

GUJARAT UNIVERSITY
B.E. Sem VIII (Civil) Examination
Dock Harbour and Airport Engineering

Friday, 13th June, 2008]

[Time : 3 Hours
Max. Marks : 100

- Instructions :** (1) Attempt all questions.
(2) Answer to the two sections must be written in **separate** answer books.
(3) Figures to the right indicate **full** marks.
(3) Assume suitable data if necessary.
(5) Illustrate your answer briefly with neat sketches wherever necessary.

SECTION I



- 1 a) Define the following terms. 18
i) Harbour ii) Gross registered tonnage (GRT)
iii) Tidal day iv) Littoral currents.
- b) Define tide and range of tide. Explain tidal theory and tide producing force with neat sketches.
- c) Classify harbour based on their utility and state their requirements.
- d) Draw the sketch of a typical harbour and explain its components in brief.
- 2 a) Differentiate between jetty and a wharf. State the condition under which you will prefer their construction. 16
- b) Give classification of Docks. Why wet docks are necessary? Explain the principle forces acting on a graving dock.
- c) What is dredging? Explain clearly the difference between capital dredging and maintenance dredging. List different types of dredgers.
- OR**
- 2 a) What are the essential differences between transit shed and ware houses as regards their use and construction. 16
- b) Explain spring and neap tides.
- c) Explain briefly ship characteristics.
- 3 **Write short notes on any four:** 16
- a) Navigational aids
- b) Commercial harbour
- c) Cargo handling facilities of a port
- d) Tetrapodes and tribars
- e) Mooring accessories
- f) Beacons

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SECTION II

- 4 a) Discuss the four basic patterns of configurations of the runways. 18
b) Enumerate the facilities provided at the airport terminals.
c) Define (i) hangar, (ii) apron
d) Calculate the length of runway by using the following data:
(i) Airport Elevation R.L. = 100.00 m.
(ii) Airport reference temperature 28° C.
(iii) Basic length of runway = 600 m.
(iv) Highest point along the length R.L. = 98.2 m.
(v) Lowest point along the length R.L. = 95.2 m.
- 5 a) What are the characteristics of a conventional type aircraft? 16
b) Explain soil survey and drainage survey for airport design.
c) Discuss the following terms
(i) Conical surface. (ii) Turning zone. (iii) Wind coverage.
- OR**
- 5 a) Explain about airport grading and drainage. 16
b) Enlist various factors which include the location of an airport.
c) Define : (i) loading apron (ii) nose in parking
- 6 Write short notes on any FOUR 16
a) Orientation of runway
b) Master plan of Airport
c) Aircraft parking system
d) Geometric design standard for taxiway
e) Pavement design of Airport
f) Visual aids.