

Operative level

08 – Ship construction and stability

Questions

Correct answer

Ite

B/D

Module 1 – Hull design

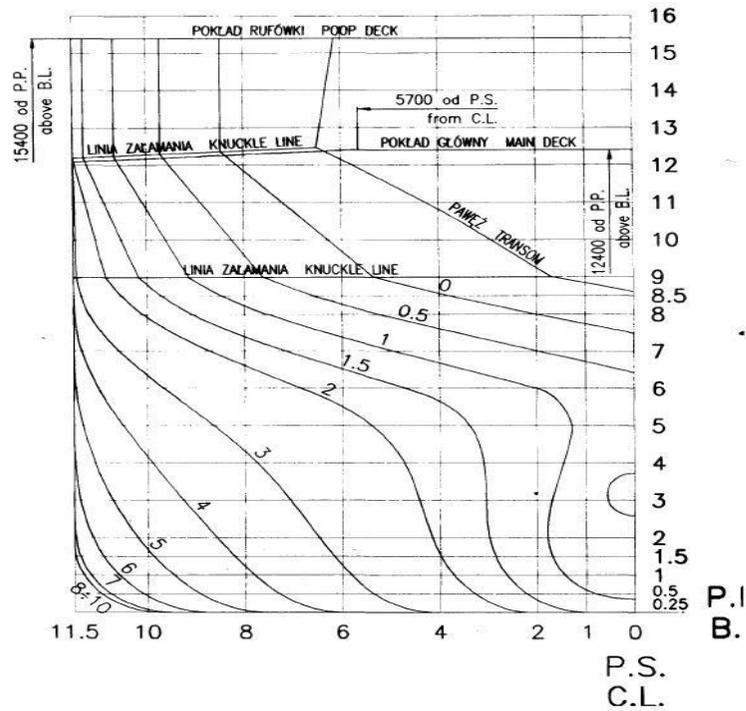
Module

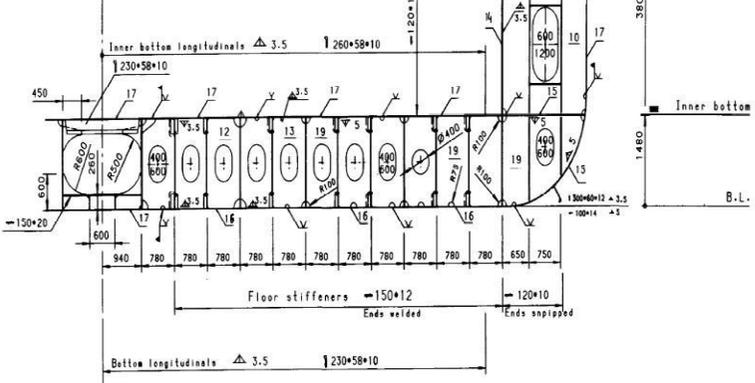
1.

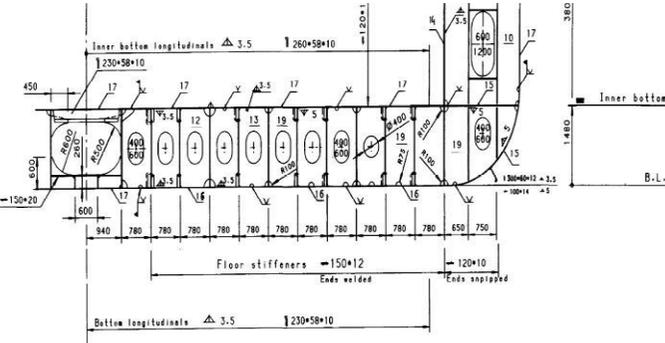
B

- The figure below presents:
- a) centreline sections
 - b) waterline sections
 - c) frame line sections

C



2.	B	<p>The figure presents a section of a double bottom. Select a sentence which is <u>false</u>:</p> <ul style="list-style-type: none"> a) the double bottom height equals 1480 mm b) the keel thickness equals 17 mm c) the frame distance equals 780 mm  <p>The diagram shows a cross-section of a double bottom. The inner bottom is 380 mm high. The floor stiffeners are 150 mm high and 12 mm thick. The bottom longitudinals are 230 mm high and 58 mm thick. The keel thickness is 17 mm. The frame distance is 780 mm. The double bottom height is 1480 mm. The keel thickness is 17 mm. The frame distance is 780 mm.</p>	C
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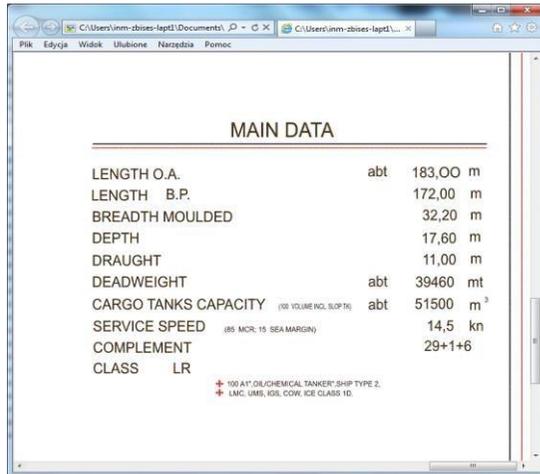
3.	B	<p>The figure presents a section of a double bottom. Select a sentence which is <u>false</u>:</p> <ul style="list-style-type: none"> a) ship has a bilge keel b) bottom longitudinals are made of bulb flats. c) the bottom structure is an open grate,  <p>The diagram shows a cross-section of a double bottom. The inner bottom is 380 mm high. The floor stiffeners are 150 mm high and 12 mm thick. The bottom longitudinals are 230 mm high and 58 mm thick. The keel thickness is 17 mm. The frame distance is 780 mm. The double bottom height is 1480 mm. The keel thickness is 17 mm. The frame distance is 780 mm.</p>	C
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6.

B

Look at the drawing. Which of the sentences is false:

- a) ship draft equals 39460 t
- b) the drawing shows main dimensions of a ship
- c) moulded depth equals 17.6 m



MAIN DATA	
LENGTH O.A.	abt 183,00 m
LENGTH B.P.	172,00 m
BREADTH MOULDED	32,20 m
DEPTH	17,60 m
DRAUGHT	11,00 m
DEADWEIGHT	abt 39460 mt
CARGO TANKS CAPACITY (100 VOL% INCL SLOP'G)	abt 51500 m ³
SERVICE SPEED (85 MCR, 15 SEA MARGIN)	14,5 kn
COMPLEMENT	29+1+6
CLASS	LR

100 A1* OIL/CHEMICAL TANKER/SHIP TYPE 2
LNC, UMS, IGS, COWI, ICE CLASS 1B

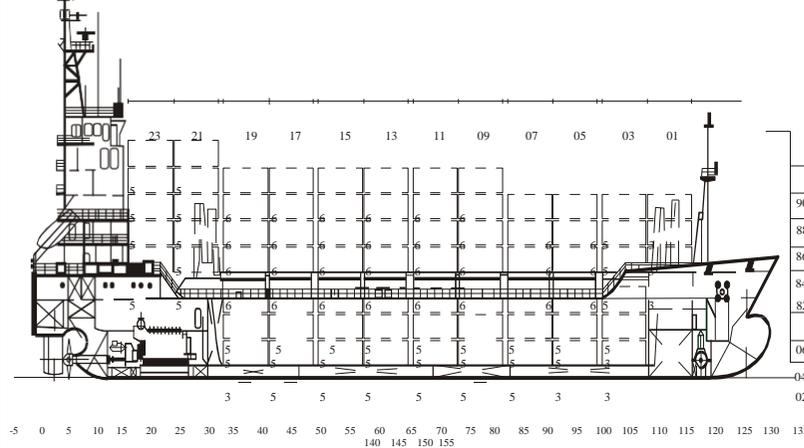
A

7.

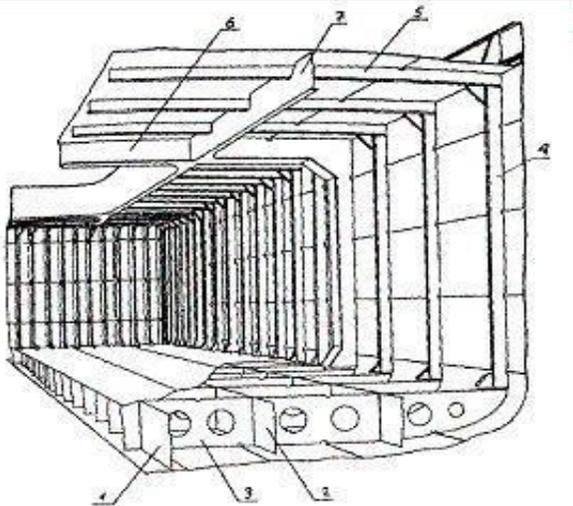
B

The drawing presents a functional division of a container ship. FEU may be loaded on the deck in:

- a) 6 rows
- b) 12 rows
- c) 23 rows



A

8.	B	<p>The figure below presents the hull in:</p> <ol style="list-style-type: none"> in transverse framing, in longitudinal framing, in mixed framing, 	A
9.	B	<p>The maximum allowed ship draft is determined by:</p> <ol style="list-style-type: none"> draft marks at forward or aft load lines moulded draft 	B
10.	B	<p>Shearing forces and bending moments are calculated using a loading calculator, provided that:</p> <ol style="list-style-type: none"> only the forces of gravity, buoyancy and inertia are taken into account the ship sails on a regular wave with a length equal to the length of the ship the ship sails with no additional movements on a calm surface of water 	C
11.	B	<p>Shearing forces and bending moments are controlled:</p> <ol style="list-style-type: none"> on transverse sections on construction frames only in the midship section. 	B

Item	B/D	Module 2 – Ship knowledge	
1.	B	The range and size of anchoring equipment is determined based on: a) block coefficient b) equipment ratio c) anchor cable link dimensions	B
2.	B	A swivel is a chain link in: a) an anchor shackle b) an intermediate shackle c) an anchor cable locker	A
3.	B	Lifting capacity of twin derricks equals: a) from 0.4 to 0.5 of a single crane load-bearing capacity b) from 1.4 to 1.5 of a single crane load-bearing capacity c) from 2.4 to 2.5 of a single crane load-bearing capacity	A
4.	B	Hold covers that close the cargo holds shall be compliant with the following requirements of: a) water tightness b) water stream tightness c) gas tightness	B
5.	B	In parallel operation of derrick jibs: a) both booms are immobile b) one of the booms is immobile c) booms have the same out-reach	C
6.	B	A crane handling device for holding and moving a load without a system of blocks fastened outside the perimeter of its own structure is a: a) light lift derrick b) heavy lift derrick c) boom crane	C
7.	B	Wight cargo runner is a line for: a) lifting the load, b) leading the boom c) boom swing angle	A
8.	B	A pipe through which the cable goes from the anchor winch to the anchor cable locker is called: a) anchor hawsepipe b) chain hawsepipe c) universal hawsepipe	B

9.	B	The permitted load of the lifted cargo with the mass of the auxiliary gear used to lash the cargo is: a) a deadweight b) a capacity c) a lifting capacity	C
10.	B	Stern door shall be compliant with the requirements of: a) water tightness b) water stream tightness c) gas tightness	A
Item	B/D	Module 3 – Ship stability and floodability	
1.	B	When the density of sea water changes, there may also be a change of: a) vertical location of the vessel centre of gravity b) ship trim c) ship displacement	B
2.	B	The main part of the correction for free liquid surfaces depends on the horizontal dimensions of the tank surface area and on: a) the weight of liquid in a tank b) ship buoyancy c) location of the tank on the ship	B
3.	B	It is assumed that the centre of gravity of a shipping container lifted with a heavy derrick boom (hoisting) is located: a) in the place where the ship centre of gravity is located b) at the height of the centre of gravity of a suspended shipping container c) at the height of the derrick head used for lifting.	C
4.	B	Stability test is used to determine: a) the weight and location of the vessel centre of gravity b) how the ship responds to heeling moment c) location of the metacentre	A
5.	B	When determining a weather criterion acc. to IMO we take into account: a) static blow of the wind and gales of this wind at simultaneous wave motion impact b) dynamic blow of the wind at simultaneous wave motion impact c) static blow of the wind at simultaneous wave motion impact	A
6.	B	If a transverse wind pressure causes static list of the ship, then: a) the centre of buoyancy and the centre of gravity lie on the same, vertical line b) the wind moment equals the heeling moment due to wind pressure c) the wind pressure force equals the force of buoyancy	B

7.	D	The ship has a buoyancy of 10000 t, the corrected metacentric height is 0.50 m. The weight of 50 t is shifted by the distance of 10 m to starboard side. The angle of heel is approx.: a) 4.3° b) 2.6° c) 5.7°	C
8.	D	How many tons of ballast water should be transferred from the stern tank to the forward tank for a distance of 50 m to correct the trim? Stern draft 4.5 m, forward draft 3.9 m, moment to alter trim 15000 Tm/m. a) 180.0 t b) 69.2 t c) 15.6 t	A
9.	D	A ship displaces 7800 T. Its centre of buoyancy is located at VCG = 6.1 m above PP. The following weights were loaded: $p_1 = 450$ T, $VCG_1 = 5.30$ m; $p_2 = 220$ T, $VCG_2 = 3.54$ m. The new height of the centre of gravity equals: a) 4.26 m b) 4.52 m	C
10.	B	A heel of 12 degrees in a stability criterion in terms of loading grain refers to: a) the maximum allowed ship heel after assumed movement of grain b) maximum ship heeling during a voyage c) maximum allowed ship heeling during loading	A
11.	B	Loss of stability is: a) capsizing of a ship b) presence of a negative initial metacentric height c) decrease of righting arms on the top of the wave	C
12.	B	Water tight door during a sea voyage: a) must be closed at all times b) may be open for the entire duration of a voyage, provided the water tight compartment is not flooded c) may be open, but only in special circumstances	C
13.	B	Flooding factor is: a) which part of a water tight compartment may be flooded with sea water b) which part of the ship's capacity may be flooded while the ship stays afloat c) the percentage of ship buoyancy change after a water tight compartment is flooded	A
14.	B	The angle of flooding is a static heeling angle; when it is exceeded: a) the main deck is under the surface of water b) a hole considered open is under the surface of water c) sea water reaches the inside of the hull	B

15.	B	Which figure is not a stability criterion: a) heeling angle caused by circulation b) capsizing angle c) a heeling angle where the value of righting moment levers is the greatest	B
16.	B	To confirm whether a ship fulfils the stability requirements for departure, we use: a) a righting arms curve b) a list of the allowed height of the centre of gravity c) hydrostatic curves	B
17.	B	Blows delivered by the sea to a vessel in motion. is called: a) <i>broaching</i> b) <i>surf-riding</i> c) <i>slamming</i>	C
18.	B	The period of ship's free oscillation depends on: a) ship's moment of inertia b) wave period c) relative bearing of the ship in relation to the wave	A