

(Paper Format)

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING AND NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

- 1. Attempt any FIVE questions.**
 - 2. All questions carry equal marks. i.e. 20 marks each.**
 - 3. Draw suitable sketches/ diagrams wherever considered necessary**
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Q1. WATCH KEEPING ARRANGEMENTS AND PROCEDURES- NAVIGATIONAL WATCH, MASTER-PILOT INFORMATION EXCHANGE, VTS/ VTMS

Q2. and Q3. RESPOND TO EMERGENCIES/ CONTINGENCY PLANNING/ TOWING

Q4. SEARCH AND RESCUE/ IAMSAR/ PRECAUTIONS IN MANOEUVRING THE SHIP TO BE ABLE TO LAUNCH RESCUE BOATS IN BAD WEATHER

Q5 and Q6. SHIP HANDLING AND MANOEUVRING- MANOEUVRES, RIVERS, ESTUARIES AND RESTRICTED WATER, BERTHING AND UNBERTHING, ANCHORING, LIGHTERAGE AT SEA, HEAVY WEATHER, MANOEUVRING DIAGRAM, ICE NAVIGATION, BOW WAVE AND STERN WAVE, MANOEUVRING IN AND NEAR VESSEL TRAFFIC SERVICE(VTS) AREAS

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.

GOVERNMENT OF INDIA

PM PAPER

Date: - 7th Feb-2025

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any FIVE questions.
2. All question carries equal marks. i.e. 20 marks each.
3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 Explain briefly the following:

- a. Pivot point when moving ahead with constant speed.
- b. Hydrodynamic Interaction between ships on opposite course in a narrow channel.

Q.2 a. How would you confirm that your vessel is brought up during anchoring?

- b. What are actions to be taken in case of dragging anchor and delay in readiness of the engines?

Q.3 Explain various emergencies that can take place while the vessel is in dry dock. Also, prepare a repair specification for renewing a side shell plate.

Q.4 a. In a distress situation, you are probably going to be the first vessel to arrive and SMC has not yet come into the picture. State how you would plan conducting the search using IAMSAR.

- b. You are in TSS with fog, when a man falls overboard from your vessel. State the actions you would take and the preferred manoeuvre.

Q.5 a. Describe the advantages and disadvantages of controllable pitch propeller with regard to ship handling.

- b. Explain the "Twin screw effect".

Q.6 What is: a) Pooping b) Broaching?

Explain the effects with a suitable sketch.

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GOVERNMENT OF INDIA

AM PAPER

Date: - 7th Feb-2025

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

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PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any FIVE questions.
2. All question carries equal marks. i.e. 20 marks each.
3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 a) What do you understand by VIMS? Describe various types of VTS, its advantages and limitations.

b) What is SOLE-LOOK-OUT? And list down factors to determine this.

Q.2 a) Discuss the meaning of safe speed as per COLREGS as to vessels' capabilities, limitation of equipment's, weather conditions and watch-keeping requirements.

b) Describe the method of assessment of damage to hull and machinery and the survival capability of the vessel after any accident/incident.

Q.3 Describe the procedures of operation for towing a vessel with respect to the following:

- a) Connecting up the tow b) Passage with tow c) Cast-off the tow

Q.4 a) List out the various information available in IAMSAR Volume III.

b) Explain the Expanded Square Search Pattern.

Q.5 a) What factors will you consider before selecting a place of STS operations?

b) Prepare a check for the flooding in Dry Dock.

c) Describe the methods of approaching and manoeuvres undertaken by Service Ship during STS operations with a large laden tanker at anchor.

Explain with a suitable sketch.

Q.6 What are the effects of heavy seas on ship handling? What actions will you take to minimize such effects?

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1. Attempt any FIVE questions.
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3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 a) Rule 2 of COLREG 1972 requires Master, officers, and crew to comply with all rules and ordinary practice of seaman. Discuss this statement with at least 2 examples.

b) State the circumstances under which you would proceed at safe speed as per Rule 6 of COLREG 1972.

Q.2 a) What is pivot point of a ship? Show the positions of the Pivot Point while the ship is in motion ahead? What is the significance of pivot point with respect to maneuvering of a ship?

b) What is Squat effect? What is the principle leading to squat in ships? Explain the relationship of squat with speed of vessel, block coefficient, and Blockage factor.

Q.3 Man overboard reported. What are the options available with regard to the various maneuvers possible? Explain with sketches the appropriate turns as per circumstances.

Q.4 a) You decide to proceed to assist in SAR operations. What onboard preparations will you carry out prior arrival at the SAR area?

b) Describe the duties of SAR Mission Coordinator (SMC).

Q.5 a) Your ship has run aground, enumerate actions required to be taken by vessel following the incident.

b) What preparations will you make as Master, prior to entering a High-Risk Area (piracy)?

Q.6 a) Name the regulatory requirements for navigation systems as per the Polar code. What are the exemptions allowed for existing ships as per the Code?

b) Indicate some of the general list of procedures required in the Polar Water Operational Manual (PWOM).

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MAX. MARKS: 100

Notes:

1. Attempt any FIVE questions.
2. All question carries equal marks. i.e. 20 marks each.
3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 What is VTS? What is its main and auxiliary purpose? Describe the parts, resources, functions, and limitations of the VTS.

Q.2 a. Discuss the IMO guidelines for preparing contingency plans for onboard emergencies.
b. Briefly describe the contents of the Emergency Towing Booklet (ETB).

Q.3 What actions will you take if your vessel has collided with another vessel, keeping the safety of the crew and the vessel in mind?

Q.4 a. List the duties and responsibilities of the On Scene Coordinator during a search and rescue operation.
b. Explain your immediate action on learning about a person overboard. Describe the subsequent procedure for recovery of the person from the sea.

Q.5 a. What is Transverse Thrust? What is its role, and how does it affect ship handling?
b. What is: i. Pooping ii. Broaching

Q.6 a. Prepare a checklist prior to flooding of the dry dock.
b. Describe the different types of tugs with their advantages and disadvantages.

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GOVERNMENT OF INDIA

Date: - 2nd Aug-2024

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

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TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any FIVE questions.
2. All question carries equal marks. i.e. 20 marks each.
3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 a) What is a VTS? Describe its parts, resources & limitations.

b) As per STCW 2010, as an officer in charge of a navigational watch, list your duties while performing a navigational watch on the bridge.

Q.2 a) Discuss the IMO guidelines for preparing contingency plans for on board emergencies.

b) Describe the contents of the Emergency Towing Booklet (ETB).

Q.3 Your ship is in port & there is a major fire in No.2 hold. Discuss how would you deal with this emergency? Discuss: -

- a) Your initial action to control the fire,
- b) Fire wallet & its contents, and
- c) Additional Information to be shared with the fire brigade.

Q.4 a) With reference to IAMSAR, explain: (i) SAR (ii) Track spacing
(iii) Duties of SMC.

b) Briefly discuss the contents of the IAMSAR Volume III.

Q.5 With the help of suitable sketches, explain the ship-tug interaction that can occur at the bow and stern. List the actions to take to avoid such situations.

Q.6 a) Explain with the help of a diagram, the procedure for conducting a running moor. When is this method of mooring used?

b) Describe the procedure and precautions for conducting a safe STS operation using the angled approach method.

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GOVERNMENT OF INDIA

PAPER 1

Date: - 13th-May-2024

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any FIVE questions.
2. All question carries equal marks. i.e. 20 marks each.
3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 a) What are the objectives and the primary functions of a VTS?

b) State the circumstances when an OOW will need to call the Master on the bridge?

Q.2 a) Why are pilots engaged?

b) Who is a pilot and what exchange of information needs to be carried out between the Master and Pilot?

Q.3 What are the Master's responsibilities and duties in pilotage waters with pilot onboard?

Q.4 a) What are the purposes of IAMSAR? What are the three general levels of coordination on the SAR system?

b) Describe the duties of On Scene Coordinator.

Q.5 What is the difference between beaching and stranding? What are the different modes of beaching? Describe the procedures and precautions to be observed during and after beaching.

Q.6 a) Briefly describe the Polar ship categories and the Ice class notations for ships as per the Polar code.

b) What is Polar Service Temperature (PST)? Explain with examples, how PST is referenced and used throughout the Code?

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GOVERNMENT OF INDIA

PAPER2

Date: - 13th-May-2024

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any FIVE questions.
2. All question carries equal marks. i.e. 20 marks each.
3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 a) Explain the STCW requirements for Watchkeeping.

b) Explain the hazards of heavy weather and precautions required.

Q.2 Describe the procedures:

a) For using fixed fire extinguishing systems on ships.

b) Man entry and rescue of person's from the enclosed space.

Q.3 Prepare a detailed contingency plan for respond to emergencies related to spillage of noxious liquid substances.

Q.4 a) How will you execute the expanding search pattern for recovery of person?

b) Explain procedure for recovering a person from the sea in heavy weather.

Q.5 a) Explain with sketches: Head reach and Rudder cycling.

b) Explain squat of a ship. How the squat is determined and factors which will affect the value of squat.

Q.6 Describe interaction between two ships in an over taking situation in narrow waters.

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1. Attempt any FIVE questions.
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3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 How VTS have great contribution to reduction in ships collision while transiting through TSS. Discuss the statement and justify, Explain VTS communication system.

Q.2 Sketch and emergency Towing arrangement in tankers and enumerate the requirements of the ETA under various regulations.

Q.3 Heavy weather conditions are prevailing and you suspect that your vessel is dragging anchor. As per the order of priority enumerate what actions will you take in these situations?

Q.4 a) How does IAMSAR Volume 3 guide you in determining the area to be searched and track spacing to utilized between adjacent parallel tracks.

b) Describe briefly the three levels of co-ordination involved in a Search and Rescue system.

Q.5 a) How will you go about anchoring a VLCC in congested anchorage area where the depth of water is above 80 meters?

b) What do you understand by squat? Write down the formula for calculating squat in open waters and confined channel with respect to width of influence.

Q.6 a) How will you go about negotiating a sharp bend in a narrow channel (i) with following current (ii) against current.

b) Describe the effects of right and left handed propellers on maneuvering.

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Notes:

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Q.1 a) Explain the salient features to master-pilot exchange.

b) Describe navigation arrangements and procedures in heavy weather.

Q.2 a) Describe the requirements and components of Emergency Towing Arrangement.

b) Describe Girding of Tugs and the precautionary measures required.

Q.3 a) Discuss the difference between grounding, stranding and beaching. List the refloating techniques which can be used.

b) Describe the various methods of carrying out damage control assessment and contingency plan implementation after grounding.

Q.4 Explain the purpose of the IAMSAR Manuals. Describe in detail a man-overboard search procedure in open sea where a person is missing onboard with initial actions and search pattern to consider when you are the OSC.

Q.5 a) Explain the factors affecting rolling of ships and the precautions required to reduce dangerous rolling in bad weather?

b) Describe the procedure for Runing Moor with sketches.

Q.6 Describe interactions and the factors affecting interaction. Describe effect when passing moored ships. List precautions necessary when passing moored ships.

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Notes:

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3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 a) What are the factors to be taken into account to ensure the adequacy and efficiency of navigation watches?

b) Describe navigation watch keeping arrangements and procedures in restricted visibility and restricted waters.

Q.2 What are the circumstances in which beaching of a vessel may be considered? Describe the procedures and precautions to be observed during and after the beaching.

Q.3 a) Discuss how ISM code helps to tackle an emergency situation.

b) Describe the various methods of carrying out damage control after collision.

Q.4 Explain the purpose of the IAMSAR Manuals. Describe in detail a man-overboard recovery procedure in open sea where a person is seen falling into the water with initial actions, manoeuvre and recovery procedure.

Q.5 a) Explain with sketches: Bank effect and Smelling the ground.

b) Describe the procedure of standing moor with sketches.

Q.6 a) Describe the hazards of navigation in Polar Waters.

b) Describe with sketches – slow speed control using kick ahead technique.

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Notes:

1. Attempt any five questions.
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Q.1 Write short notes on:

- i) Composition of the Bridge watch as per STCW 2010.
- ii) Ship Routeing system under SOLAS 74.
- iii) Functions of harbor and Ocean tugs
- iv) Master – Pilot information exchange

Q.2 You are navigating in an area of fog in a Traffic Separation Scheme (TSS) off Dover. A Man falls overboard. State the manoeuvre that you would carry out and what are the reasons. For your preference? Also list out the other actions you would take as per the procedures laid down in the ships safety management system.

Q.3 Your vessel a Bulk Carrier in Laden condition is in a situation of an imminent collision with other cargo ship on your port bow distance approximately 0.15 NM at sea. Sea and weather conditions are normal. Describe your actions with reference to the requirements of SOLAS Chapter V. Regulation 34 (Safe Navigation/ Voyage plan), STCW and COLREGs.

Q.4 With reference to IAMSAR.

- a) What are the duties of SAR Mission Co-ordinator?
- b) Describe the following search patterns:
 - i) Track line search
 - ii) Parallel Sweep Search
- c) What are the recommended turns to be executed when man has fallen overboard? Discuss the advantages and disadvantages of these turns.

Q.5 a) What is a Squat? How will you determine squat accurately in a deep draft vessel of length 200 m shallow water.

b) Explain how an anchor or anchors may be used to assist in berthing/ un-berthing.

Q.6 a) Describe the procedures for executing a Running moor and Standing moor.

b) Differentiate between Synchronous rolling and parametric rolling.

GOVERNMENT OF INDIA

Date: - 15th-May-2023

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carries equal marks.

Q.1 What is a VTS? What are its main & auxiliary purposes? Describe its parts, resources & functions in detail. What are the drawbacks & limitations of the VTS?

Q.2 a) What actions will you take before and after an imminent collision? How can you limit the collision damage?

b) What is the purpose of a collision mat & how does it achieve his purpose?

Q.3 Discuss the role and duties of the Safety Committee on board. List the agenda of a Safety Committee meeting.

Q.4 a) What is the purpose of IAMSAR? Explain the three levels of Co-ordination.

b) List the elements used in traffic routeing systems.

Q.5 With the help of a suitable diagrams, explain the ship-tug interaction that can occur at the bow and stern.

Q.6 List the precautions to take before entering & during navigation in ice? What are the master's obligations with regards to ice? From what sources can you obtain information on ice?

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MAX. MARKS: 100

Notes:

1. Attempt any five questions.
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Q.1 What is the difference between Bridge Team Management and Bridge Resource Management and how will you make use of above in determining composition of various watch-keeping levels on the bridge.

Q.2 How will you deal with emergency (abandon ship situation) on board a passenger vessel?

Q.3 Describe the latest SOLAS 1974 CHAPTER II requirements for emergency towing arrangements for cargo ship other than tanker.

Q.4 a) What actions will you take before & after imminent collision?

b) With reference to IAMSAR, describe the following search patterns.

i) Parallel sweep pattern

ii) Expanding square search pattern

iii) Sector Search pattern.

Q.5 a) Define shallow water influence and explain its effect in respect to:

i) Ship's turning circle

ii) Course keeping ability.

b) Explain Interaction effects on both the vessels of similar size in an overtaking situation.

Q.6 a) Describe the precautions to be taken during STS operation and procedures for going alongside.

b) Describe the type of tugs and state their advantages and disadvantages.

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Q.1 a) Enumerate the principles needs to be observed in keeping navigational watch with pilot on board and in coastal/ congested waters as per relevant provisions of STCW code 2010 as amended:

b) Explain the meaning of following in respect of COLREG 1972.

- i) Not to impede passage or safe passage of another vessel – Rule 8
- ii) All dangers of navigation and collision – Rule 2.
- iii) Limitation of vessel – Rule 2.
- iv) Vessel constrained by her draft – Rule 3

Q.2 Prepare a contingency plan for responding to Fire incident in Cargo spaces of chemical tanker (IMO type 1 & 2) and spillage of Noxious Liquid Substances (NLS). Describe the duties of all the shipboard personnel in such an emergency.

Q.3 a) List out the contents of Emergency Towing Procedures (ETP) booklet carried on non-tanker ships. Briefly state its purpose.

b) With a neat sketch, explain the purpose and method of deployment of emergency towing arrangements (ETA) fitted on board tankers.

Q.4 a) Explain in detail your vessel's preparation when proceeding towards a SAR operation in the role of a rescue / recovery unit.

b) What are the roles and duties of Rescue Co-ordination Centre (RCC) & On-Scene coordinator (OSC)? Answer with reference to the IAMSAR.

Q.5 a) Describe the hazards associated with high latitude navigation and precautions that will take prior entering ice areas.

b) State the actions to be taken on discovering that your vessel is dragging her anchor in a congested anchorage.

Q.6 Your vessel is to be moored between two buoys with a moderate current from astern. Explain with suitable sketches the procedure you will adopt for safe mooring.

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Notes:

1. Attempt any five questions.
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3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 With suitable diagrams explain the effects of the following on ship handling.

- a) Wind for vessels with large free board
- b) Current for vessels on restricted waters.
- c) Shallow water.

Q.2 a) What factors would you bear in mind before choosing a particular anchorage when approaching from sea?

b) Heavy weather conditions are prevailing and your vessel is dragging anchor, keeping the order of priority, what are the various actions will you take?

Q.3 a) List the preparations and procedures for picking up pilot when arriving port from sea. What information will you exchange with pilot?

b) List the precautions and preparations required prior entering a pirate infested area.

Q.4 Enumerate the best practices recommended for transiting piracy high risk area as per BMP5.

Q.5 a) What are freezing sprays? How will you avoid it?

b) What precautions will you take while navigating in ice?

Q.6 a) In a Search and Rescue operation how is the coordination carried out on the scene of the distress?

b) In case you have been selected as the on-scene commander, what will be your specific duties? Answer with reference to the IAMSAR.

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Q.1 a) What do you understand VTMS. Describe various types of VTS, its advantages and limitations.

b) What is SOLE-LOOK-OUT? And list down factors to determine this.

Q.2 a) Discuss the meaning of safe speed as per COLREGS as to vessels capabilities, limitation of equipments, weather conditions and watch-keeping requirements.

b) Describe the method of assessment of damage to hull and machinery and the survival capability of vessel after any accident / incident.

Q.3 Describe the procedures of operation for towing a vessel with respect to the following:

- a) Connecting up the tow b) passage with tow c) Cast-off the tow

Q.4 What reference to IAMSAR manual:-

a) Enumerate the role and the duties of Maritime Rescue Coordination Centre [MRCC], Maritime Rescue Sun Centre [MSRC], Indian Search and Rescue Regional Authority [INSRC] and on scene commander [OSC].

b) Explain the procedure as prescribed in IAMSAR Vol III for recovering a person fallen overboard from a ship in heavy weather condition at sea.

Q.5 With suitable diagram explain the effect of the following on ships handling in Indian coastal waters.

- a) Wind for vessels with large free board
b) Current for vessels in restricted waters
c) Shallow waters.

Q.6 a) What factors will you consider before selecting a place of STS operation?

b) Preparing a check for the flooding in Dry Dock?

c) Describe the methods of approaching and maneuvers under taken by “Service Ship” during STS operations with large laden tanker at anchor. Explain with suitable sketch.

GOVERNMENT OF INDIA

Date: - 8th-July-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

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TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 Explain SOLE LOOKOUT with reference to the factors involved in the decision making process in accordance with STCW 2010.

- Q.2** a) List the response action in case of imminent stranding.
b) Explain your risk assessment of damage and control measures after stranding.

Q.3 Describe Emergency Towing Arrangement with sketches and enumerate the contents of the Emergency Towing Booklet.

- Q.4** a) Explain any one man-overboard turn as per IAMSAR in a situation where the person has not been seen falling overboard.
b) Explain any one IAMSAR search pattern at sea in a scenario where a fairly recent location of the casualty was known.

Q.5 Explain:

- a) Effects of shallow water in ship handling and on turning circle.
- b) With aid of sketch, drift angle, lateral thrust and pivot point during turning.
- c) In heavy weather in following seas, the various factors contributing to danger of vessel Capsizing and the measures to avoid.

Q.6 Explain the wheel house maneuvering diagram with sketches and definition of the terms used. Mention the limitations that apply.

----- X—X -----

GOVERNMENT OF INDIA

Date: - 13th-May-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

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TIME: 2 Hours

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Notes:

1. Attempt any five questions.
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Q.1 List the factors to be considered when,

- a) Choosing a particular safe anchorage.
- b) The amount of chain (Length of the cable) explaining the forces that would be acting on the anchor and the chairs.

Q.2 In what circumstances is a vessel beached? Discuss the procedure required before beaching. What factors will you keep in mind while beaching to ensure safe refloating?

Q.3 Your vessel has collided with another vessel. List the various actions to be taken on board keeping in mind the safety of your crew and vessel.

Q.4 a) What is the purpose of IAMSAR? Briefly describe National and Regional SAR system organization.

b) Describe the factors to be considered for selecting a suitable search pattern for locating missing person at sea.

Q.5 With a suitable diagram explain Turning circle in details with the IMO requirements for Advance and Tactical Diameter.

Q.6 a) What is squat? How will you determine squat accurately in a deep draft ship of length 200 m in shallow water? Describe shallow water effects on maneuvering of a vessel?

b) Write down the formula for calculating squat in open channel.

c) Describe the wondering pivot point of a vessel.

----- X—X -----

GOVERNMENT OF INDIA

Date: - 8th-March-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

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PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 a) List the factors to be taken into account when deciding composition of bridge watch at sea.

b) Draw a contingency plan for any one of the following:

- i) Flooding of Engine room at sea
- ii) Black out in the TSS.

Q.2 What actions will you take if your vessel has collided with another vessel keeping the safety of crew and the vessel in mind?

Q.3 a) Enumerate the duties of Master on receipt of a Distress message.

b) Enumerate the duties of Master in an incident of a crew member reported missing at sea.

Q.4 a) List out the various information available in IAMSAR Volume III.

b) Explain the Expanded Square Search Pattern.

Q.5 a) What is Transverse Thrust? What is its role and how does it affect the ship handling?

- b) What is:-
- a. Pooping
 - b. Broaching?

Q.6 Describe the salient features of:

- a) Vessel Traffic Services (VTS)
- b) Ship Reporting System (SRS)

----- X—X -----

GOVERNMENT OF INDIA

Date: - 12th-January-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 What is VTS? What is its main and auxiliary purpose? Describe the parts, resources, functions and limitations of the VTS.

Q.2 a) Discuss the IMO guidelines for preparing contingency plans for onboard emergencies.

b) Briefly describe the contents of the Emergency Towing Booklet (ETB).

Q.3 Your ship is in port & there is a major fire in No. 2 hold. Discuss how would you deal with this emergency by giving details regarding:-

- a) Your initial action to control the fire
- b) Fire wallet & its contents and
- c) Additional Information to be shared with the fire brigade.

Q.4 a) List the duties and responsibilities of the On Scene Coordinator during a search and rescue operation.

b) Explain your immediate action on learning about a person overboard. Describe the subsequent procedure for recovery of the person from the sea.

Q.5 Explain the following:

- a) The procedure, the advantages and disadvantages of beaching of vessel by the bow.
- b) Bank effect.

Q.6 a) Prepare a checklist prior to flooding of the dry dock.

b) Describe the different type of tugs with their advantages and disadvantages.

----- X—X -----

GOVERNMENT OF INDIA

Date: - 9th-November-2021

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 Describe the salient features of:

- a) Vessel Traffic Services (VTS)
- b) Ship Reporting System (SRS)

Q.2 a) What all factors would you bear in mind before choosing a particular safe anchorage?

b) Heavy weather conditions are prevailing and you suspect your vessel is dragging anchor. What are the various actions you would take for safety of the vessel?

Q.3 Describe the guidelines by IMO for preparing contingency plans for various emergencies.

Q.4 a) With reference to IAMSAR, describe the duties of on scene coordinator.

b) Describe the co-ordination to be carried out on the scene of distress in search and rescue operation.

Q.5 a) Enumerate the use of anchors, tugs and tide for berthing of a fully laden very large Crude oil tanker with strong Off-shore wind?

b) Explain with respect pivot point.

Q.6 Discuss the effect and precautions for safe maneuvering of a vessel.

- a) Squat
- b) Bank Cushioning
- c) Effect of speed on interaction of a vessel.

----- X—X -----

GOVERNMENT OF INDIA

Date: - 15th-September-2021

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 a) What all factors would you bear in mind before choosing a particular safe anchorage?

b) Heavy weather conditions are prevailing and you suspect your vessel is dragging anchor. What are the various actions you would take for safety of the vessel?

Q.2 Write short notes on any three of the following:-

- a) Girding of Tug during towing operations in Port waters.
- b) Hydrodynamic interaction between ships in overtaking situations.
- c) Navigation bridge visibility.
- d) Section – II of COLREG 1972 – Conduct of vessel in sight of one another.

Q.3 Discuss the effect and precautions for safe maneuvering of a vessel:

- a) Squat
- b) Bank Cushioning
- c) Effect of speed on interaction of a vessel

Q.4 a) Explain with the help of a neat diagram, the procedure for conducting a standing moor. When is this method of mooring used?

b) What is Transverse Thrust? Explain the effect of transverse thrust of a right handed Variable Pitch Propeller when going astern.

Q.5 a) With reference to IAMSAR, describe the duties of on-scene coordinator.

b) Describe the co-ordination to be carried out on the scene of distress in search and rescue operation.

Q.6 a) Describe advantages and disadvantage of controlling pitch propellers with regard to ship handling.

b) Describe briefly the ship handling aspects during STS operation.

----- X—X -----

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 a) Discuss "Master-Pilot" information exchange with reference to the following:-

- i) Pilot Card ii) Passage Plan iii) Docking Plan iv) Emergency Plan

b) Define Vessel Traffic Service. What are the various methods used by VTS to enhance safety of ships and protection off the environment?

Q.2 What are the circumstances under which a vessel is to be beached? Describe the procedures and precautions to be observed during and after the beaching.

Q.3 You are on board a passage v/l and collider with a bulk carrier. How will you deal with emergency on board.

Q.4 a) What are obligations and procedures in distress situation as per IAMSAR & SOLAS Chapter V regulation 33?

b) Explain the procedures and precautions to be taken while recovering a person fallen overboard in T.S.S.

Q.5 a) How will you go about approaching a congested anchorage on board a container vessel when wind is NE force 6 and tide is NW @ 2 Knots. Explain with the help of neat diagram. Explain the procedure of speed reduction and finally anchoring.

b) What do you understand by Squat? Write down the formula for calculating squat in open waters and confined channel with respect to width of influence.

Q.6 a) How will you go about turning a vessel short around in a narrow channel without using anchor. Assume your vessel is having left handed propeller.

b) List down the contents of wheel house poster (including warning given on the poster).

GOVERNMENT OF INDIA

Date: - 5th-April-2021

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 List the factors to be considered when,

- a) Choosing a particular safe anchorage.
- b) The length of cable explaining the forces that would be acting on the anchor and the chain.

Q.2 Explain various emergencies that can take place while the vessel is in dry dock. Also, prepare a repair specification for renewing a side shell plate.

Q.3 a) Enumerate the contents of ETB.

- b) Discuss the requirements regarding pickup line for aft to wing arrangements.

Q.4 Describe the processes involved in search and rescue functions as per IAMSAR volume III, conducting SAR operation by OSC.

Q.5 a) Describe the advantages and disadvantages of controllable pitch propeller with regards to ship handling.

- b) Explain the “Twin screw effect”.

Q.6 Explain the following:-

- i) When two ships are passing each other on reciprocal courses.
- ii) Discuss ship to ship interaction when a ship is overtaking other ship.

----- X—X -----

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 a) What are the information exchanged between Pilot, Master and the Bridge Team prior to commencement of the passage with Pilot on board.

b) VTS has 3 main functions of Information, Traffic Organisation & Navigation Discuss each of the functions.

Q.2 Explain the various situations under which decision to abandon ship must be taken. What are the preparations to be taken prior abandoning ship? Explain the procedure for abandoning ship and the initial actions to be taken onboard the survival craft after leaving the vessel.

Q.3 What are the procedure & processes followed while preparing a muster list and contingency plans for the various emergencies identified by the company under ISM code? What are the criteria followed while assigning personnel for the emergency teams?

Q.4 a) What is the purpose of IAMSAR? Discuss the three levels of co-ordination.

b) Explain the 'Expanding Square' pattern of search.

Q.5 With the aid of sketches, explain the ship-to-ship interaction likely to be experienced between two vessels approaching each other head on in a canal.

Q.6 a) Explain the anchoring procedures and precautions you will take anchor to a loaded VLCC in depths of 50-60m.

b) With a neat sketch, explain 'bank effect'.

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 a) What all factors would you bear in mind before choosing a particular safe anchorage?

b) Heavy weather conditions are prevailing and you suspect your vessel is dragging anchor. What are the various actions you would take for safety of the vessel?

Q.2 Describe the guidelines by IMO for preparing contingency plans for various emergencies.

Q.3 What actions will you take if your vessel has collided with another vessel keeping the Safety of Crew and the vessel in mind?

Q.4 a) With reference to IAMSAR, describe the duties of on-scene coordinator.

b) Describe the co-ordination to be carried out on the scene of distress in search and Rescue operation.

Q.5 Explain briefly the following:

- a) Tractor Tug.
- b) Pivot point when moving ahead with constant speed.
- c) Hydrodynamic interaction between ship's on opposite course in a narrow channel.

Q.6 Describe the salient features of:

- a) Vessel Traffic Services (VTS)
- b) Ship Reporting System (SRS)

GOVERNMENT OF INDIA

Date: - 4th-Feb-2020

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 a) How will you, as a relieving officer, take over a navigational watch at sea, in restricted visibility?

b) What are the contents and significance of master-pilot information exchange?

Q.2 What are the major components of the Emergency Towing Arrangements? Describe each part in detail with neat sketches where necessary.

Q.3 a) Describe the procedure for entry into an enclosed space with respect to carrying out a risk assessment, permit to work, duties of personnel and communications etc.

b) List the duties of the 'Emergency' and 'Support' team in the contingency plan.

Q.4 a) What is the purpose of IAMSAR? Explain the three levels of Co-ordination.

b) What is a Search and Rescue Region (SRR) and its purpose?

Q.5 Your vessel is not strengthened for ice navigation. What options will you consider before entering an ice area, the preparations that you will make prior to entering an ice field and precautions will you observe while navigating in ice.

Q.6 a) Explain the procedure for conducting a safe STS operation using the parallel approach and the dangers associated with this method.

b) Write notes on (i) Pooping (ii) Broaching (iii) Synchronous rolling.

GOVERNMENT OF INDIA

Date: - 5th -Nov-2019

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 Explain master-pilot exchange with special reference to passage plan, UKC, safe speed, duties of bridge team and contingency planning. (5 x 4 = 20 marks)

Q.2 i) Describe contents of a) Master list b) Composition of emergency teams.
ii) Explain your risk assessment of damage and control measures after stranding.

Q.3 Enumerate the best practices recommended for transiting piracy high risk area as per BMP4.

Q.4 Describe the actions required upon receipt of a distress message at sea and the subsequent actions if you are nominated as the OSC by the MRCC.

Q.5 a) State the precautions to be taken prior entering ice waters.

b) Your vessel is disabled at sea. Explain the procedures for towing with reference to towing booklet on board.

Q.6 a) Explain squat and describe any method of calculation and application. (2 x 5 = 10 marks)

b) List the precautions for anchoring in deep waters (about 100m deep). (10 marks)

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 Explain briefly the following:-

- a) Pivot point when moving ahead with constant speed.
- b) Hydrodynamic Interaction between ship's on opposite course in a narrow channel.

Q.2 a. How would you confirm that your vessel is brought up during anchoring?

b. What are actions to be taken in case of dragging anchor and delay in readiness of the engines?

Q.3 a) Discuss how ISM code helps to tackle on emergency situation.

b) Describe the various methods of carrying out damage control after collision, to restore the structural integrity of ships temporarily. State the legal aspect to be followed.

Q.4 a) In a distress situation, you are probably going to be first vessel to arrive and SMC has not yet come in the picture. State how you would plan conducting the search using IAMSAR.

b) You are in TSS with fog, when a man falls overboard from your vessel. State the actions you would take and the preferred manoeuvre.

Q.5 a) Explain with the help of a neat diagram, the procedure for conducting a standing moor. When is this method of mooring used?

b) What is Transverse Thrust? Explain the effect of transverse thrust of a right handed VPP when going astern.

Q.6 What is a) Pooping and b) Broaching? Explain the effects with suitable sketch.

GOVERNMENT OF INDIA

Date: - 7th-May-2019

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.
3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 a) Enumerate the important features of IMO Ship Routing guide.
b) Describe the salient features of Vessel Traffic Services (VTS) and VTMS.

Q.2 Write short notes on the following:

- a) Girding of tug.
- b) Manoeuvring characteristics.
- c) Anchoring in deep water.
- d) Exchange in information between Master and Pilot.

Q.3 Explain the immediate actions to be taken when emergencies such as fire and/ or pollution incidents occur when the vessel is alongside at berth.

Q.4 a) In a search & Rescue operations, how is the co-ordination carried out on the scene of the distress. In case you have been selected as the on-scene commander, what will be your specific duties? Answer with reference to the IAMSAR.

b) Explain the precautions to be taken while manoeuvring the ship to be able to launch rescue boats in bad weather.

Q.5 Explain the procedure for anchoring in deep waters over 80 meters depth for a VLCC in congested anchorage area. What are the actions to be taken if the anchor drags.

Q.6 a) What are the procedures for ship to ship transfer (STS) at lighterage point.

b) List down precautions for following operations during STS

- i) Making approach and coming alongside.
- ii) During cargo operation and cast off.

----- X—X -----

GOVERNMENT OF INDIA

Date: - 5th-Feb-2019

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 With suitable diagrams explain the effects of the following on ship handling.

- a) Wind for vessels with large free board.
- b) Current for vessels in restricted waters.
- c) Shallow water.

Q.2 a) What factors would you bear in mind before choosing a particular anchorage when approaching from sea?

b) Heavy weather conditions are prevailing and your vessel is dragging anchor, keeping the order of priority, what are the various actions will you take?

Q.3 a) List the preparations and procedure for picking up pilot when arriving port from sea. What information you will exchange with pilot.

b) List the precautions and preparations required prior entering a pirate infested area.

Q.4 a) What is the purpose of IAMSAR? Explain the three levels of Co-ordination.

b) List the elements used in traffic routing systems.

Q.5 With the help of suitable diagrams, explain the ship-tug interaction that can occur at the bow and stern.

Q.6 List the precautions to take before entering & during navigation in ice? What are the master's obligations with regards to ice? From what sources can you obtain information on ice?

-----X—X-----

GOVERNMENT OF INDIA

Date: - 5th-Nov-2018

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.
3. Draw suitable sketches / diagrams wherever considered necessary.

Q.1 Write short notes on:

- i) Composition of the Bridge watch as per STCW 2010.
- ii) Ship Routing system under SOLAS 74
- iii) Functions of harbor and Ocean tugs.
- iv) Master – Pilot information exchange

Q.2 You are navigating in an area of fog in a Traffic Separation Scheme (TSS) off Dover. A Man falls overboard. State the manoeuvre that you would carry out and what are the reasons for your preference? Also list out the other actions you would take as per the procedure laid down in the ships safety management system.

Q.3 Your vessel a Bulk Carrier in Laden condition is in a situation of an imminent collision with other cargo ship on your port bow distance approximately 0.15 NM at sea. Sea and weather conditions are normal. Describe your actions with reference to the requirements of SOLAS Chapter V, Regulations 34 (safe navigation/ Voyage plan), STCW and COLREGs.

Q.4 Enumerate the precautions you will take in manoeuvring the ship to be able to launch rescue boat in bad weather for rescuing survivors.

- Q.5** a) What are freezing sprays? How will you avoid it?
b) What precautions will you take while navigating in ice?

- Q.6** a) In a Search and Rescue operation how is the coordination carried out on the scene of the distress?
b) In case you have been selected as the on-scene commander, what will be your specific duties? Answer with reference to the IAMSAR.

----- X—X -----

GOVERNMENT OF INDIA

Date: - 7th-Aug-2018

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All questions carry equal marks.

Q.1 What is a VTS? What are its main & auxiliary purposes? Describe its parts, resources & functions in detail. What are the drawback & limitations of the VTS?

Q.2 a. What actions will you take before and after an imminent collision? How can you limit the collision damage?

b. What is the purpose of a collision mat & how does it achieve its purpose?

Q.3 Discuss the role and duties of the Safety Committee on board. List the agenda of a Safety Committee Meeting.

Q.4 a) How does IAMSAR Volume 3 guide you in determining the area to be search and track spacing to be utilized between adjacent parallel tracks.

b) Describe briefly the three levels of co-ordination involved in a Search and Rescue system.

Q.5 a) How will you go about anchoring a VLCC in congested anchorage area where the depth of water is above 80 meters?

b) What do you understand by squat? Write down the formula for calculating squat in open waters and confined channel with respect to width of influence.

Q.6 a) How will you go about negotiating a sharp bend in a narrow channel (i) with following current (ii) against current.

b) Describe the effects of right and left handed propellers on maneuvering.

----- X—X -----

GOVERNMENT OF INDIA

Date: - 4th-May-2018

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 Hours

PASS MARKS: 60

MAX. MARKS: 100

Notes:

1. Attempt any five questions.
2. All questions carry equal marks.

Q.1 How VTS have great contribution to reduction in ships collision while transiting through TSS. Discuss the statement and justify, Explain VTS communication system.

Q.2 Sketch an emergency Towing arrangement in tankers and enumerate the requirement of the ETA under various regulations.

Q.3 Heavy weather conditions are prevailing and you suspect that your vessel is dragging anchor. As per the order of priority enumerate what actions will you take in these situations?

Q.4 With reference to IAMSAR manual:-

a) Enumerate the role and the duties of Maritime, Rescue Coordination Centre (MRCC), Maritime Rescue Sub Centre (MRSC), Indian Search and Rescue Regional Authority (INSRC) and on scene commander (OSC)

b) Explain the procedure as prescribed in IAMSAR Vol III for recovering a person fallen overboard from a ship in heavy weather condition at sea.

Q.5 With suitable diagram explain the effect of the following on ships handling in Indian Coastal Waters.

a) Wind for vessels with large free board.

b) Current for vessels in restricted waters.

c) Shallow waters

Q.6 a) What factors will you consider before selecting a place of STS operations?

b) Prepare a check list for flooding in Dry Dock?

c) Describe the methods of approaching and maneuvers under taken by “Service Ship” during STS operations with large laden tanker at anchor. Explain with suitable sketch.

----- X—X -----



GOVERNMENT OF INDIA
FIRST MATE OF A FOREIGN GOING SHIP PHASE II
FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

Code BC

11/12/18

TIME: 2 HOURS

PASS MARKS: 60

MAX MARKS: 100

Notes:

1. Attempt any five questions
2. All question carry equal marks
3. Draw suitable sketches/diagrams wherever considered necessary

Q.1 a) What do you understand by VTMS. Describe various types of VTS, its advantages and limitations
b) What is SOLE-LOOK-OUT? And list down factors to determine this

Q.2 a) Discuss the meaning of safe speed as per COLREGS as to vessels capabilities, limitation of equipments, weather conditions and watch-keeping requirements
b) Describe the method of assessment of damage to hull and machinery and the survival capability of vessel after any accident/incident

Q.3 Describe the procedures of operation for towing a vessel with respect to following:
a) Connecting up the tow b) passage with tow c) cast-off the tow

Q.4 With reference to IAMSAR
a) What are the duties of SAR Mission Co-ordinator?
b) Describe the following search patterns
i) Track line search ii) Parallel Sweep Search
c) What are the recommended turns to be executed when man has fallen overboard? Discuss the advantages and disadvantages of these turns

Q.5 a) What is Squat? How will you determine squat accurately in a deep draft vessel of length 200m in shallow water
b) Explain how an anchor or anchors may be used to assist in berthing/un-berthing

Q.6 a) Describe the procedures for executing a Running moor and Standing moor
b) Differentiate between Synchronous rolling and parametric rolling

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08/11/17



GOVERNMENT OF INDIA
FIRST MATE OF A FOREIGN GOING SHIP PHASE II
FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

Code AY

TIME: 3 HOURS**PASS MARKS: 100** 60**MAX MARKS: 200** 100**Notes:**

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 a) With a suitable diagram explain the different stages of a ship's turning circle
 b) What are the IMO requirements for the following?
 i) Advance (ii) Tactical Diameter

Q.2 a) Explain the procedure of a running moor; what is the advantage and its disadvantage?
 b) Heavy weather conditions are prevailing and you suspect your vessel is dragging anchor, keeping the order of priority, what are the various actions will you take?

Q.3 a) How will you approach a congested anchorage at night and what precautions will you take.
 b) In choosing your anchorage what information can you derive from Sailing Directions pilot volume?

Q.4 a. What are the recommended turns for rescue of a man over board? Discuss their advantages & disadvantages.
 b) Write short notes on
 (i) SRR (ii) Track spacing.

Q.5 a) Explain with the help of neat diagrams, the procedure for conducting a standing moor. When is this method of mooring used?
 b) What is Transverse Thrust? Explain the effect of transverse thrust of a right handed CPP when going astern.

Q.6 a) What factors will you consider before selecting a place for STS operations?
 b) Describe the precautions to be taken before going alongside & procedure for going alongside.

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Search and Rescue Region

Track Spacing $S = S_0 \times F_w$



GOVERNMENT OF INDIA
FIRST MATE OF A FOREIGN GOING SHIP PHASE II
FUNCTION: NAVIGATION

Code BA

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

8/8/17

TIME: 3 HOURS

PASS MARKS: 100

MAX MARKS: 200

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1 a) How does Shallow water affect the maneuvering qualities of a vessel?
b) What is the Stopping ability of a vessel?

Q.2 a) In what circumstances is a vessel beached? Discuss the procedure required before beaching. What factors will you keep in mind while beaching to ensure safe refloating?
b) What is the essential difference between 'Stranding' and 'Beaching'?

Q.3 a) Discuss the features of anchoring in a deep waters?
b) A pilot boat is unable push away from the vessel; what could be the cause and your action?

Q.4 a) In a distress situation, you are probably going to be first vessel to arrive and SMC has not yet come in the picture, State how you would plan conducting the search using IAMSAR
b) You are in TSS with fog, when a man falls overboard from your vessel. State the actions you would take and the preferred manoeuvre.

Q.5 a) How will you go about anchoring a VLCC in congested anchorage area where the depth of water is above 80 meters?
b) What do you understand by squat? Write down the formula for calculating squat in open waters and confined channel with respect to width of influence.

Q.6 a) Enumerate the use of anchors, tugs and tide for berthing of large vessels with strong Off-shore wind?
b) Explain with respect pivot point.

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GOVERNMENT OF INDIA

Date: - 5th-May-2017

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 3 Hours

PASS MARKS: 100

MAX. MARKS: 200

Notes:

1. Attempt any five questions.
2. All questions carry equal marks.

- Q.1** a) Under STCW 2010, list the requirements for performing a deck watch.
b) List the information exchanged between the master and pilot once the pilot is on the bridge.

- Q.2** What is the role of VTS? What information is provided by the VTS before entering a port?
What are the obligations of a master towards VTS instructions?

- Q.3** Your ship is in port & there is a major fire in no. 2 hold. Discuss how would you deal with this emergency?
Discuss:-

- a) Your initial action to control the fire.
- b) Fire wallet & its contents.
- c) Additional information to be shared with the fire brigade.

- Q.4** a) Enumerate the salient features of IAMSAR Volume III.
b) Which search pattern or turn you would prefer for a man overboard during your watch at sea.

- Q.5** a) What is the difference between “Not to impede” and “Give way” vessels? Discuss with examples.
b) Explain the precautions to be taken whilst maneuvering the ship to be able to launch rescue boats in bad weather?

- Q.6** a) As a chief officer what precautions will you take before going for an STS operation?
b) What are different types of dry docks and as a ship officer which dry dock would you prefer and why? Explain.

----- X—X -----



GOVERNMENT OF INDIA
FIRST MATE OF A FOREIGN GOING SHIP PHASE II
FUNCTION: NAVIGATION

Code BE

PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX MARKS: 100

Notes:

1. Attempt any five questions
2. All question carry equal marks
3. Draw suitable sketches/diagrams wherever considered necessary

Q.1 How will you go about making a passage plan in advance from the pilot boarding ground till the berth? How will you carry out amendments to this plan after the Master-Pilot exchange? Enumerate your answer with respect to principles of bridge Team Management

Q.2 What are the circumstances in which a vessel is to be beached? Describe the procedures and precautions to be observed during and after the beaching

Q.3 a) Enumerate the requirements of ISM code related to emergency preparedness, drills/ exercise and company's response

b) Your vessel has encountered heavy weather which resulted in hull fracture due to excessive stresses. List the various teams you will form and actions to be taken under each team keeping in mind safety of your vessel and crew

Q.4 With reference to International aeronautical and Maritime search and rescue (IAMSAR) Manual:

a) Enumerate the role and the duties of Maritime rescue co-ordination centre (MRCC), Maritime rescue sub centre (MRSC), Indian search and rescue regional authority (INSRR) and on-scene commander (OSC)

b) Explain the procedure as prescribed in IAMSAR volume III for recovering a person fallen over board from a ship in heavy weather conditions at sea

Q.5 a) Enumerate various methods of Ballast water exchange procedures as prescribed in the ballast water management plan approved by the flag administration as per IMO resolution 868 (20). Also, list the advantages and limitations of specified methods

b) Briefly state the procedures you would follow in course of your ship being towed within the harbor waters under pilotage and in open sea for proceeding to place of refuge

Q.6 a) Prepare a check list for heavy weather conditions in temperate latitude region during winter months at sea

b) Describe the shallow water effect on vessels maneuvering in congested waters. Also state the contents of manoeuvring booklet

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GOVERNMENT OF INDIA
FIRST MATE OF A FOREIGN GOING SHIP PHASE II
FUNCTION: NAVIGATION
PAPER: BRIDGE WATCH-KEEPING, SHIP HANDLING & EMERGENCIES

Code AW

TIME: 3 HOURS

PASS MARKS: 100-60

MAX MARKS: 200 100

Notes:

1. Attempt any five questions.
2. All question carry equal marks.

Q.1. a) Discuss how will you prepare a passage plan for arrival in a river port considering the draft, tide & UKC restrictions?

b) As per STCW 2010, what requirements are to be complied with for a sole look out?

Q.2 What is a VTS? What are its main & auxiliary purposes? Describe its parts, resources & functions in detail? What are the drawbacks & limitations of the VTS?

Q.3 Your vessel had a steering failure. Discuss the following:

- a) Likely causes & its effects on the vessel.
- b) Immediate actions.
- c) Subsequent follow up actions.
- d) Effective use of emergency steering arrangements.

Q.4 a) Draw a diagram of a vessel's turning circle showing the following:

- i) The Pivot point
- ii) Drift Angle
- iii) Angle of attack at the rudder post

b) Why does the vessel heel during when turning?

Q.5 a) What do you understand by manoeuvrability of the vessel in deciding the safe speed?

b) With the aid of a diagram describe the procedure of overtaking in a narrow channel.

Q.6 a) Approaching a port, your vessel has gone aground on an uncharted shoal. Describe your actions and efforts to refloat the vessel.

b) IMDG cargo on deck is on fire; enumerate actions to fight the fire.

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**GOVERNMENT OF INDIA****FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)****FUNCTION: NAVIGATION (Management Level)****PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES****TIME: 2 HOURS****PASS MARKS: 60****MAX. MARKS: 100****NOTES:**

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

Q. 1 Write short notes on:

- i) Composition of the Bridge watch as per STCW 2010
- ii) Ship Routing system under SOLAS 74
- iii) Functions of harbour and Ocean tugs
- iv) Master - Pilot Information exchange

Q. 2 You are navigating in an area of fog in a Traffic Separation Scheme (TSS) off Dover. A Man falls overboard. State the manoeuvre that you would carry out and what are the reasons for your preference? Also list out the other actions you would take as per the procedures laid down in the ships safety management system.

Q. 3 a) Describe the latest SOLAS 1974 Chapter II requirements for Emergency Towing Arrangement (ETA) for cargo ships other than tankers.

b) Your Ship is disabled at sea and to be towed by the Salvage Tug arranged by the owners to the place of refuge that is 7 days away from the present position. State the preparation you would make for this voyage and your navigational duties.

Q. 4 With respect to IAMSAR Volume III State your functions as an Officer in charge the following situations:

a) "On Scene commander" in a search and rescue operation at Sea.

b) Procedures for initial search operations for missing persons with two ships in the scene.

Q. 5 Explain the effect of following on three different types of vessels maneuvering:

- a) Pivot point
- b) Squat
- c) Transverse thrust

Q. 6 a) What are the precautions for high latitude navigation?

b) Suggest a preparatory List for handling your vessel in frontal depression.



May 2016

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GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1** Traffic separation scheme and VTS have greatly contributed to reduction in ship collisions. Discuss this statement and justify.
- Q. 2** a) Discuss how ISM code helps to tackle an emergency situation.
b) Describe the various methods of carrying out Damage Control after collision to restore the structural integrity of ships temporarily. State the legal aspects to be followed.
- Q. 3** Write short notes on the following:
a) Emergency towing booklet
b) Emergency towing arrangements
c) Procedure for towing in good and rough weather.
- Q. 4** a) With respect to IAMSAR state the procedure of determining the search area and track spacing.
b) Describe the procedures and precautions in maneuvering the ship to be able to launch rescue boats in bad weather.
- Q. 5** a) With suitable diagrams explain the effect of the following forces on ships maneuvering capabilities during navigation in port and coastal waters of India.
i) Wind
ii) Current / Tidal stream
iii) Under keel clearance
b) State the functions of ship maneuvering data displayed on the navigating bridge in accordance with the requirement of STCW Convention during navigation.
- Q. 6** a) Describe the methods of approach and maneuvers undertaken by 'service ship' during Ship to Ship (STS) operations with large laden tanker at anchor. Explain with suitable sketches.
b) Explain the procedure and precautions to be taken prior entering ice and when navigating in ice?



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 Define shallow water and list the shallow water effects specially with respect to:
- a) Ship's course keeping abilities and also Ship's turning circle characteristics
 - b) Squat and change in trim
 - c) Stopping distances
- Q. 2 Describe the behavior of a vessel in heavy weather and the precautions required to be taken while:
- a) Turning a vessel in heavy weather.
 - b) Encountering parametric rolling.
- Q. 3 a) What factors will you consider before selecting a place for STS operations?
b) Prepare a checklist for flooding in a Dry-dock?
- Q. 4 Your vessel is in a situation of an imminent collision. Describe your actions with reference to the following:
- a) Options available to minimize the adverse effect.
 - b) Legal responsibilities
 - c) Damage control post collision
- Q. 5 a) Describe the latest SOLAS requirements for Emergency Towing Arrangement (ETA).
b) Describe the procedure for launching an ETA in the aft part of a ship.
- Q. 6 With reference to IAMSAR Volume III
- a) Describe the following search patterns
 - i) Sector Search Pattern
 - ii) Parallel sweep search pattern
 - b) What are the recommended turns to be executed when a man has fallen overboard and discuss the advantages and disadvantages of each.



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1** Define a VTS. What are their main and auxiliary purposes? Describe its main components, resources and functions in detail.
- Q. 2** Sketch an Emergency Towing Arrangements in tankers and enumerate the requirements of the ETA under various Regulations.
- Q. 3** Under what circumstances would you consider beaching your vessel? If you decide to go ahead and beach your ship, what are the factors you would consider before deciding on the choice of beach? How will you actually carry out this operation safely?
- Q. 4** As per IAMSAR discuss the following:
a) Duties of On Scene Coordinator (OSC)
b) Co-ordinated Vessel - Aircraft search pattern
c) Contents of IAMSAR Vol. III
- Q. 5** a) Explain the effects of displacement, draft, trim, speed and under-keel clearance on turning circles and stopping distances.
b) Explain the effects of bow wave & stern wave and precautions that should be taken by ships alongside to minimize its effect.
- Q. 6** a) Explain with sketches the movement of pivot point during various manoeuvres of the vessel?
b) Describe Flap rudder, Rotor rudder and Twin schilling rudders.



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1** a) What do you understand by VTMS? Describe various types of VTS, its advantages and limitations.
b) What is SOLE-LOOK-OUT? And list-down factors to determine this.
- Q. 2** a) Discuss the meaning of safe speed as per COLREGS as to vessels capabilities, limitation of Equipments, weather conditions and watch-keeping requirements.
b) Describe the method of assessment of damage to hull and machinery and the survival capability of vessel after any accident / incident?
- Q. 3** a) List out the contents of Emergency towing procedures (ETP) booklet carried on non tanker ships. Briefly state its purpose.
b) With a neat sketch, explain the purpose and method of deployment of Emergency Towing Arrangements (ETA) fitted on board Tankers.
- Q. 4** With reference to International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual:
a) Enumerate the role and the duties of Maritime Rescue Co-ordination Centre (MRCC), Maritime Rescue Sub Centre (MRSC), Indian Search and Rescue Regional authority (INSRR) and On-scene Commander (OSC).
b) Explain the procedure as prescribed in IAMSAR Volume III for recovering a person fallen over board from a ship in heavy weather conditions at sea.
- Q. 5** Explain the Contents of Wheel house poster and discuss the effects of transverse thrust and pivot point on ship handling in respect of ship in Ballast/Laden condition.
- Q. 6** Write short notes on the following:
a) Anchoring in deep waters 30 NM off Mumbai Port.
b) Running and standing moor including the circumstances for such operations.
c) Ice Navigation and usefulness of POLAR CODE.

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GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 a) What do you understand by Squat? Write down the formula for calculating squat in open channel and confined channel with respect to width of influence.
b) List down contents of wheel-house-poster.
- Q. 2 a) Explain various functions of VTMS.
b) Why do the tugs gird? Write down the corrective measure & suggest a type of tug where it may not happen.
- Q. 3 Explain the integrated contingency plan for dealing with emergencies on board ships.
- Q. 4 Describe the processes involved in search and rescue functions as per IAMSAR VOL-III for conducting SAR operation by OSC.
- Q. 5 Explain various emergencies which can take place while vessel is in dry-dock and prepare a repair specification for renewing a side shell plate.
- Q. 6 a) What are the precautions to be taken for launching a survival craft in heavy-weather?
b) Write down the obligation of ship-Master for reporting dangerous-ice.



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

Q. 1 a) Describe required manoeuvres for a VLCC, before picking up a pilot at boarding ground in open sea condition with strong current and tide, setting ashore.

b) Write down various types of tug and their features, in brief.

Q. 2 a) Explain in brief, various types of moors.

b) List down actions to be taken after observing that vessel has started dragging anchor in a crowded anchorage.

Q. 3 You are at sea on a bulk-carrier and find another vessel which is in need of being towed to port of refuge. Write down your actions relevant to the towing operation.

Q. 4 a) Define 'coverage' and 'tele-medical assistance services' as per IAMSAR.

b) Discuss the search patterns for a missing craft whose position is not known.

Q. 5 Explain precautions to be taken before entering a pack ice. What are the obligations listed for reporting about dangerous ice found at sea, as per SOLAS?

Q. 6 a) Describe the significance of ship-reporting systems like INDSAR and INSPIRES.

b) Explain in brief the procedure to cancel false distress alerts



GOVERNMENT OF INDIA

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FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 Traffic separation scheme and VTS have greatly contributed to reduction in ship collisions. Discuss this statement and justify. Explain VTS communication procedures.
- Q. 2 a) What is emergency situation on board a ship? Discuss how the implementation of ISM Code is aimed to improve upon the onboard preparedness to handle emergencies?
b) Enumerate the guidelines given in IMO resolution A. 852 (20) for preparing contingency plans for shipboard emergencies.
- Q. 3 When will you abandon your ship? List out the various considerations before you decide on this action. Describe in detail the special procedure that you would adopt to abandon your vessel in wind force 6 accompanied with heavy swell.
- Q. 4 With respect to IAMSAR explain the following:
a) During Search and Rescue mission, how is the co-ordination carried out between OSC and other vessels.
b) What are the specific role and duties of MRCC and RCC?
- Q. 5 Discuss the behavior of a vessel in Deep and Shallow water with respect to her:
a) Turning ability b) Speed loss during turn c) Stopping distance
d) Directional stability
- Q. 6 a) As a chief officer what precautions will you take before going for an STS operation?
b) What are the different types of dry docks and as a ship's officer which dry dock would you prefer and why? Explain in detail.



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 a) What are the factors you will take into account when deciding upon the composition of a bridge watch at sea?
b) What factors are to be considered for deciding safe speed when Radar is non-operational?

- Q. 2 You are on the Bridge and you find that collision with another vessel is imminent.
a) What are the initial options available to you to limit the damages? Give your preference and the reasons for your options.
b) After the collision, how would you continue to deal with the emergency and the damage?

- Q. 3 a) Explain the contents of Emergency Towing Booklet.
b) Describe the procedure for calculation of bollard pull and towing speed prior towage.
c) Describe the procedure for rescue of persons from the compartment which is affected by fire.

- Q. 4 a) What is the purpose of IAMSAR? Briefly describe National and Regional SAR System Organization.
b) Describe the factors to be considered for selecting a suitable search pattern for locating missing persons at sea.

- Q. 5 Explain briefly the following:
a) Types of Tugs
b) Pivot point when moving ahead with constant speed
c) Hydrodynamic Interaction between ships on opposite course in a narrow channel

- Q. 6 a) Describe the precautions you will take according to the prevailing wind, tide and current while standing off when underway and awaiting pilot near the pilot boarding ground.
b) Describe the use of twin screws for manoeuvring.



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 a) Explain the common theme in Ship's Routing, Ship Reporting System & Vessel Traffic Service.
b) Describe the procedures to be followed for manoeuvring in and around VTS areas.
- Q. 2 What actions will you take, if your vessel has collided with another vessel, keeping the safety of crew and vessels in mind?
- Q. 3 A man falls overboard in fog. What turn would you prefer to take in order to locate the causality? Describe the manoeuvres and state the reasons for your preference. Also briefly list various other actions you would take associated with this emergency.
- Q. 4 a) Explain the contents of IAMSAR Manual Volume III.
b) With sketch, describe the "Emergency Towing Arrangement" of a tanker and its purpose.
- Q. 5 What is Pivot Point of a ship? How will you determine Pivot Point while ship is moving ahead? What is the significance of Pivot Point with respect to manoeuvring of a ship?
- Q. 6 a) Describe 'Pooping' and 'Broaching to'.
b) As a Master of a vessel, list the preparations & procedure for picking up pilot when arriving a port from sea. What are the duties & obligations of the pilot?



Feb 13

Vane Kurt Gomes

06/02/13

GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1** a) What do you understand by VTMS? Describe various types of VTS, its advantages and limitations.
b) What is SOLE-LOOK-OUT? And list-down factors to determine this.
- Q. 2** a) Discuss the meaning of safe speed as per COLREGS as to vessels capabilities, limitation of Equipments, weather conditions and watch-keeping requirements.
b) Describe the method of assessment of damage to hull and machinery and the survival capability of vessel after any accident / incident?
- Q. 3** Describe the procedures of operation for towing a vessel with respect to following:
a) Connecting up the tow b) Passage with tow c) Cast-off the tow.
- Q. 4** a) In a Search & Rescue Operations how is the co-ordination carried out on the scene of the distress? Incase you have been selected as the on-scene commander, what will be your specific duties? Answer with reference to the IAMSAR.
b) Explain the precautions to be taken while manoeuvring the ship to be able to launch rescue boats in bad weather?
- Q. 5** Explain the procedure for anchoring in deep waters over 80 meters depth for a VLCC in congested anchorage area. What are the actions to be taken if the anchor drags?
- Q. 6** a) What are the procedures for ship to ship transfer [STS] at lighterage point?
b) List down precautions for following operations during STS
i) Making approach and coming alongside
ii) During cargo operation and cast off.



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1. a) Enumerate the principles needs to be observed in keeping navigational watch with pilot on board and in coastal / congested waters as per relevant provisions of STCW code 2010 as amended.
- b) Explain the meaning of following in respect of COLREG 1972–
- [i] not to impede passage or safe passage of another vessel – Rule 8
 - [ii] All dangers of navigation and collision – Rule 2
 - [iii] Limitation of vessel – Rule 2
 - [iv] Vessel constrained by her draft – Rule 3
- Q. 2 Prepare a contingency plan for responding to Fire Incident in Cargo spaces of chemical tanker (IMO type 1 & 2) and spillage of Noxious Liquid Substances (NLS). Describe the duties of all the shipboard personnel in such an emergency.
- Q. 3 a) List out the contents of Emergency towing procedures (ETP) booklet carried on non tanker ships. Briefly state its purpose.
- b) With a neat sketch, explain the purpose and method of deployment of Emergency Towing Arrangements (ETA) fitted on board Tankers.
- Q. 4 With reference to International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual:
- a) Enumerate the role and the duties of Maritime Rescue Co-ordination Centre (MRCC), Maritime Rescue Sub Centre (MRSC), Indian Search and Rescue Regional authority (INSRR) and On-scene Commander (OSC).
- b) Explain the procedure as prescribed in IAMSAR Volume III for recovering a person fallen over board from a ship in heavy weather conditions at sea.
- Q. 5 a) Enumerate various methods of Ballast Water Exchange procedures as prescribed in the Ballast Water Management Plan approved by the Flag Administration as per IMO Resolution 868(20). Also, list the advantages and limitations of specified methods.
- b) Briefly state the procedures you would follow in course of your ship being towed within the harbour waters under Pilotage and in open sea for proceeding to place of refuge.
- Q. 6 a) Prepare a Check list for heavy weather conditions in temperate latitude region during winter months at sea.
- b) Describe the shallow water effect on vessels maneuvering in congested waters. Also state the Contents of manoeuvring booklet?



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 a) Enumerate the important features of IMO Ship Routeing guide.
b) Describe the salient features of Vessel Traffic Services (VTS) and VTMS.
- Q. 2 Write short notes on the following:
a) Girding of tug
b) Manoeuvring characteristics
c) Anchoring in deep water
d) Exchange of information between Master and Pilot.
- Q. 3 Explain the immediate actions to take when emergencies such as fire and/or pollution incidents occur when the vessel is alongside at berth.
- Q. 4 With reference to IAMSAR
a) What are the duties of SAR Mission Co-ordinator?
b) Describe the following search patterns.
i) Track line Search ii) Parallel Sweep Search
c) What are the recommended turns to be executed when man has fallen overboard? Discuss the advantages and disadvantages of these turns.
- Q. 5 a) What is Squat? How will you determine squat accurately in a deep draft vessel of length 200m in shallow water.
b) Explain how an anchor or anchors may be used to assist in berthing/unberthing.
- Q. 6 a) Describe the procedures for executing a Running moor and Standing moor.
b) Differentiate between Synchronous rolling and parametric rolling.



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 ✓ How will you go about making a passage plan in advance from the pilot boarding ground till the berth? How will you carry out amendments to this plan after the Master-Pilot exchange? Enumerate your answer with respect to principles of Bridge Team Management.
- Q. 2 ✓ What are the circumstances in which a vessel is to be beached? Describe the procedures and precautions to be observed during and after the beaching.
- Q. 3 ✓ a) Enumerate the requirements of ISM code related to emergency preparedness, drills/exercises and company's response.
b) Your vessel has encountered heavy weather which resulted in hull fracture due to excessive stresses. List the various teams you will form and actions to be taken under each team keeping in mind safety of your vessel and crew.
- Q. 4 ✓ a) Explain in detail your vessel's preparation when proceeding towards a SAR operation in the role of a rescue/recovery unit.
b) What are the roles and duties of Rescue Co-ordination Centre (RCC) & On-Scene Coordinator (OSC)? Answer with reference to the IAMSAR.
- Q. 5 ✓ a) Describe the hazards associated with high latitude navigation and precautions that you will take prior entering ice areas.
b) State the actions to be taken on discovering that your vessel is dragging her anchor in a congested anchorage.
- Q. 6 Your vessel is to be moored between two buoys with a moderate current from astern. Explain with suitable sketches the procedure you will adopt for safe mooring.



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GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

Q.1 Write short notes on the following:

- (i) Interaction between ships when overtaking
- (ii) Running Moor
- (iii) Difference between Williamson and Scharnow turns

Q.2 With reference to IAMSAR Volume-III describe duties of on scene coordinator and SAR mission coordinator.

Q.3 Under STCW '95 what are the factors to be taken into consideration for deciding the composition of the navigation watch, various aspects of fitness for duties and when can sole lookout watch keeping be adopted at sea.

Q.4 Your vessel is required to tow a disabled vessel. Discuss the various aspects of this operation with regards to following:

- i. Preparing the vessel
- ii. Means of towing
- iii. Making contact and
- iv. Precautions to be observed during the voyage.

Q.5 i. Describe situations when the master must be called on bridge.
ii. Describe the precautions to be taken prior entering ICE.

Q.6 Describe the usefulness and functions of following:

- a) VTS (Vessel Traffic Service)
- b) Ship Reporting System



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GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SHIP HANDLING & EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1** Traffic separation scheme and VTS have greatly contributed to reduction in ship collisions. Discuss this statement and justify.
- Q. 2** a) Discuss how ISM code helps to tackle an emergency situation.
b) Describe the various methods of carrying out Damage Control after collision to restore the structural integrity of ships temporarily. State the legal aspects to be followed.
- Q. 3** a) List the preparations and procedures for picking up pilot when arriving port from sea. What information you will exchange with pilot.
b) List the precautions and preparations required prior entering a pirate infested area.
- Q. 4** a) Explain the actions to be taken when a person is reported missing at sea as prescribed in IAMSAR manual volume III.
b) Describe the circumstances in which the vessel needs to be beached.
c) Explain the precautions to be taken prior to and after beaching.
- Q. 5** a) Define shallow water. What are the effects of same on the vessel with special reference to UKC and Trim?
b) Discuss hydrodynamic interaction experienced by a vessel in a Narrow channel. On what factors the same will depend.
- Q. 6** a) Explain the procedures and precautions to be taken prior entering ice bound area.
b) Explain the procedures and precautions to be taken for anchoring in deep waters.

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GOVERNMENT OF INDIA

MAY 2012

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

FUNCTION: NAVIGATION (Management Level)

PAPER: BRIDGE WATCHKEEPING, SEARCH & RESCUE, SHIP HANDLING & NAVIGATIONAL EMERGENCIES

TIME: 2 HOURS

PASS MARKS: 60

MAX. MARKS: 100

NOTES:

1. Attempt any FIVE questions.
2. All questions carry equal marks i.e. 20 marks each.
3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 As per Regulation 12 of SOLAS Chapter V - Vessel Traffic Services (VTS) contribute to safety of life at Sea, safety and efficiency of navigation and protection of the marine environment, adjacent shore areas, work sites and offshore installations from possible adverse effects of maritime traffic. Discuss the statement in respect of your function as senior navigating officer.
- Q. 2 The owner of your vessel has decided to tow a disabled vessel (laden mini bulk carrier with heavy density cargo in bulk). Discuss the various aspects of these operations as per the IMO Resolution 765 (18) and MSC/ Cir.884 (Guidelines for Safe Ocean towing).
- Q. 3 a. Describe the salient features of Ship Reporting System as required under Regulation 11 of SOLAS Chapter V.
b. Your vessel, a laden tanker with crude oil in bulk collides with container vessel having several IMDG Containers on board at High Seas. List out the various actions to be initiated by you as watch keeping officer in accordance with the contingency plan available under the Safety Management System.
- Q. 4 a) In accordance with regulation 21 of SOLAS-V, all ships are required to carry an up to date copy of Volume III of International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual. Enumerate the salient features of this manual.
b) State the recommended search pattern or turns you would be selecting in locating a crew who has fallen overboard at sea during your watch at sea or in port outer anchorage. List out the advantages and disadvantages of such search patterns?
- Q. 5 a) With suitable diagrams explain the effect of the following forces on ships maneuvering capabilities during navigation in port and coastal waters of India.
i) Wind
ii) Current / Tidal stream
iii) Under keel clearance
b) State the functions of ship maneuvering data displayed on the navigating bridge in accordance with the requirement of STCW Convention during navigation.
- Q. 6 a) Describe the methods of approach and manoeuvres undertaken by 'service ship' during Ship to Ship (STS) operations with large laden tanker at anchor. Explain with suitable sketches.
b) Explain the procedure and precautions to be taken prior entering ice and when navigating in ice?



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

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TIME: 2 HOURS

PASS MARKS: 60

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NOTES:

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3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1** a) State the elements of ship-routing system as per Chapter V of SOLAS?
b) Describe the UKC policy of your company. Also explain shallow water effects on a VLCC and the precautions to be taken during passage through this area.
- Q. 2** a) Explain the preparations in deciding for a vessel to be BEACHED. Also suggest what type of beaching [bow-on or stern-on] is preferred and why?
b) Enumerate any two methods of refloating a stranded ship?
- Q. 3** a) Your vessel is a VLCC in laden condition. Explain the procedure to be followed after collision with a passenger – ferry in open sea as prescribed in the safety management system manuals and statutory requirements?
b) Make a sample log book entry for the above accident.
- Q. 4** With reference to IAMSAR:
a) What is DATUM? Explain briefly.
b) Describe the obligation of officer in command of a vessel with regards to assistance to a vessel or persons in distress at sea?
- Q. 5** Explain the effect of following on three different types of vessels maneuvering:
a) Pivot point b) Squat c) Transverse thrust
- Q. 6** a) What are the precautions for high latitude navigation?
b) Suggest a preparatory List for handling your vessel in frontal depression.



GOVERNMENT OF INDIA

FIRST MATE OF A FOREIGN GOING SHIP (PHASE - II)

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TIME: 2 HOURS

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NOTES:

1. Attempt any FIVE questions.
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3. Draw suitable sketches / diagram wherever considered necessary.

- Q. 1 a) Explain the principles to be observed in keeping a navigational watch as laid down in STCW 2010.
b) Write down standing orders for your OOW on bridge duty, while vessel making a port.
- Q. 2 What is the essential difference between 'stranding' and beaching? When will you consider it necessary to beach your vessel? How will you make your choice of location and time for carrying out the same? Briefly describe the procedure.
- Q. 3 a) Enumerate the standard emergency steering procedures to be followed in the event of steering failure.
b) What is the exchange of information takes place between the master and the pilot prior entering to the port?
- Q. 4 a) List the various search patterns described in IAMSAR.
b) Explain the procedure for recovering a person from sea in heavy weather.
c) Describe the duties of On-Scene Coordinator
- Q. 5 a) Describe squat. How the maximum squat is calculated? What are the signs of vessel entering shallow water?
b) What precautions will you take while anchoring in a depth of 100m?
- Q. 6 a) Briefly describe the Best Management Practices (BMP) to be followed for prevention of piracy and armed robbery.
b) With sketches, describe the different ways in which tugs may be made fast and used for berthing / un-berthing of ships.
