Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E SEM-VII Examination-Nov/Dec.-2011

Subject code: 171806 **Date: 01/12/2011**
Subject Name: Naval Architecture-I
Time: 10.30 am-01.00 pm **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)**	Explain following terms (1) The length on the waterline (2) Midship (3) Draught of the ship	**06**
	(b)	Explain in detail Simpson's first rule for finding area.	**04**
	(c)	How displacement of ship is calculated, explain in brief.	**04**
Q.2	**(a)**	Explain following terms (1) What is T.P.C. of a ship? (2) Explain wetted surface area of a ship. (3) Prismatic coefficient (Cp)	**07**
	(b)	The equally spaced half ordinates of watertight flat 27m long are 1.1, 2.7, 4.0, 5.1, 6.1, 6.9 and 7.7m respectively. Calculate the area of flat	**07**
		OR	
	(b)	The immersed cross sectional areas through a ship 180m long, at equal intervals are 5, 118, 233, 303, 304, 302, 283, 171, and 0 m^3 respectively. Calculate the displacement of the ship in sea water of 1.025 tone/m^3	**07**
Q.3	**(a)**	Explain in brief Tchebycheff's rules.	**04**
	(b)	Explain in brief use of intermediateordinates for finding area	**04**
	(c)	Explain Trapezoidal rule	**06**
		OR	
Q.3	**(a)**	How center of gravity is calculated?	**04**
	(b)	What is statically stability of ship?	**06**
	(c)	A ship of 5000 tone displacement has a rectangular tank 6m long and 10m wide. Calculate the virtual reduction in meta centric height if this tank is partly full of oil (rd 0.8)	**04**
Q.4	**(a)**	Explain in detail stability at large angles of heel.	**06**
	(b)	Explain in brief how curves of statical stability are drawn?	**05**
	(c)	Explain term dynamic stability of ship	**03**
		OR	
Q.4	**(a)**	Explain in detail stability of a wall sided ship.	**07**

	(b)	A ship of 12,000 tone displacement has a second moment of area about centerline of $72*10^3$ m^4 , if the meta centric height is -0.05m, calculate the angle of loll.	**07**
Q.5	**(a)**	State the different factors on which frictional resistance depends. How total resistance of ship is calculated?	**07**
	(b)	A ship whose wetted surface area is 5150 m^2 travels at 15knots. Calculate the frictional resistance and power required to overcome this resistance. Take f=0.422, n=1.825.	**07**

OR

Q.5	**(a)**	Explain following terms (1) Ship correlation factor (2) Admiralty coefficient.	**07**
	(b)	State various factors on which fuel consumption of a ship depend. The fuel coefficient of a ship of 14000 tone displacement is 75000. Calculate the fuel consumption per day if the vessel travels at 12.5 knots.	**07**

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