1. Final examination questions on the subject of "Navigation and Pilotage"

1. The shape of the Earth and its models.
2. Basic points, lines and planes on the surface of the Earth
3. Horizon division systems
4. True Directions
5. Terrestrial magnetism. Magnetic Directions
6. Gyrocompass directions
7. Requirements for a marine navigation chart
8. Methods for determining of the gyrocompass errors.
9. Magnetic declination. Bringing the magnetic declination to the year of navigation.
10. Cardinal signs marking navigational hazards
11. Lateral signs marking the sides of canals, fairways and passages
12. Calculation of compass directions from known true directions.
13. Range of visibility of objects and beacon lights at sea
14. Methods, purpose, essence and types of dead reckoning
15. Calculation of the time T_2 and the countdown of the lag LR_2 of the ship's arrival at a given point.
16. The effect of the wind to the ship. Determining the drift angle based on observations.
17. Calculation of the course made good based to the given true course, vessel speed, apparent wind direction and speed.
18. Calculation of a compass heading for a ship following a given track at a certain speed for a given direction and wind speed.
19. Calculation of the path (CMG) and true (ground) speed when taking into account the current.
20. Calculation of the compass heading for following a given CMG path taking into account the current.
21. Calculation of the coordinates of the current position of the vessel when taking into account the current.
22. Calculation of the ship's path (CMG) with joint accounting of drift and current.
23. Determination of the compass heading for movement in the assigned direction taking into account of drift and current
24. Determination of the vessel's position by the bearings of two navigational landmarks.
25. Determining the ship's position by the bearings of two navigational landmarks with reduction to one moment.
26. Determination of the position of the vessel by three bearings
27. Determination of the position of the vessel by the cruise bearing
28. Determining the position of the vessel by radar distance
29. Enclosing isolines and their usage when sailing in congested conditions.
30. The main elements of the tides.

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12. Дмитриев В.И « Навигация и лоция» Москва академкнига 2004.

2. Final examination questions on the subject of "International Regulations for Preventing Collisions at Sea"

1. Lights and shapes of vessels exhibited in accordance with COLREG 72.
2. COLREGs 72. Rule 2 - Responsibility.
3. COLREGs 72. Rule 3 - General definitions.
4. COLREGs 72. Rule 5 – Look out.
5. COLREGs 72. Regulation 6 - Safe speed.
6. COLREGs 72. Rule 7 – Risk of Collision.
7. COLREGs 72. Regulation 8 - Actions to avoid collision.
8. COLREGs 72. Rule 9 - Narrow channels.
9. COLREGs 72. Regulation 10 - Traffic separation schemes.
10. COLREGs 72. Regulation 12 - Sailing vessels.
11. COLREGs 72. Rule 13 - Overtaking.
12. COLREGs 72. Regulation 14 –Head on situation.
13. COLREGs 72. Regulation 15 - Course crossing situation.
14. COLREGs 72. Regulation 16 - Action by give-way vessel.
15. COLREGs 72. Regulation 17 - Action by stand-on vessel.
16. COLREGs 72. Regulation 18 - Responsibilities between vessels
17. COLREGs 72. Regulation 19 - Conduct of vessels in restricted visibility
18. COLREGs 72. Regulation 23 - Power-driven vessel under way.
19. COLREGs 72. Regulation 24 - Towing and pushing.
20. COLREGs 72. Regulation 25 - Sailing vessels underway and vessels under oars.
21. COLREGs 72. Regulation 26 - Fishing vessels.
22. COLREGs 72. Regulation 27 - Vessels not under command or restricted in their ability to maneuver.
23. COLREGs 72. Regulation 28 - Vessels constrained by their draft.
24. COLREGs 72. Regulation 29 - Pilot vessels.
25. COLREGs 72. Regulation 30 - Anchored vessels and vessels aground.
26. COLREGs 72. Regulation 33 - Equipment for sound signals.
27. COLREGs 72. Regulation 34 - Maneuvering and warning signals.
28. COLREGs 72. Regulation 35 - Sound signals in restricted.
29. COLREGs 72. Rule 36 - Signals to attract attention.
30. COLREGs 72. Regulation 37 (Annex IV) - Distress signals

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2. V.N Gutsukyak Colregs with comments. Moscow 2012.

3. Final examination questions on the subject of "Theory of maneuvering, ship handling and risk assessment"

1. Basic seaworthiness of ships
2. Definition of maneuverability. The concept of ships maneuverability.
3. Maneuverable elements of the vessel.
4. The action of forces and moments when the rudder is shifted.
5. Center of rotation (Pivot Point), patterns of its displacement.
6. Periods and elements of circulation. IMO requirements
7. The influence of various factors on the maneuvering elements of the ship.

8. Inertial properties of the vessel and its main elements.
9. Determination of position for anchorage.
10. Setting the vessel at two anchors.
11. Preparing the vessel and the anchor device for the removal of the vessel from the anchor, organizing the selection of the anchor.
12. Anchor "Unclean", cleaning the anchor.
13. Command words during the return and lifting of the anchor, the signals given by the bell and whistle.
14. Putting the ship on the spring and getting out the ship from the spring.
15. Mooring of the vessel on the raid mooring barrels and unmooring from the barrel.
16. Approach and mooring of the vessel astern to the berth.
17. Preparation for mooring operations when approaching the port
18. Preparation of the vessel for departure from the berth, departure from the berth on the spring.
19. Hydrodynamic interaction of diverging ships during the diverging close to each other.
20. Influence of the relief of the channel on the controllability of the ship.
21. Squad of the vessel when sailing in shallow water.
22. The formation of ship's waves when the ship is moving in shallow water.
23. The turn of the vessel in narrowness.
24. Features of navigation sailing in a storm.
25. Peculiarities of sailing on a fair wave.
26. Changing the course of the ship during a storm, the danger of capsizing the ship.
27. Preparation of towing and towed vessels for towing
28. Vessel management during the embarkation and disembarkation of a pilot.
29. Rescue of a person MOB, standard maneuvers
30. Search schemes for rescue, determining the starting point of the search

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4. Final examination questions on the subject of "Basics of watch keeping"

1. Organization and principles of watch keeping
2. Organization of the hoisting and lowering of the State Flag
3. Use of ship's boats.
4. Watch keeping service. General provisions
5. Obligations of the officer in charge of the watch.
6. Immediate action of the ship receiving the distress alert
7. Actions of the officer in charge of the watch while the ship is at anchor.
8. Actions of the officer in charge of the watch when changing the watch while the vessel is under way.
9. Navigation work during voyage
10. Actions of the watch officer in case of any doubt situation.
11. Emergency signals.
12. Actions of the captain's watch officer in case of failure of the gyrocompass, steering gear and engine telegraph.
13. Actions of navigators in preparing the vessel for voyage to sea.
14. Actions of navigators when meeting a pilot and in the process of pilotage.
15. Actions of navigators before the vessel approaches the port
16. Actions of the officer in charge of the watch when the vessel approaches the narrowness, the traffic separation system, coastal waters.
17. Actions of the officer in charge of the watch in case of deterioration of visibility.
18. Necessary measures to be taken when abandoning the ship.
19. Actions of the watch officer in the event of a man over board.
20. Actions of navigators in case of black out of the vessel near to navigational hazards.
21. Actions of navigators in the event of a collision.
22. Actions of the officer in charge of the watch when the ship is grounded.
23. Actions of navigators in case of cargo displacement (sudden appearance of a significant roll)
24. Actions of the officer in charge of the watch in case of fire on board
25. Actions of the captain on duty to check the serviceability of the steering gear and engine telegraph.
26. Actions of the officer in charge of the watch in case of detection of suspicious objects on board the ship
27. Actions of the officer in charge of the watch when passing dredging vessels.
28. Actions of navigators to prepare the vessel for independent navigation in ice conditions.
29. Actions of the captain and his assistants to avoid a tropical cyclone
30. Actions of the officer in charge of the watch upon arrival on the ship of trainee students

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5. **Final examination questions on the subject of "Rescue Equipment, Fire Fighting and Preparing the Ship for Survival"**

1. IC SOLAS 74 Training of personnel in emergencies.
2. IC SOLAS 74 Preparation elements for each abandon ship exercise.
3. IC SOLAS 74 SOLAS training manuals.
4. IC SOLAS 74 General requirements for ship's life-saving appliances.
5. Action to be taken at the command to "abandon ship"
6. Actions to be taken while in the water.
7. IC SOLAS 74 Operational readiness, maintenance and inspection of life-saving appliances.
8. IC SOLAS 74 Escape routes, exit means, marking of exit routes.
9. The design and equipment of lifeboats, as well as their individual items of equipment.
10. The device and equipment of life rafts, as well as their individual items of supply.
11. Actions taken on lifeboats and rafts after leaving the ship.
12. Purpose and principle of operation of hydrostatic releasers.
13. Launch of life rafts and methods of embarkation on them.
14. Pyrotechnic signal means, requirements for them and methods of application.
15. Purpose and methods of using "radar reflectors" and "transponders" in life-saving appliances.
16. Receptions, setting in the normal position of an overturned inflatable life raft
17. Requirements for life jackets, their storage, putting on and use.
18. Requirements for lifebuoys, their placement and use.
19. Immersion suits, their purpose and use.
20. IC SOLAS 74 Fire drills and training of personnel on fire prevention actions on board.
21. The main dangers that threaten the surviving people in the water.
22. Classification of fires and fire extinguishing agents used
23. IC SOLAS-74 Supply of firefighters on ships and their storage.
24. Organization of ship work at height and overboard
25. Providing emergency assistance to a drowning person
26. Types of bleeding, emergency care for bleeding
27. Emergency measures for electrical injury
28. First aid for heat and sunstroke
29. Precautions to be taken before entering enclosed spaces
30. Actions to be taken in the lifeboat and life raft.

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