BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BE **SEMESTER : VII**
BRANCH: CIVIL **SESSION : MO/18**

SUBJECT: CE8003 HARBOUR DOCK AND AIRPORT ENGINEERING

TIME: 3 HOURS **FULL MARKS: 60**

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	"Every port is a harbor but the reverse is not true". Give reasons.	[2]
Q.1(b)	Explain the action of 'Air breakwater'.	[4]
Q.1(c)	Explain tetrapods. Why they have so much popularity in construction of mound type of breakwater?	[6]
Q.2(a)	Differentiate between wharf and jetty.	[2]
Q.2(b)	Write short notes on mooring buoys and wreck buoys.	[4]
Q.2(c)	With a neat sketch explain the working of a suction dredge. What are its advantages?	[6]
Q.3(a)	Differentiate between tidal basin and wet dock.	[2]
Q.3(b)	Mention ant two advantages and disadvantages of floating dry docks.	[4]
Q.3(c)	What is the function of keel blocks and bilge blocks in a graving dock? Explain the method of dry docking.	[6]
Q.4(a)	Differentiate between operating empty weight and zero fuel weight of an aircraft.	[2]
Q.4(b)	How is the minimum turning radius decided?	[4]
Q.4(c)	Explain any six factors which influence the location of an airport.	[6]
Q.5(a)	What is a holding apron?	[2]
Q.5(b)	Determine the turning radius of the taxiway for a supersonic aircraft with a wheel base of 30m and tread of main loading gear as 6m for a design turning speed of 50 km.p.h. Coefficient of friction 0.15 and width of taxiway pavement 22.5m.	[4]
Q.5(c)	What is meant by basic runway length? Describe the corrections to be applied to the calculated basic runway length to get its actual length?	[6]
Q.6(a)	Differentiate between originating – terminating station and through station for an airport.	[2]
Q.6(b)	An airport has 10 gates which are restricted in the types of aircraft which can be accommodated. The aircraft are of 3 types. The particulars are shown in Fig.1.Determine the capacity of the gates to process the aircraft at this airport. Gate utilization factor = 1.	[4]
Q.6(c)	Explain the pier and satellite system of aircraft parking with neat sketches. Also explain the advantages and disadvantages of each.	[6]
Q.7(a)	Differentiate between Calvert system and ICAO system of approach lighting.	[2]
Q.7(b)	Explain the three components of air traffic control network.	[4]
Q.7(c)	What are the markings made on runway? Explain.	[6]

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Aircraft Type	Gate Group	No.of gates	Mix %	Average occupancy time in minutes	Aircraft which can be accommodated
A	I	5	30	60	A,B and C
B	II	3	50	45	B and C
C	III	2	20	30	C only

Fig.1