

Duratio n:	3 hrs.	SECOND MATE (F.G.)	Maximum Marks:	200
			Pass Marks:	140

Note:

1. Use chart - -----and Admiralty tide tables for 1992
2. Ship's speed -----, HE ----m, Var ----, Deviation card ---

TERRESTRIAL AND COASTAL NAVIGATION

PART A

QUESTION NO.1 IS COMPULSORY. ATTEMPT ANY TWO QUESTIONS FROM THE
REMAINING THREE QUESTIONS: (30 MARKS EACH)

1. PASSAGE PLANNING
2. PLOTTING
3. PLOTTING
4. PLOTTING

(Running fix with combination of terrestrial and celestial observations, fixing position using three bearings, three point bearings, horizontal sextant angle, raising and dipping of lights, first sighting and last sighting of lights, allowing and counteracting current, tidal streams, wind and leeway).

4.

PART B

ALL QUESTIONS ARE COMPULSORY:

5. DAYS WORK (30 MARKS)
6. GREAT CIRCLE/ PLANE/MERCATOR SAILING. (30 MARKS)
7. TIDE CALCULATIONS (30 MARKS)
8. CHART CORRECTION /CHART SYMBOLS/OTHERS (20 MARKS)

Please note that the above format is only an indicative of the examination paper. The candidates are advised to refer to detailed teaching syllabus and the course outline.

Duration: 3 hrs.

SECOND MATE (F.G.)

Maximum Marks: 200

**BRIDGE EQUIPMENT AND
WATCH KEEPING**

Pass Marks: 100

Note:

1. ATTEMPT ANY 8 OUT OF 9 QUESTIONS.
2. ALL QUESTIONS CARRY EQUAL MARKS

Q1. GYRO COMPASS, MAGNETIC COMPASS, AUTO PILOT, COURSE RECORDER, ROTI

Q2. DOPPLER LOG, ELECTRO MAGNETIC LOG, ECHO SOUNDER, OTHERS

Q3. ELECTRONIC POSITION FIXING SYSTEM

Q4. AIS, LRIT, VOYAGE DATA RECORDER, SEXTANT

Q5. BRIDGE PROCEDURES

Q6. IAMSAR, VTS PROCEDURES, SHIP REPORTING SYSTEMS

Q7. WATCHKEEPING, BRM

Q8. SAFETY, WATCH KEEPING, EMERGENCIES

Q9. MANOEUVRING

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	SECOND MATE (F.G.)	Maximum Marks:	200
Duratio n:	3 hours		Pass Marks: 120
<u>Note:</u>	1. Question 1 and 2 are compulsory. 2. Answer any SIX out of remaining EIGHT questions. 3. All questions carry equal marks		

CARGO HANDLING AND STOWAGE

1. CARGO CALCULATIONS (STOWAGE FACTOR/ BROKEN STOWAGE/ LOAD DENSITY OR TANKER)
2. TACKLE CALCULATIONS/ CALCULATE DISPLACEMENT OF THE SHIP GIVEN SIX SIDED DRAFTS AND DENSITY OF WATER USING HYDROSTATIC TABLES (USING QUARTER MEAN DRAFT).
3. CRUDE / PETROLEUM PRODUCT (INCLUDING INERTING/ COW PROCEDURES- HAZARDS AND PRECAUTIONS)
4. LIQUID CHEMICALS CARGO INCLUDING HAZARDS, PROPERTIES AND PRECAUTIONS WITH RESPECT TO IBC CODE, LIQUEFIED GAS CARGOES INCLUDING HAZARDS, PROPERTIES AND PRECAUTIONS WITH RESPECT TO IGC CODE
5. IMDG CODE INCLUDING IMDG CONTAINERS, MFAG, EmS
6. BULK CARGOES: GRAIN/ HIGH DENSITY/COAL CARGOES
7. CODE FOR SAFE PRACTICES (TIMBER / IMSBC / BLU / SECURING)
8. CONTAINER/ Ro-Ro CARGOES, PCC, PTC,
9. REFRIGERATED / GENERAL CARGO / DECK CARGO / HEAVY LIFT
10. DAMAGE TO CARGO SPACES – INSPECTION & REPORTING / CARGO GEAR INSPECTION

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Duration: n:	SECOND MATE (FG)	MAX Marks: 200
		PASS Marks: 140

Note:

1. Use nautical almanac 1992
2. Use of non-programmable scientific calculator is permitted, however, each step should be clearly shown

CELESTIAL NAVIGATION

SECTION I – PRINCIPLES OF NAVIGATION

ATTEMPT ANY TWO QUESTIONS OUT OF THREE (30 MARKS EACH)

- 1.
- 2.
- 3.

Note: 1 At least one question will have a numerical component.

SECTION II- PRACTICAL NAVIGATION

QUESTION NO. 4 IS COMPULSORY. ATTEMPT ANY THREE QUESTIONS OUT OF REMAINING FOUR (35 MARKS EACH)

4. STAGGERED / SIMULTANEOUS PLOTS
5. LONG BY CHRON SUN/MOON
6. INTERCEPT METHOD
7. COMPASS ERROR BY ABC TABLES &/OR ERROR BY AMPLITUDE &/OR TIMES OF RISING/ SETTING/ MERIDIAN PASSAGE / MERIDIAN ALTITUDE OF SUN
8. POLARIS / COMPUTATION OF ALTITUDE / EX-MERIDIAN

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Duratio n:	2 hrs.	SECOND MATE (F.G.)	Maximum Marks:	100
<u>Note:</u>		METEOROLOGY	Pass Marks:	50
		1. USE WEATHER CODE _____ 2. QUESTION 1 IS COMPULSORY. ATTEMPT ANY 4 OUT OF REMAINING 5 QUESTIONS. 3. ALL QUESTIONS CARRY EQUAL MARKS		

Q1. CODING or DECODING (COMPULSORY QUESTION)

**Q2. A. CALCULATION OF TRUE AND APPARENT WIND
B. THEORY ON WIND**

Q3. SHIP BORNE METEOROLOGICAL INSTRUMENTS

Q4. ATMOSPHERE/ ATMOSPHERIC PRESSURE/

Q5. CLOUDS/ VISIBILITY/ CLIMATOLOGY

Q6. WEATHER SYSTEMS/ SEA AND SWELL/ WEATHER FORECASTING

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Date:	SECOND MATES	Pass Marks:	120
Duratio n:	180 minutes	Total Marks:	200
<u>Note:</u>	1. Questions IN PART- A are compulsory and carry 25 marks each. 2. Attempt 5 out of 6 questions from Part -B and carry 25 marks each.		

SHIP CONSTRUCTION, STABILITY, SHIP SAFETY AND ENVIRONMENT PROTECTION

PART A

1. M.V. HINDSHIP QUESTION (GZ, LIST) or CALCULATION OF CHANGE IN TRIM DUE TO LOADING, DISCHARGING OR SHIFTING OF A SINGLE WEIGHT/ CALCULATION OF FINAL TRIM, FORWARD AND AFT DRAFTS (USING TRIM TABLES ONLY)
2. CONSTANT DATA QUESTION ON STABILITY.
3. SHIP CONSTRUCTION (SKETCH & LABEL)

PART B

4. MARPOL /BALLAST WATER MANAGEMENT
5. SHIP SAFETY/ENVIRONMENT PROTECTION
6. SAFE WORKING PRACTICES/ CHECKLISTS.
7. SHIP CONSTRUCTION THEORY
8. MARITIME LEGISLATION (SOLAS/ ISPS / ISM)
9. LEADERSHIP AND TEAM WORKING SKILLS

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