

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2022
Programme Name: B Sc (NS)
Semester: V
Subject Code: UG 21 T4502
Subject Name: NAVAL ARCHITECTURE PAPER - 1

Date: 13.12.2022

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.
- (iii) Scientific Calculator is permitted.

Section A /01 Mark each – Choose the correct answer.

1. Simpson rule was invented by
(a) Thomas Simpson (b) Simpson Barret (c) Victor Simpson (d) Henry Simpson
2. Moment of inertia of rectangular water plane is identified by .
a) $LB^3/12$ (b) $L^3B^3/12$ (c) $LB^3/3$ (d) $3h/8$.
3. Which force is accentuated when the vessel is making way through water ?
(a) Pounding (b) Local forces (c) Panting (d) Docking
4. Racking is dynamic force ?
(a) Yes (b) No (c) Sometimes (d) as we assume
5. Unit of second moment of area
(a) M^4 (b) M^3 (c) TM (d) TM^4
6. Simplified formula for Inertia at the base of triangle is
(a) $BD^3/12$ (b) $BD^3/4$ (c) $BD^3/36$ (d) $BD^3/3$

7.KP , the height of centre of pressure from Keel is calculated as

.(a) I^*ws/ Ad (b) $LB^3/12$ (c) Sounding (d) Sounding – z

8.Percentage of permeability is equal to

(a) $p\% = (BS/SF) *100$ (b) $p\% = (SF/BS) *100$ (c) $BS *SF / 100$
(d) $BS*SF*0.6 / 100$

9.State TRUE or FALSE : During bilging of an end compartment COB of the ship moves longitudinally away from the bilged compartment

.(a)True (b) False

10. State TRUE or FALSE : When a ship enters the dry dock , vessel is free to any amount of FSE ?

.(a) True (b) False

Section B / SHORT ANSWER TYPE QUESTIONS

Write short Notes on

11.Centre of pressure (2 marks)

12.Pounding (2 marks)

13.Bending moment (2 marks)

14.Loadicator (2 marks)

15.Critical period(2 marks)

Section C // Answer All the questions. (10 Marks Each)

16.The water plane area of the ship at drafts as follows ,

Draft	5	4	3	2	1	m
Area	2150	2100	2030	1925	1730	M ²

Between the keel and 1 Mtr draft , there is an appendage of 800 cbm whose geometric centre is 0.7 mtr above the keel . Find the displacement and KB of the ship at 5 m draft in salt water . (10 Marks)

17. Answer the following

.(a) Explain Simpson rule 2 and its applications on shipping (5 Marks)

(b) Explain theorem of parallel axis with suitable diagram (5 Marks)

