

## **B.Tech Degree Examination, May /June 2013**

### **Sixth Semester B.Tech Civil Engineering CE 010 606L03 Airport Engineering (Elective 1)**

Time : 3 hours

Maximum 100 Marks

#### **PART A**

#### **(Answer all Questions – each carries 3 marks )**

1. What are the different classification of airports?
2. What is basic runway length?
3. What are the Landing Aids available to any aircraft?
4. What are the design factors to be considered for determining the thickness of airport pavements?
5. Write short note on Turnaround or bypass taxiway.

#### **PART B**

#### **(Answer all Questions- each carries 5 marks )**

1. What data are to be collected for an Airport planning?
2. Write short note on 1. Apron turntable 2. Hanger site locations.
3. What do you understand by the term airport capacity? What are the factors which affect the airport capacity?
4. Explain the McLeod method of design of a flexible airfield pavement.
5. What are the factors to be considered while preparing airport lighting plan and specifications?

#### **PART C**

#### **(Answer 5 Questions- each carries 12 marks )**

- 1) Explain the zoning laws for airport and the criteria for classifying the objects as obstructions in different zones.

OR

- (a) What is the gear configurations generally used to support the aircraft weight? ( 6 marks)
- (b) Write brief note on approach zone and turning zone in airport planning and design. (6 marks)

2. The length of a runway under standard conditions is 2100m. The airport is to be provided at an elevation of 500 m above mean sea level. The airport reference temperature is 20°C. The construction plan provides gradients of +1.00 %,-0.5%, +0.5%, +0.4 % and -0.1% at chainages 300, 800, 1200, 1600 and 2000 to 2500 m from one end. Determine the actual length of runway to be provided based on ICAO recommendation.

OR

- (a) Explain Cross wind component and Wind Coverage with respect to Airport Runway planning. ( 6 marks)
- (b) Describe the method of plotting wind rose diagram showing direction, duration and Intensity of wind to fix the orientation of runway in an Airport. ( 6marks )

3. Explain the Air traffic control Network system.

OR

- (a) What are the different systems of aircraft parking? Explain the suitability of each system? ( 5marks )
- (b) Find the capacity of 15 gates for exclusive use of the three classes of aircrafts using the following data. ( 7marks )

Aircraft class	Gate Group	Number of gates	mix (%)	Mean service time
1	A	3	20	30
2	B	5	30	40
3	C	7	50	60

4. Explain with neat sketches the different Categories of joints in cement Concrete Airfield pavements

OR

What are the different design methods that is followed for Airfield pavement design ? Explain

- 5 . (a)What are the principles governing the design of Exit Taxiway Connecting Runway and Parallel Taxiway. (5 marks )
- (b) A taxiway has to be designed for operating Boeing 707-320 which has the following characteristics. Determine the turning radius of the taxiway. ( 7 marks)

Wheel base = 17.70 m  
 Tread of main loading gear = 6.62 m  
 Turning speed = 40 kmph  
 Coefficient of friction between tire and pavement surface = 0.13

OR

Explain with neat sketches, the rules governing Airport Markings