

23.06.15

FN

AMET University

INSTANT EXAMINATIONS – JUNE 2015

COURSE: BSc(NS)

SEMESTER: VI

SUBJECT: SHIP STABILITY – III

SESSION: 2014-15

SUBJECT CODE: NS605

TIME: 3.00hours

FULL MARKS: 100

Part A

Answer **ALL** questions (about two to three sentences per question)

(5 x 2 = 10)

1. What is the formula for calculating angle of loll?
2. Define Shear Force.
3. What is the meaning of the term "Volumetric heeling moment"?
4. Define Permeability.
5. What is Bilging?

Part B

Answer **ANY FIVE** questions (about half a page to one page per question) (5 x 4 = 20)

6. A ship of 12500 tons displacement is floating upright. $KB = 4.0M$, $KM = 8.2M$. Assuming that the ship is wall-sided, find the list, if a mass of 4 tonnes, already onboard is shifted through a distance of 10m.
7. What is the effect of beam on stability of a ship?
8. Write any four information to be provided as per grain code, prior to loading grain in bulk.
9. Explain how will you calculate increase of draft due to bilging?
10. What is Bending moment?
11. Write any two damage stability requirements for RO-RO ships.
12. What is the purpose of Document of Authorization?
13. Write short notes about Indicator.

Part C

Answer **ALL** questions.

(5 x 14 = 70)

14. a) Calculate the angle of list, given the following: $GM=0$, Weight (w) = 25tons, Distance by which the weight is transversely shifted(d) = 10m , $KM = 6.0m$, Draft = 4.0m, Displacement (W) = 13000tons.

(OR)

b) Derive wall sided formula.

15. a) Explain the effect of freeboard on ship stability.

(OR)

b) What are the information obtained from the curve of statical stability (GZ Curve).

16. a) A box shaped vessel 150m long, 24m wide, 12m deep is floating at an even keel draft of 5m. A compartment amidships is 20m long, 24m wide and is empty. Find the increase in draft if this compartment is bilged.

(OR)

b) A box shaped vessel 100m long, 12m wide floats at an even keel draft of 6m in SW. The compartment at the forward end, 10m long and 12m broad, is empty. Find the new draft, if this compartment gets bilged.

17 a) Explain the hazards involved while carrying grain in bulk.

(OR)

b) From the given data, calculate the approximate list caused to a vessel while carrying grain in bulk. Total Volumetric heeling moment = 5514m^4 , S.F. of grain loaded = 1.5, Load Displacement = 19943mt, KM for load displacement = 8.704m, FSM = 1284tm and KG (solid) = 7.679m.

18 a) State the IMO intact stability criteria for tankers.

(OR)

b) A box shaped barge 40m x 5m has light draft in SW = 0.8m even keel. It has four identical holds, each 10m long. Cargo is loaded level as follows: No.1 Hold 198 tons, No.2 Hold 100tons, No.3 Hold 100tons, No.4 Hold 198 tons. Draw the SF and BM curves to scale.