## **GUJARAT TECHNOLOGICAL UNIVERSITY** ME - SEMESTER- II(New course) • EXAMINATION (Remedial) – WINTER- 2015

Su	bject	t Code: 2721312 Date: 10/12/2	Date: 10/12/2015	
Subject Name: Airport System Planning and Design Time:2:30 pm to 5:00 pm Total Marks Instructions:				
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	<b>(a)</b>	Explain the different characteristics of aircrafts. How do they affect the	e <b>07</b>	
	<b>(b)</b>	Briefly explain the open sky policy of India. How this policy has made its impact on the air transport sector of India?	s <b>07</b>	
Q.2	<b>(a)</b>	What are the imaginary surfaces? What are their significances? Explain with	07	
	(b)	the aid of neat sketches the shape of each surface for different types of airport. Why is it necessary to plan airports on regional basis? What informations are obtained from the regional plans? What data are to be collected for such planning?	e <b>07</b>	
		OR		
	(b)	What do you understand by the term airport capacity? What are the factors affecting airport capacity?	s <b>07</b>	
Q.3	(a) (b)	Explain briefly the forecasting techniques of air travel demand. What do you understand by the term basic runway length? Explain the procedure of determining the actual runway length required at a particular site.	07 07	
Q.3	<b>(a)</b>	What are the basic patterns of runway configuration? Discuss each pattern.	07	
		What pattern has been recommended for international airports in India?	07	
	(b)	The length of a runway under standard condition is 1800 mt. The airport is to be provided at elevation of 500 mt above the mean sea level. The airport reference temperature is $32^{\circ}$ c. the construction plan provides the following data:	e U7	

End to end of runway (mt)	Grade (percent)
0 to 300	+1.00
300 to 600	-0.50
600 to 900	+0.50
900 to 1200	+1.00
1200 to 1500	-0.50
1500 to 1800	-0.40

Determine the length of runway. Apply corrections for elevation and temperature as per ICAO and for gradient as per FAA specifications.

- Q.4 (a) Explain the procedure for orienting the runway.
  - (b) Design an exit taxiway which joins a runway and a main parallel taxiway. The total angle of turning is 40°. The aircraft can enter the taxiway with a maximum turn off speed of 65 kmph. Draw a neat sketch and indicate all the design elements.

## OR

Q.4 (a) Explain the various factors affecting the location of exit taxiway. What do you understand by optimum location of exit taxiway?

07

	(b)	How will you carry out environment impact assessment in order to suggest the final location of the new Airport?	07
Q.5	<b>(a)</b>	What do you understand by the term visual aid in connection with airport? Name the different visual aids. What is the necessity of visual aids?	07
	(b)	Explain the necessity of airport lighting. Draw a typical sketch showing the general lighting pattern for a major airport.	07
		OR	
Q.5	<b>(a)</b>	Explain the various factors which affect the size of gate position. How will you decide the number of gate position required by an airline?	07
	(b)	Which are the different techniques of airport pavement design? Explain any one in detail.	07

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