

GUJARAT TECHNOLOGICAL UNIVERSITY
ME SEMESTER- II EXAMINATION – SUMMER 2016

Subject Code: 2721312**Date: 27/05/2016****Subject Name: Air System Planning and Design****Time: 10:30am to 1:00pm****Total Marks: 70****Instructions:**

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

Q.1 (a) Briefly explain the present situation of aviation sector of India. Briefly explain the impact of open sky policy of India on the aviation. **07**

(b) Discuss in brief the need of air traffic control. Explain the network of air traffic control. **07**

Q.2 (a) What are the objectives of airport master plan? Briefly explain the elements of Airport Master Plan. **07**

(b) What do you understand by the term airport capacity? What are the factors affecting airport capacity? **07**

OR

(b) Explain briefly the various techniques of Air travel demand forecasting. **07**

Q.3 (a) 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**

(b) Name the various possible landing aids for aircrafts. Explain with neat sketch how an aircraft lands under instrumental landing system? **07**

OR

Q.3 (a) The length of a runway under standard condition is 1800 mt. The airport is to be provided at elevation of 300 mt above the mean sea level. The airport reference temperature is 32⁰c. the construction plan provides the following data: **07**

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.

(b) What is wind rose diagram? What is its utility? What are its types? Explain each type. **07**

- Q.4 (a)** Design an exit taxiway which joins a runway and a main parallel taxiway. The total angle of turning is 45° . 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. **07**
- (b)** What do you understand by terminal area? What are the facilities provided in terminal area? **07**
- OR**
- Q.4 (a)** What are the different types of subsurface drainage? Explain the necessity of each type. **07**
- (b)** Explain with neat sketches, the various marking on taxiway. **07**
- Q.5 (a)** What are the different parking configurations for an aircraft? Explain the merits and demerits of each method of parking. **07**
- (b)** How are the airport pavement differs with the Highway pavement? Explain any one airport pavement design in detail. **07**
- OR**
- Q.5 (a)** What is EIA? How will you carry out environment impact assessment in order to suggest the final location of the new Airport? **07**
- (b)** Draw a neat cross-section of runway for an international airport having instrument landing facilities. Show therein the various runway geometrics. **07**