

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII (NEW) EXAMINATION – SUMMER 2021****Subject Code:2180602****Date:04/08/2021****Subject Name:Harbour & Airport Engineering****Time:02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
<b>Q.1</b>	(a) Discuss the role of Airport Authority of India for functioning of Airports in India.	<b>03</b>
	(b) Write a short note on refuge harbor and state its importance.	<b>04</b>
	(c) Draw the schematic diagram of airport layout showing all components and briefly write function of each.	<b>07</b>
<b>Q.2</b>	(a) Why it is important to maintain harbor on regular basis, How the periodic maintenance of harbor is carried out?	<b>03</b>
	(b) Differentiate Wet dock and Dry dock	<b>04</b>
	(c) Define following terms (1) Fenders (2) Wharf (3) RO-RO ferry (4) Tetrapodes (5) Dredging (6) Mooring (7) Load line	<b>07</b>
OR		
	(c) Explain floating dock with its advantages and disadvantages.	<b>07</b>
<b>Q.3</b>	(a) What is the role of silting and littoral drift for harbor planning and operations?	<b>03</b>
	(b) What is mooring? Explain any two mooring accessories with neat sketch.	<b>04</b>
	(c) Define (1) Stop way (2) RESA (3) Hanger (4) ATC (5) Taxiway (6) Apron (7) Threshold	<b>07</b>
OR		
<b>Q.3</b>	(a) What is break water? Enlist different types of breakwaters.	<b>03</b>
	(b) Explain any two navigational aids used for waterway transportation.	<b>04</b>
	(c) Explain planning concept of airport terminal building with neat sketch.	<b>07</b>
OR		
<b>Q.4</b>	(a) Explain requirement of airport drainage system in detail.	<b>03</b>
	(b) Describe components of aircraft with neat sketch.	<b>04</b>
	(c) What is meant by the basic runway length? Explain the 3 cases and their corrections to calculate basic runway length.	<b>07</b>
OR		
<b>Q.4</b>	(a) Write a short note on runway lighting and enlist different types of visual aids.	<b>03</b>
	(b) Enlist different types of locks used for harbor operations and explain any one.	<b>04</b>
	(c) What is the function of hanger? Enlist various facilities available at hanger and explain T hangers with neat sketch.	<b>07</b>
<b>Q.5</b>	(a) Compare water based transport and air based transport with respect to movement of goods.	<b>03</b>

- (b) Write a short note on Instrument Landing System ( ILS) **04**  
(c) What is runway orientation? What are the factors affecting runway orientation. Explain wind rose diagram used for design of runway orientation. **07**

OR

- Q.5** (a) Discuss parking system of aircraft on airfield. Draw neat sketches of any one type of aircraft parking configuration. **03**  
(b) Explain Holding Apron and fillet in detail with diagram. **04**  
(c) Find the design length of runway required if the length of runway at sea level under standard condition at zero gradient is 1800m. The airport site is at an elevation of 900m. The reference temperature is 21°C. Proposed runway permits ascending gradient of 0.5%. **07**

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