

INDIAN MARITIME UNIVERSITY

(A Central University Government of India)

END SEMESTER EXAMINATION DECEMBER 2017

Programme	: B.Sc (Nautical Science)	Semester	: II
Subject Name	: Ship Construction	Subject Code:	UG21T3204
Date	: 07.12.2017	Maximum Marks	: 70
Time	: 3 Hrs.	Pass Marks	: 35

Note:

- a) Attempt ANY Seven out of the Nine questions.
- b) All questions carry equal marks. (7x10marks=70marks)
- c) Ship particulars of M.T.Stealth are attached.

Q.1: Make a profile view of a bulk carrier showing the following:

- a) Collision bulkhead b) Double bottom Tank c) Top Side tank d) E/R bulkhead e) Chain locker (10 marks)

Q.2: Sketch Open Ended and Close Ended sounding pipes and explain the functions of Deck Insert and Striking Plate. (10 marks)

Q.3: Write short notes (with sketches where necessary) on : a) Longitudinal framing b) Composite Framing c) Bilge Keels d) Multi angle fairlead e) Air pipes (10 marks)

Q.4: a) Differentiate between Balanced/Unbalanced/Semi balanced rudders. b) With neat sketches illustrate how Rudder action causes turning of the vessel. (10 marks)

Q.5: Sketch a simple propeller and label the following:

- a)Boss b)Rake c)Skew d)Face e) Radius. (10 marks)

Q.6: List all the precautions to be taken while Welding. (10 marks)

Q.7: Sketch an anchoring arrangement from Anchor to Chain locker and write point wise short notes on every component of the arrangement. (10 marks)

Q.8: Sketch a transverse corrugated bulkhead showing its connection to the tank top. (10 marks)

Q.9: Using data from the **attached** ship particulars of M.T.STEALTH answer the following:

- a) What is the Light Ship weight of the vessel?
- b) Find the Air Draft of the vessel if she is floating at her Winter draft.
- c) How many chain lockers do you think are on this vessel and why?
- d) What is the height of the Freeboard deck above the Baseline.
- e) What type of rudder does this vessel have.

(10 marks)

M.T. STEALTH

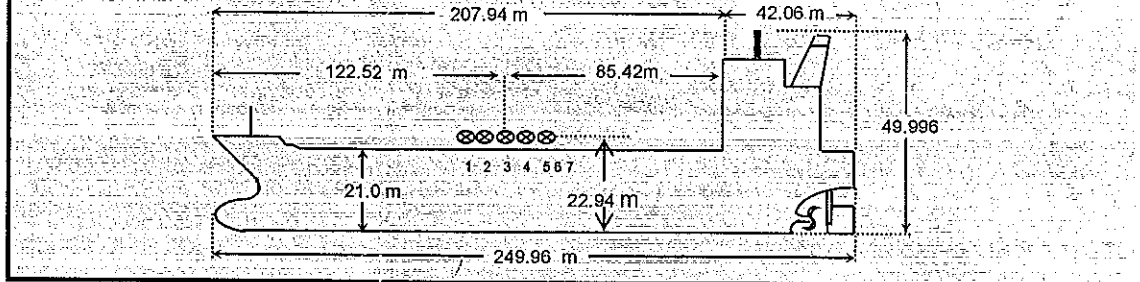
CALL SIGN	V7TR8
FLAG	MARSHALL IS
PORT OF REGISTRY	MAJURO
OFFICIAL NUMBER	3868
IMO/LLOYDS NUMBER	9436020
CLASS SOCIETY	ABS
CLASS NOTATION	+A1 OIL CARRIER, E, +AMS, +ACCU, VEC, TCM, CSR, ES, SafeShip
P & I CLUB	SKULD MUTUAL PROTECTION AND INDEMNITY ASSOCIATION (BERMUDA) LTD.

KEEL LAID	29/09/2009
LAUNCHED	25/12/2009
DELIVERED	04-May-10
SHIPYARD	NEW TIMES SHIPBUILDING COMPANY JIANGJING, CHINA

SATELLITE COMMUNICATION		
	INMARSAT-F	INMARSAT-C
PHONE	765047372	453834926/453835323
FAX	765047374	
TELEX		
MMSI		538003868
E-mail	V8Stealth2@gtships.com	

OWNERS	DIABLO FORTUNE INC
OPERATOR COMMERCIAL	
OPERATOR TECHNICAL	V. Ships.(Asia) Pvt Ltd.

PRINCIPAL DIMENSIONS	
LOA	249.96 M
LBP	240 M
BREADTH (Moulded)	44.035 M
DEPTH (moulded)	21.035 M
HEIC (maximum)	49.996 M
BRIDGE FRONT - BOW	207.94 M
BRIDGE FRONT - STERN	42.06 M
BRIDGE FRONT - M'FOLD	85.42 M



TONNAGE	REGD	SUEZ	PANAMA
NET	34934	55871	
GROSS	62775	64057.27	
GROSS (Reduction: 7247)	50063		

TANK CAPACITIES (cbm)				
CARGO TANKS (98 %)			BLST TKS (100 %)	
COT 1	16888.4		FW Tanks	
COT 2	21801.5		100%	F PK
COT 3	21895.9		400.0	WBT 1W
COT 4	21911.4			WBT 2W
COT 5	21893.7			WBT3w
COT 6	20572.2			WBT 4W
SLOP	2548.1			WBT 5W
RES. TK.	228.1			WBT 6W
TOTAL	127739.4			APK
				911.8
OTHER DETAILS				
FWA	336 MM		Radar	
TPC@Summer	99.7	Level gauge	Guages	
Overfill Alarm	98%	H.Level alarm	95%	TOTAL
				40967.5

LOAD LINE INFORMATION	FREEBOARD	DRAFT	DWT (mt)
TROPICAL	5.908 M	15.127 M	115,949.0
SUMMER	6.216 M	14.819 M	112,863.0
WINTER	6.524 M	14.511 M	109,799.0
LIGHTSHIP	18.143 M	2.917 M	(DISPL. 21152)
NORMAL BALLAST COND	13.175 M	7.862 M	45,062
SEG. BALLAST CONDN	13.746 M	7.291 M	39881.0
PROPELLER IMMERSION	13.137 M	7.90 M	

MACHINERY / PROPELLER / RUDDER	
MAIN ENGINE	MAN B&W 7S60MC-C (15820KW @105RPM) 21206 BHP / CONSEC STS-13
M.C.R.	15404 KW @ 107.5 RPM
N.C.R.	13912 @ 104.4 RPM
GENERATOR (3 sets)	900 KW @ 720 RPM
PROPELLER	NI-AL-BR 1X4 BLADES, FIXED PITCH
RUDDER	SEMI BALANCED
STEERING GEAR	2 RAM - 4 CYLINDER
BOW THRUSTER	NO
FW GENERATOR CAP	30 TONS
BUNKER MANIFOLDS	150 MM

BUNKER CAP IN M/T	
TANKS	98%
1 FOT (P)	859
2 FOT (S)	415
2 FOT (P)	356
FOT (S) LOW	859
SET&SER	177
TOTAL	1807
DOT(S)	165
SET&SER	54.8
TOTAL	220

WINCHES / WINDLASS / ROPES / EMERGENCY TOWING			
	FRD	AFT	PARTICULARS
WINCHES	8	8	203 T @ 15 m / min
MRG WIRES	4	4	36 MM MBL 83 T, TAILS 92MM 120 T
WINDLASS	2		CAPACITY - 46.1 t @ 9 m /min
ANCHOR	2		10.575 T EACH
FIRE WIRE	1	1	40 mm mbl 102 T
EMG. TOWING		1	As per Ch.Reg 15-1 SOLAS 1994 Resolution IMO MSC.35(63) YT- eta -2000 kN As per Ch.Reg 15-1 SOLAS 1994 Resolution IMO MSC.35(63) YT- eta -2500 kN
	1		

CARGO AND BALLAST PUMPING SYSTEM - MARFLEX				
MAIN PUMPS	NO.	CAPACITY	HEAD	LOCATION
CARGO OIL P/P's	3	3000 CUM / HR	139 mlc	P/P RM
CARGO STR PUMP	1	200 CUM/HR	130 mlc	P/PRM
CARGO EDUCTOR	1	500 CUM/HR		P/P RM
BALLAST PUMP	2	2000 CUM/HR	40 mlc	P/P RM
BALLAST E'JTR	1	300 CUM/HR		P/P RM
Fire/GS pump	1	300 CUM/HR		E/ROOM
Fire/Bilge/Ballast	1	300 CUM/HR		E/ROOM
Emerg. Fire Pump	1	80 CUM/HR		STRG RM

LIFE BOATS	
ENCLOSED	28 P
LIFE RAFTS	
4 & 1 FWD	
TK CLNG MACHINE	
2 EACH TANK	
CRANES	
Hose Cranes	15 T
Aft Cranes	5T

MANIFOLD ARRANGEMENT (400 mm / Steel)	
Distance of cargo manifold to cargo manifold	2500 MM
Distance of manifolds to ship's rail	4610 MM
Distance of spill tray grating to centre of manifold	900 MM
Distance of main deck to centre of manifold	1940 MM
Distance of main deck to top of rail	1440 MM
Distance of top of rail to centre of manifold	435 MM
Distance of manifold to ship side	5000 MM
Parallel body at Normal Blst/Summer draft	118.386/139.653 M

IG / VAPOUR EMISSION / VENTING	
I.G BLOWER CAPACITY (2 nos)	11300 Each
P/V VALVE PR./ VAC. SETTING	1400 / 350 MMWG
P/V BREAKER PR./VAC. SETTING	1800/700 MMWG

FIRE FIGHTING SYSTEM	
E/RM	CO2 FOR TOTAL FLOODING & WATER MIST FOR MACHINERY
PAINT LCKR	WATER SPRAY
CARGO AREA	FOAM