c) | Find the design length of a runway required if the length of runway at sea level under standard condition at zero gradient is 1500m. The airport site is at an elevation of 800m. The reference temperature is 21°C. Proposed runway permits ascending gradient of 0.5%. | 07 |
| OR | | | |
| | (c) | Draw a layout of harbor showing all important details. | 07 |
| Q.3 | (a) | Discuss the role of Airport Authority of India for the functioning of Airports in India. | 03 |
| | (b) | Explain importance of navigational aids for waterway transportation. Enlist types of navigational aids. | 04 |
| | (c) | Write a brief note on locks used for harbor operations and explain any two with neat sketch | 07 |
| OR | | | |
| Q.3 | (a) | Define the terms: (i) ILS (ii) Littoral drift (iii) Turning basin | 03 |
| | (b) | What is break water? Explain different uses of breakwaters. | 04 |
| | (c) | What is mooring? Explain importance of mooring mechanism for water based transportation. | 07 |
| OR | | | |
| Q.4 | (a) | Write a short note on airport capacity | 03 |
| | (b) | Explain in detail advantages and disadvantages of water based transport. | 04 |
| | (c) | What are the functions of the taxi way in an airport? Draw a cross section of the taxi way, showing all components. | 07 |

OR

- Q.4** (a) Enlist factors affecting planning of an airport. **03**
(b) Enlist coastal protection works and explain any one in detail. **04**
(c) What is runway orientation? How different elements are affecting the runway orientation explain in detail. **07**

- Q.5** (a) What are the important wind characteristics to be taken into consideration for the design of a runway? **03**
(b) Explain wave breaking and wave reflection with neat sketch. **04**
(c) Explain different aircraft parking systems with neat sketch **07**

OR

- Q.5** (a) Discuss the function of airport drainage **03**
(b) Why fenders are provided on docking platform? Which type of material is recommended for fenders? **04**
(c) Draw a neat sketch showing components of an aircraft and explain how the aircraft dimensions are affecting the design and planning of an airport. **07**
