

2. Sufficient number of navigators and support staff on duty appropriate to the prevailing circumstances and conditions,.
3. Proper look-out being maintained.
4. Vessel proceeding at safe speed.
5. Risk of collision being determined on a continuous basis.

Part II:

1. If a developing close quarters situation and/or risk of collision is determined with another vessel.
2. Determination if vessels are in sight of one another, or vessels are not in sight of one another when navigating in or near an area of restricted visibility.
3. Correct determination of the developing situation.
4. Clearly identifying the Rules which apply to the developing situation.
5. Action to avoid collision to be executed in full compliance with these Rules and all requirements of Rule 8 applied.

[TASK: MAKE A FLOW CHART OF THE ABOVE AND ADD MORE DETAILS INTO THE SAME, FOR EXAMPLE THE RELEVANT ELEMENTS OF RULE 8 AND THE DIFFERENT ACTIONS REQUIRED DEPENDING ON THE APPLICATION OF THE MANY RULES.]

It is also recommended to study the local regulations, normally given in the sailing directions or local publications about local practices within the internal waters of some counties. For example the following local law exists in the USA as stated in 33 CFR 82.

82.5 Lights for moored vessels: For the purposes of Rule 30 of the 72 COLREGS, a vessel at anchor includes a barge made fast to one or more mooring buoys or other similar device attached to the sea or river floor. Such a barge may be lighted as a vessel at anchor in accordance with Rule 30, or may be lighted on the corners in accordance with 33 CFR 88.13

PENALTY PROVISIONS: Shipping is an international industry and vessels are subject to the laws of the country they are registered in and also of the countries they visit. Failure to comply with the laws may lead to legal action against the staff. Some extracts from the STCW Code Regulation I/5 governing this aspect are quoted below.

1 Each Party shall establish processes and procedures for the impartial investigation of any reported incompetency, act, omission or compromise to security that may pose a direct threat to safety of life or property at sea or to the marine environment by the holders of certificates or endorsements issued by that Party in connection with their performance of duties related to their certificates and for the withdrawal, suspension and cancellation of such certificates for such cause and for the prevention of fraud.

3 Each Party shall prescribe penalties or disciplinary measures for cases in which the provisions of its national legislation giving effect to the Convention are not complied with in respect of ships entitled to fly its flag or of seafarers duly certificated by that Party.

However, all acts of punishment are invoked only if something goes wrong, that is why

'prevention is better than cure'. Quoted below is an extract from the US law.

Violations of International Navigation Rules and Regulations (33 U.S.C. 1608)

(a) Whoever operates a vessel, subject to the provisions of this Chapter, in violation of this Chapter or of any regulation promulgated pursuant to section 1607 of this title, shall be liable to a civil penalty of not more than \$5,000 for each such violation.

ACCIDENT PREVENTION: This book is all about preventing. However, no matter the efforts made, in some rare cases, navigators may find that an accident is inevitable. It is not a matter of concern, whose fault. At such times it would be the duty of all to keep safety of life as their first priority, followed by environmental pollution prevention and then the preservation of property. As far as possible the impact should be taken forward of the collision bulkhead of a vessel.

In accident prevention to 'err on the safer side' while navigating and keeping in mind the 'utmost despatch' of a voyage has proved itself over time and remains so even now.

TRAINING / MENTORING

A fresh cadet going out to sea from a shore based environment with the sudden change of life style and working will take time to adjust and get used to and adjust to the same.

The human element has been discussed earlier and has a major impact on the working of the systems anywhere. Proper education and training of the human beings concerned is a very important and critical activity, it is often said that it is the human being alone who need to be educated. Training may be considered more towards acquisition of skills but education is more to do with acquisition of knowledge and the attitude to be continuous learner and share such skills and knowledge with others, especially team-mates. Not just learn the rules and procedures but to understand them well, interpret them correctly and apply them in the real working environment, in order to obtain effective results.

It is important that the seniors on board take the trouble to train their juniors in actual independent and efficient ship handling, whether in open waters or in congested waters or in narrow canals without a pilot where vessels pass within kissing distance. One does not learn horse riding or swimming by sitting on a fence and watching others perform. The STCW revisions of 2010 in resolution 7.3 states, '**encourage all officers serving on their ships to participate actively in the training of junior personnel**'.

During team work on the bridge, whenever the master or another senior officer is present on the bridge to assist, the OOW should normally continue to have the operational control of the vessel with the master or the senior officer remaining in an advisory role, this helps in the OOW gaining confidence and experience in the navigational activities. It is easier for the more senior of the two to correct the junior by giving timely advice and suggestions than the other way round and enhances team work. The subtle difference between motivation and empowerment is best brought out on the Bridge when the Master makes a visit and observes the officer of the watch demonstrate his navigational skills. Leadership is about mentoring not merely 'on board training'.

To quote an age old saying about practice as used in training of the defence forces, '**the more you sweat in peace the less you bleed in war**'. This saying stands good for anything from games to studies to use of any equipment etc. This message is to guide you to repeat and revise the subjects

you study till you achieve perfection in the same, it is important towards the practical implementation of the knowledge gained such that you get the job done right the first time and every time. That will be efficiency and effectiveness combined, which will achieve operational excellence free from any near misses, incidents or accidents.

A very interesting episode to share. We received a report from a vessel that the fresh 3rd Officer posted on board was unable perform well and should be replaced. We delved into the various records and found that this 3rd Officer was a senior cadet sailing on the same vessel where this master was earlier the Chief Officer. As the Chief Officer he had given the cadet a very good appraisal. We quoted the reports back to the master and asked him to now complete the tasks he purportedly had done earlier.

I also remember fondly the time I was sailing as a second officer after obtaining my Master's certificate of competency with Capt. Rastom M.A. Mody in command in 1987. Whenever he came on the bridge, there was empowerment and a feeling of comfort. He rarely took the con even when approaching ports and pilot stations, but allowed us to control, observing us with a keen eye, supporting by giving professional advice with a gentle smile, intervening to the minimum but quickly answering queries or supporting the activities. That to my mind was not only the personification of leadership on the bridge but a laudable belief in training and mentoring. I can quote several other similar examples from the time I was a cadet till I reached the level of a Master, but few dared to take up the challenge to reach anywhere close to these heights.

CASE STUDIES: Several case studies have been included in this book to invoke thinking, discussion of the circumstances which led to the unfortunate accidents and to learn from the misfortune and bad experience of others. No one wishes to be involved in an accident; as such the effort is to look at the facts and the circumstances leading to the accidents and not to do any criticism of the navigators in control at the time. There are books purely on accidents and their causes and much data is abundantly available on the internet.

[TASK: YOU MAY RESEARCH THE INTERNET FOR MORE CASES, THERE ARE PLENTY TO STUDY AND LEARN FROM. REFERENCE TO SOME WEBSITES IS GIVEN WITH THE GROUNDING ACCIDENT OF THE 'SVENDBORG GUARDIAN' IN RULE 5]

The following are the weblinks to some good cases to study at convenience.

<http://www.nts.gov/publicn/1997/MAR9701.pdf>

Royal Majesty Grounding – Automation and Situational awareness related – 10/06/1995

<http://www.nts.gov/publicn/1997/MAR9701S.pdf>

Weather related near grounding of Liberian flagged tanker 'Patriot Bay' near Mexico on 15/10/1995

<http://www.nts.gov/publicn/2005/MAB0501.pdf>

fast attack US Submarine collision with Japanese Fishing training vessel, 09/02/2001

<http://www.nts.gov/publicn/2005/MAB0503.pdf>

Bahamas-flag passenger vessel Norwegian Dawn Heavy weather damage 16-04-2005.]

LEADERSHIP CHALLENGE (*)

LEADERSHIP CHALLENGE (*)

Major factors leading to human error accidents are those that cannot readily be identified. Leadership, or rather a lack of leadership, is to blame for many accidents amongst the many causes leading to them, typically more than 20 per accidents, and human error is always there. A 'fix-it' approach like placing better radars or an ECDIS and carry out more rigorous audits/inspections is not necessarily the right approach. Companies should look at how their bridge teams operate. This may mean less paperwork, fewer inspections and simpler equipment, so more time could be used on operational leadership on board.

A three-factor formula to ensure safer voyages should be:

1. Planning. Effective preparation by officers and crews before voyages begin.
2. Decision-making. Officers should be able to take responsibility and be decisive without getting involved in unnecessary discussion.
3. Emergency co-operation. Everyone, regardless of rank, should be trained to co-operate during emergencies.

Some accidents are inevitable, no matter how hard an organization works to prevent them. The key is error reduction for damage limitation. With better leadership, bridge teams would be more confident and better motivated. The key to safety is a happy ship with good social environment or atmosphere among officers and crew, so that everyone is not afraid to speak up and take up individual concerns as is now being done in the aviation industry.

() This is based on a UK Maritime Pilots' Association report quoting Torkel Soma, DNV Maritime Solutions, principal consultant. He focused on maritime accidents for his PhD from Norway's University of Technology and Science.*

[TASK: VISIT http://www.mcga.gov.uk/c4mca/mcga-research_report_521.pdf AND STUDY THE PUBLICATION TITLED, "IDENTIFICATION OF LEADERSHIP QUALITIES FOR EFFECTIVE SAFETY MANAGEMENT" REFERRED TO IN MGN 351 WHICH CAN BE SEEN ON THE MCGA WEBSITE.]

[TASK: STUDY PARAGRAPHS 17 AND 18 OF THE STCW CODE SECTION A-VIII/2. WHAT DO THESE REQUIREMENTS STATE ABOUT COMPETENCY AND/OR QUALIFICATION OF THE WATCHKEEPING STAFF?]



STCW REQUIREMENTS ON WATCHKEEPING:

Below sections governing watchkeeping include amendments done at the STCW conference in Manila during June 2010.

CHAPTER VIII
Guidance regarding watchkeeping

Regulation VIII/2

Watchkeeping arrangements and principles to be observed

- 1 Administrations shall direct the attention of companies, masters, chief engineer officers and all watchkeeping personnel to the requirements, principles and guidance set out in the STCW Code which shall be observed to ensure that a safe continuous watch or watches appropriate to the prevailing circumstances and conditions are maintained in all seagoing ships at all times.
- 2 Administrations shall require the master of every ship to ensure that watchkeeping arrangements are adequate for maintaining a safe watch or watches, taking into account the prevailing circumstances and conditions and that, under the master's general direction:
 - .1 officers in charge of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they shall be physically present on the navigating bridge or in a directly associated location such as the chartroom or bridge control room at all times;
 - .2 radio operators are responsible for maintaining a continuous radio watch on appropriate frequencies during their periods of duty;
 - .3 officers in charge of an engineering watch, as defined in the STCW Code, under the direction of the chief engineer officer, shall be immediately available and on call to attend the machinery spaces and, when required, shall be physically present in the machinery space during their periods of responsibility;
 - .4 an appropriate and effective watch or watches are maintained for the purpose of safety at all times while the ship is at anchor or moored and, if the ship is carrying hazardous cargo, the organization of such watch or watches takes full account of the nature, quantity, packing and stowage of the hazardous cargo and of any special conditions prevailing on board, afloat or ashore; and
 - .5 as applicable, an appropriate and effective watch or watches are maintained for the purposes of security.

Following from the STCW Code PART A**Mandatory standards regarding provisions of the annex to the STCW Convention****Introduction**

This part of the STCW Code contains mandatory provisions to which specific reference is made in the annex to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended, referred to as the STCW Convention.

These provisions give in detail the minimum standards required to be maintained by Parties in order to give full and complete effect to the Convention.

Section A-VIII/2*Watchkeeping arrangements and principles to be observed***PART 1 – CERTIFICATION**

- 1 The officer in charge of the navigational or deck watch shall be duly qualified in accordance with the provisions of chapter II or chapter VII appropriate to the duties related to navigational or deck watchkeeping.
- 2 The officer in charge of the engineering watch shall be duly qualified in accordance with the provisions of chapter III or chapter VII appropriate to the duties related to engineering watchkeeping.

PART 2 – VOYAGE PLANNING**General requirements**

- 3 The intended voyage shall be planned in advance, taking into consideration all pertinent information, and any course laid down shall be checked before the voyage commences.
- 4 The chief engineer officer shall, in consultation with the master, determine in advance the needs of the intended voyage, taking into consideration the requirements for fuel, water, lubricants, chemicals, expendable and other spare parts, tools, supplies and any other requirements.

Planning prior to each voyage

- 5 Prior to each voyage, the master of every ship shall ensure that the intended route from the port of departure to the first port of call is planned using adequate and appropriate charts and other nautical publications necessary for the intended voyage, containing accurate, complete and up-to-date information regarding those navigational limitations and hazards which are of a permanent or predictable nature and which are relevant to the safe navigation of the ship.

Verification and display of planned route

- 6 When the route planning is verified, taking into consideration all pertinent information, the planned route shall be clearly displayed on appropriate charts and shall be continuously available to the officer in charge of the watch, who shall verify each course to be followed prior to using it during the voyage.

Deviation from planned route

- 7 If a decision is made, during a voyage, to change the next port of call of the planned route, or if it is necessary for the ship to deviate substantially from the planned route for other reasons, then an amended route shall be planned prior to deviating substantially from the route originally planned.

PART 3 – WATCHKEEPING PRINCIPLES IN GENERAL

- 8 Watches shall be carried out based on the following bridge and engine-room resource management principles:
 - .1 proper arrangements for watchkeeping personnel shall be ensured in accordance with the situations;
 - .2 any limitation in qualifications or fitness of individuals shall be taken into account when deploying watchkeeping personnel;
 - .3 understanding of watchkeeping personnel regarding their individual roles, responsibility and team roles shall be established;
 - .4 the master, chief engineer officer and officer in charge of watch duties shall maintain a proper

watch, making the most effective use of the resources available, such as information, installations/equipment and other personnel;

- .5 watchkeeping personnel shall understand functions and operation of installations/equipment, and be familiar with handling them;
- .6 watchkeeping personnel shall understand information and how to respond to information from each station/installation/equipment;
- .7 information from the stations/installations/equipment shall be appropriately shared by all the watchkeeping personnel;
- .8 watchkeeping personnel shall maintain an exchange of appropriate communication in any situation; and
- .9 watchkeeping personnel shall notify the master/chief engineer officer/officer in charge of watch duties without any hesitation when in any doubt as to what action to take in the interest of safety.

PART 4 – WATCHKEEPING AT SEA**Principles applying to watchkeeping generally**

- 9 Parties shall direct the attention of companies, masters, chief engineer officers and watchkeeping personnel to the following principles, which shall be observed to ensure that safe watches are maintained at all times.
- 10 The master of every ship is bound to ensure that watchkeeping arrangements are adequate for maintaining a safe navigational or cargo watch. Under the master's general direction, the officers of the navigational watch are responsible for navigating the ship safely during their periods of duty, when they will be particularly concerned with avoiding collision and stranding.
- 11 The chief engineer officer of every ship is bound, in consultation with the master, to ensure that watchkeeping arrangements are adequate to maintain a safe engineering watch.

Protection of marine environment

- 12 The master, officers and ratings shall be aware of the serious effects of operational or accidental pollution of the marine environment, and shall take all possible precautions to prevent such pollution, particularly within the framework of relevant international and port regulations.

Part 4-1 – Principles to be observed in keeping a navigational watch

- 13 The officer in charge of the navigational watch is the master's representative and is primarily responsible at all times for the safe navigation of the ship and for complying with the International Regulations for Preventing Collisions at Sea, 1972, as amended.

Lookout

- 14 A proper lookout shall be maintained at all times in compliance with rule 5 of the International Regulations for Preventing Collisions at Sea, 1972, as amended and shall serve the purpose of:
 - .1 maintaining a continuous state of vigilance by sight and hearing, as well as by all other available means, with regard to any significant change in the operating environment;
 - .2 fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and

- .3 detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.
- 15 The lookout must be able to give full attention to the keeping of a proper lookout and no other duties shall be undertaken or assigned which could interfere with that task.
- 16 The duties of the lookout and helmsperson are separate and the helmsperson shall not be considered to be the lookout while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper lookout. The officer in charge of the navigational watch may be the sole lookout in daylight provided that, on each such occasion:
 - .1 the situation has been carefully assessed and it has been established without doubt that it is safe to do so;
 - .2 full account has been taken of all relevant factors, including, but not limited to:
 - state of weather,
 - visibility,
 - traffic density,
 - proximity of dangers to navigation, and
 - the attention necessary when navigating in or near traffic separation schemes;
 and
 - .3 assistance is immediately available to be summoned to the bridge when any change in the situation so requires.
- 17 In determining that the composition of the navigational watch is adequate to ensure that a proper lookout can continuously be maintained, the master shall take into account all relevant factors, including those described in this section of the Code, as well as the following factors:
 - .1 visibility, state of weather and sea;
 - .2 traffic density, and other activities occurring in the area in which the vessel is navigating;
 - .3 the attention necessary when navigating in or near traffic separation schemes or other routing measures;
 - .4 the additional workload caused by the nature of the ship's functions, immediate operating requirements and anticipated manoeuvres;
 - .5 the fitness for duty of any crew members on call who are assigned as members of the watch;
 - .6 knowledge of, and confidence in, the professional competence of the ship's officers and crew;
 - .7 the experience of each officer of the navigational watch, and the familiarity of that officer with the ship's equipment, procedures, and manoeuvring capability;
 - .8 activities taking place on board the ship at any particular time, including radiocommunication activities, and the availability of assistance to be summoned immediately to the bridge when

- necessary;
- .9 the operational status of bridge instrumentation and controls, including alarm systems;
- .10 rudder and propeller control and ship manoeuvring characteristics;
- .11 the size of the ship and the field of vision available from the conning position;
- .12 the configuration of the bridge, to the extent such configuration might inhibit a member of the watch from detecting by sight or hearing any external development; and
- .13 any other relevant standard, procedure or guidance relating to watchkeeping arrangements and fitness for duty which has been adopted by the Organization.

Watch arrangements

- 18 When deciding the composition of the watch on the bridge, which may include appropriately qualified ratings, the following factors, *inter alia*, shall be taken into account:
 - .1 at no time shall the bridge be left unattended;
 - .2 weather conditions, visibility and whether there is daylight or darkness;
 - .3 proximity of navigational hazards which may make it necessary for the officer in charge of the watch to carry out additional navigational duties;
 - .4 use and operational condition of navigational aids such as ECDIS, radar or electronic position-indicating devices and any other equipment affecting the safe navigation of the ship;
 - .5 whether the ship is fitted with automatic steering;
 - .6 whether there are radio duties to be performed;
 - .7 unmanned machinery space (UMS) controls, alarms and indicators provided on the bridge, procedures for their use and their limitations; and
 - .8 any unusual demands on the navigational watch that may arise as a result of special operational circumstances.

Taking over the watch

- 19 The officer in charge of the navigational watch shall not hand over the watch to the relieving officer if there is reason to believe that the latter is not capable of carrying out the watchkeeping duties effectively, in which case the master shall be notified.
- 20 The relieving officer shall ensure that the members of the relieving watch are fully capable of performing their duties, particularly as regards their adjustment to night vision. Relieving officers shall not take over the watch until their vision is fully adjusted to the light conditions.
- 21 Prior to taking over the watch, relieving officers shall satisfy themselves as to the ship's estimated or true position and confirm its intended track, course and speed, and UMS controls as appropriate and shall note any dangers to navigation expected to be encountered during their watch.
- 22 Relieving officers shall personally satisfy themselves regarding the:
 - .1 standing orders and other special instructions of the master relating to navigation of the ship;

- .2 position, course, speed and draught of the ship;
 - .3 prevailing and predicted tides, currents, weather, visibility and the effect of these factors upon course and speed;
 - .4 procedures for the use of main engines to manoeuvre when the main engines are on bridge control; and
 - .5 navigational situation, including, but not limited to:
 - .5.1 the operational condition of all navigational and safety equipment being used or likely to be used during the watch;
 - .5.2 the errors of gyro- and magnetic compasses;
 - .5.3 the presence and movement of ships in sight or known to be in the vicinity;
 - .5.4 the conditions and hazards likely to be encountered during the watch; and
 - .5.5 the possible effects of heel, trim, water density and squat on under-keel clearance.
- 23 If, at any time, the officer in charge of the navigational watch is to be relieved when a manoeuvre or other action to avoid any hazard is taking place, the relief of that officer shall be deferred until such action has been completed.

Performing the navigational watch

- 24 The officer in charge of the navigational watch shall:
- .1 keep the watch on the bridge;
 - .2 in no circumstances leave the bridge until properly relieved; and
 - .3 continue to be responsible for the safe navigation of the ship, despite the presence of the master on the bridge, until informed specifically that the master has assumed that responsibility and this is mutually understood.
- 25 During the watch, the course steered, position and speed shall be checked at sufficiently frequent intervals, using any available navigational aids necessary, to ensure that the ship follows the planned course.
- 26 The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the ship and shall be aware and take account of the operating limitations of such equipment.
- 27 The officer in charge of the navigational watch shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship.
- 28 When using radar, the officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the provisions on the use of radar contained in the International Regulations for Preventing Collisions at Sea, 1972, as amended in force.
- 29 In cases of need, the officer in charge of the navigational watch shall not hesitate to use the helm, engines and sound signalling apparatus. However, timely notice of intended variations of engine speed shall be given where possible or effective use shall be made of UMS engine controls provided on the bridge in accordance with the applicable procedures.

- 30 Officers of the navigational watch shall know the handling characteristics of their ship, including its stopping distances, and should appreciate that other ships may have different handling characteristics.
- 31 A proper record shall be kept during the watch of the movements and activities relating to the navigation of the ship.
- 32 It is of special importance that at all times the officer in charge of the navigational watch ensures that a proper lookout is maintained. In a ship with a separate chartroom, the officer in charge of the navigational watch may visit the chartroom, when essential, for a short period for the necessary performance of navigational duties, but shall first ensure that it is safe to do so and that proper lookout is maintained.
- 33 Operational tests of shipboard navigational equipment shall be carried out at sea as frequently as practicable and as circumstances permit, in particular before hazardous conditions affecting navigation are expected. Whenever appropriate, these tests shall be recorded. Such tests shall also be carried out prior to port arrival and departure.
- 34 The officer in charge of the navigational watch shall make regular checks to ensure that:
- .1 the person steering the ship or the automatic pilot is steering the correct course;
 - .2 the standard compass error is determined at least once a watch and, when possible, after any major alteration of course; the standard and gyro-compasses are frequently compared and repeaters are synchronized with their master compass;
 - .3 the automatic pilot is tested manually at least once a watch;
 - .4 the navigation and signal lights and other navigational equipment are functioning properly;
 - .5 the radio equipment is functioning properly in accordance with paragraph 86 of this section; and
 - .6 the UMS controls, alarms and indicators are functioning properly.
- 35 The officer in charge of the navigational watch shall bear in mind the necessity to comply at all times with the requirements in force of the International Convention for the Safety of Life at Sea (SOLAS), 1974(*). The officer of the navigational watch shall take into account:
- .1 the need to station a person to steer the ship and to put the steering into manual control in good time to allow any potentially hazardous situation to be dealt with in a safe manner; and
 - .2 that, with a ship under automatic steering, it is highly dangerous to allow a situation to develop to the point where the officer in charge of the navigational watch is without assistance and has to break the continuity of the lookout in order to take emergency action.

(* See SOLAS regulations V/24, V/25 and V/26.

- 36 Officers of the navigational watch shall be thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and shall use each of these aids when appropriate and shall bear in mind that the echo-sounder is a valuable navigational aid.

- 37 The officer in charge of the navigational watch shall use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters, having due regard to its limitations.
- 38 The officer in charge of the navigational watch shall ensure that the range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible. It shall be borne in mind that small or poor echoes may escape detection.
- 39 Whenever radar is in use, the officer in charge of the navigational watch shall select an appropriate range scale and observe the display carefully, and shall ensure that plotting or systematic analysis is commenced in ample time.
- 40 The officer in charge of the navigational watch shall notify the master immediately:
- .1 if restricted visibility is encountered or expected;
 - .2 if the traffic conditions or the movements of other ships are causing concern;
 - .3 if difficulty is experienced in maintaining course;
 - .4 on failure to sight land, or a navigation mark or to obtain soundings by the expected time;
 - .5 if, unexpectedly, land or a navigation mark is sighted or a change in soundings occurs;
 - .6 on breakdown of the engines, propulsion machinery remote control, steering gear or any essential navigational equipment, alarm or indicator;
 - .7 if the radio equipment malfunctions;
 - .8 in heavy weather, if in any doubt about the possibility of weather damage;
 - .9 if the ship meets any hazard to navigation, such as ice or a derelict; and
 - .10 in any other emergency or if in any doubt.
- 41 Despite the requirement to notify the master immediately in the foregoing circumstances, the officer in charge of the navigational watch shall, in addition, not hesitate to take immediate action for the safety of the ship, where circumstances so require.
- 42 The officer in charge of the navigational watch shall give watchkeeping personnel all appropriate instructions and information which will ensure the keeping of a safe watch, including a proper lookout.

Watchkeeping under different conditions and in different areas

Clear weather

- 43 The officer in charge of the navigational watch shall take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and shall bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range. The officer in charge of the navigational watch shall also take early and positive action in compliance with the applicable International Regulations for Preventing Collisions at Sea, 1972, as amended and subsequently check that such action is having the desired effect.
- 44 In clear weather, whenever possible, the officer in charge of the navigational watch shall carry out

radar practice.

Restricted visibility

- 45 When restricted visibility is encountered or expected, the first responsibility of the officer in charge of the navigational watch is to comply with the relevant rules of the International Regulations for Preventing Collisions at Sea, 1972, as amended with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre. In addition, the officer in charge of the navigational watch shall:
- .1 inform the master;
 - .2 post a proper lookout;
 - .3 exhibit navigation lights; and
 - .4 operate and use the radar.

In hours of darkness

- 46 The master and the officer in charge of the navigational watch, when arranging lookout duty, shall have due regard to the bridge equipment and navigational aids available for use, their limitations, procedures and safeguards implemented.

Coastal and congested waters

- 47 The largest scale chart on board, suitable for the area and corrected with the latest available information, shall be used. Fixes shall be taken at frequent intervals, and shall be carried out by more than one method whenever circumstances allow. When using ECDIS, appropriate usage code (scale) electronic navigational charts shall be used and the ship's position shall be checked by an independent means of position fixing at appropriate intervals.
- 48 The officer in charge of the navigational watch shall positively identify all relevant navigation marks.

Navigation with pilot on board

- 49 Despite the duties and obligations of pilots, their presence on board does not relieve the master or the officer in charge of the navigational watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and/or the officer in charge of the navigational watch shall co-operate closely with the pilot and maintain an accurate check on the ship's position and movement.
- 50 If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives.

Ship at anchor

- 51 If the master considers it necessary, a continuous navigational watch shall be maintained at anchor. While at anchor, the officer in charge of the navigational watch shall:
- .1 determine and plot the ship's position on the appropriate chart as soon as practicable;

- .2 when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;
- .3 ensure that proper lookout is maintained;
- .4 ensure that inspection rounds of the ship are made periodically;
- .5 observe meteorological and tidal conditions and the state of the sea;
- .6 notify the master and undertake all necessary measures if the ship drags anchor;
- .7 ensure that the state of readiness of the main engines and other machinery is in accordance with the master's instructions;
- .8 if visibility deteriorates, notify the master;
- .9 ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations; and
- .10 take measures to protect the environment from pollution by the ship and comply with applicable pollution regulations.

Following from the STCW Code Part B: *This Part of the STCW Code contains recommended guidance intended to assist those involved in implementing, applying or enforcing its measures to give the Convention full and complete effect in a uniform manner. The measures suggested are not mandatory, however, the recommendations in general represent an approach to the matters concerned which has been harmonized through discussion within IMO involving, where appropriate, consultation with the International Labour Organization, the International Telecommunication Union and the World Health Organization.*

Observance of the recommendations contained in this part will assist the IMO in achieving its goal of maintaining the highest practicable standards of competence in respect of crews of all nationalities and ships of all flags.

STCW Code : Section B-VIII/2

(Non Mandatory Guidelines)

Guidance regarding watchkeeping arrangements and principles to be observed

- 1 The following operational guidance should be taken into account by companies, masters and watchkeeping officers.

PART 1, 2 and 3: No provisions.

PART 4 – GUIDANCE ON WATCHKEEPING AT SEA

Part 4-1 – Guidance on keeping a navigational watch

Introduction

- 2 Particular guidance may be necessary for special types of ships as well as for ships carrying hazardous, dangerous, toxic or highly flammable cargoes. The master should provide this operational guidance as appropriate.
- 3 It is essential that officers in charge of the navigational watch appreciate that the efficient performance of their duties is necessary in the interests of the safety of life and property at sea

and of preventing pollution of the marine environment.

Anchor watch

- 4 The master of every ship at an unsheltered anchorage, at an open roadstead or any other virtually "at sea" conditions in accordance with chapter VIII, section A-VIII/2, part 4-1, paragraph 51 of the STCW Code, should ensure that watchkeeping arrangements are adequate for maintaining a safe watch at all times. A deck officer should at all times maintain responsibility for a safe anchor watch.
- 5 In determining the watchkeeping arrangements, and commensurate with maintaining the ship's safety and security and the protection of the marine environment, the master should take into account all pertinent circumstances and conditions such as:
 - .1 maintaining a continuous state of vigilance by sight and hearing as well as by all other available means;
 - .2 ship-to-ship and ship-to-shore communication requirements;
 - .3 the prevailing weather, sea, ice and current conditions;
 - .4 the need to continuously monitor the ship's position;
 - .5 the nature, size and characteristics of anchorage;
 - .6 traffic conditions;
 - .7 situations which might affect the security of the ship;
 - .8 loading and discharging operations;
 - .9 the designation of stand-by crew members; and
 - .10 the procedure to alert the master and maintain engine readiness.

SELF ASSESSMENT TEST : MULTIPLE CHOICE QUESTIONS

The below are based on International Regulations for Preventing Collisions at Sea, 1972, as amended (IRPCS or COLREGS), the STCW Convention, a few on connected legislation and ship handling principles. The best choice is given separately for reference; at times more than one choice may be correct; the best choice is based on the author's perception and opinion on the interpretation and application of the applicable legislation and/or best practices. (* means senior level questions)

- 1: With respect to navigational or bridge watchkeeping of sea going vessels, which of the following is correct?
- A. Navigational watchkeeping is governed only by the requirements stated in the Bridge Procedures Guide and supporting flag state circulars;
 - B. Navigational watchkeeping is governed only by the requirements of the International Regulations for Preventing Collisions at Sea, 1972, as amended;
 - C. Navigational watchkeeping is governed only by the legislation of the flag state a vessel is registered in which in turn is based solely on chapter V of the SOLAS convention;
 - D. Navigational watchkeeping is governed by the requirements, principles and guidance set out in the STCW Code sections VIII/2 which cross refers to other applicable conventions and/or regulations.
- 2: Which of the below is in **error** with respect to the watchkeeping principles?
- * A. The master, chief engineer officer and officer in charge of watch duties shall maintain a proper watch, making the most effective use of the resources available, such as information, installations/equipment and other personnel;
 - B. Watchkeeping personnel shall understand functions and operation of installations/equipment, and be familiar with handling them;
 - C. Watchkeeping personnel shall maintain absolute fitness to enable keep their assigned watches which shall not be changed without the express permission of the DPA;
 - D. Watchkeeping personnel shall notify the master, chief engineer officer or the officer in charge of watch duties without any hesitation when in any doubt as to what action to take in the interest of safety.
- 3: The International Regulations for Preventing Collisions at Sea are divided into?
- A. 4 parts and 3 Annexes;
 - B. 5 sections, 5 parts and 5 annexes;
 - C. It varies, depends on the way a particular flag state administration finally approves and adopts the same in their legislation;
 - D. 5 parts named 'A' to 'E' and Annex I to IV, of these Part B is subdivided into 3 sections.
- 4: An appropriate authority for roadsteads, harbours, rivers, lakes or inland waterways connected with the high seas and navigable by seagoing vessels, in making special Rules for such areas shall ensure that the same?
- A. Conform as closely as possible to the International Regulations for Preventing Collisions at Sea, 1972, as amended;
 - B. Have been approved by a classification society on behalf of IMO;
 - C. Have their coordinates clearly shown on the appropriate nautical charts;
 - D. Conform with all of the above.

- 5: Special Rules may be made by the Government of any State with respect to the use of additional whistle signals between?
- Tugs engaged in coastal towing operations;
 - Ships of war and vessels proceeding under convoy;
 - Pilot vessels and vessels requiring pilots;
 - None of the above.
- 6: Under the International Regulations for Preventing Collisions at Sea there is a requirement to practice 'good seamanship'. Which of the following should be considered 'good seamanship'?
- Proceeding at full speed in near zero visibility as no targets are detected on any radar or on the AIS;
 - Using deck and accommodation lights at Sea which may obscure the proper running lights;
 - Proceeding on the port side of a narrow channel to take advantage of a favourable current;
 - A vessel underway should keep clear of a vessel at anchor.
- 7: Which of the following statements 'X' & 'Y' would you consider as actions which have been carried out in compliance with the requirements of Rule 2 of the International Regulations for Preventing Collisions at Sea, 1972, as amended?
- A power-driven vessel meeting another power-driven vessel in a head on situation, reasonable distance away and being unable to alter course to starboard owing to a large number of fishing vessels on the starboard side, she makes a rapid 90° course alteration to port.
 - Action carried out by a power driven vessel to avoid a formation of warships, or merchant vessels in convoy detected on the port bow at long range, assuming that the situation may likely develop into close quarters and/or risk of collision.
- 'X' only;
 - 'Y' only;
 - Neither 'X' nor 'Y';
 - Both 'X' and 'Y'.
- 8: Which of the following is/are a vessel 'not under command', (NUC)?
- A vessel engaged in minesweeping operations;
 - A sailing vessel becalmed (there is no wind blowing);
 - An offshore supply vessel engaged in towing another offshore supply vessel;
 - All of the above.
- 9: Which of the following is not a vessel 'restricted in her ability to manoeuvre'?
- A vessel servicing a navigation buoy;
 - A minesweeper engaged in minesweeping operations;
 - A tanker refuelling a warship, both making way through the water;
 - A loaded VLCC navigating in a narrow channel surrounded by shallow water.
- 10: Your vessel receives instructions in mid Atlantic in calm weather conditions of good visibility to stop and await further voyage orders. You shall arrange exhibit the following and update the status on the AIS as may be necessary:
- Lights as per rule 23(a) at night {mast head light(s), sidelights and sternlight}, no day signals by these Rules but should hoist flag 'M' during daylight.
 - Three all-round red lights in a vertical line at night or a black cylinder during day time;

- Lights and shapes as per rule 27(a), i.e. Not Under Command, since the vessel cannot now manoeuvre as required by these Rules;
 - No flag or shapes during the day, put on all deck lights at night.
- 11: Complete the following: 'The term **'power-driven vessel'** _____'?
- Is any vessel other than a vessel powered by sails;
 - Includes any vessel which is self-propelled;
 - Means any vessel propelled by machinery;
 - Means any vessel propelled by an internal combustion engine.
- 12: The statement, **'vessels shall be deemed to be in sight of one another'** means:
- When one can be observed visually from the radar of the other;
 - Only when one can be observed visually from the other;
 - When one can be observed on the AIS of the other;
 - None of the above.
- 13: The definition of **'restricted visibility'** in Rule 3(l) ends with the statement **'or any other similar causes'**. In your view which of the following fit this statement?
- The bridge view glasses are covered with ice spray;
 - The OOW has pulled down anti glare screens in the blinding sunlight;
 - Thick smoke from a forest fire ashore which has rolled over the sea;
 - None of the above.
- 14: According to these Rules?
- A vessel is 'underway' **only** if she is not at anchor or made fast to a shore jetty;
 - A vessel is 'underway' **only** if she is has a speed vector over the ground;
 - A vessel is 'underway' **only** if she is not made fast to the shore;
 - None of the above is correct.
- 15: A proper look-out by sight and hearing as well as all available means appropriate in the prevailing circumstances is required at all times by Rule 5 of IRPCS. Where else are lookout aspects prescribed and elaborated on?
- Only in the Bridge Procedures Guide;
 - It is a requirement stated only in SOLAS Chapter V which states that the master has the right to set the standards;
 - In Rule 20(b) of IRPCS and in STCW Code, Section A-VIII/2 which elaborates look-out principles and procedures in depth and uses the term about 16 times;
 - In flag state legislation and associated circulars, for example MGN 315 on **'keeping a safe navigational watch on merchant vessels'** published by MCA of the UK.
- 16: When making a full appraisal of the situation, can risk of collision be confirmed only as per the provisions of Rule 5 of IRPCS?
- Yes;
 - No;
 - Yes and no;
 - No, look-out procedures are to make a full appraisal of the situation and of the risk of collision but any likely risk of collision should be confirmed as per the provisions of Rule 7 of IRPCS.

- 17: On a vessel underway when it is dark outside, that means there is no daylight, the requirement to have an additional qualified person on look-out duty other than the OOW is a?
- Requirement by Rule 5 of IRPCS on look-out;
 - Discretion of the OOW in consultation with or as may be instructed by the master;
 - Requirement stated in paragraph 16 of the STCW Code Section A-VIII/2;
 - Discretion of the shore based management of the organisation as may be elaborated in their documented management systems.
- 18: Rule 5 of the International Regulations for Preventing Collisions at Sea, 1972, as amended, requires that a proper look-out shall be maintained at all times. Which of the following best describes look-out functions, be it an OOW who may be the sole look-out during daylight and any additional persons placed on look-out duty?
- As stated in several paragraphs of STCW Code Section A-VIII/2 but primarily in Paragraphs 14 to 17;
 - No other duties shall be undertaken by or assigned to persons on look-out duties which could interfere with that task;
 - The duties of the lookout and helmsperson are separate and the helmsperson shall not be considered to be the lookout while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper lookout;
 - All of the above.
- 19: Where would you find this statement? *'In determining that the composition of the navigational watch is adequate to ensure that a proper lookout can continuously be maintained, the master shall take into account all relevant factors'.*
- In Rule 5 of the International Regulations for Preventing Collisions at Sea, 1972, as amended;
 - In the book 'Bridge Watchkeeping';
 - In STCW Code Section A-VIII/2;
 - Usually stated in an organisations bridge procedures guidelines, does not exist in any of the above.
- 20: As per the requirements of Rule 5 referred to in the previous question read in conjunction with the mandatory requirements of the STCW Code A Section VIII/2, an OOW when alone on watch during daylight and acting as the sole lookout:
- May keep the bridge wing doors closed as long as the radars have the guard zone rings activated;
 - May visit a separate chart room to carry out essential navigational duties for short periods if it is safe to do so without maintaining the continuity of lookout;
 - May make noon messages and/or complete other paper work or correct charts / publications if there is no traffic in the vicinity as determined by all sources provided radars (or ECDIS) have the guard zone rings activated, keep the wing doors open and the VHF volume is kept on high;
 - None of the above, proper lookout is continuous by sight and hearing and maintaining a continuous state of vigilance by sight and hearing, as well as by all other available means, with regard to any significant change in the operating environment.

- 21: In considering 'safe speed' as defined in Rule 6 of IRPCS, is it true to say that:
- At safe speed a vessel can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.
 - This clearly implies that in low sea/swell conditions a vessel may proceed at full sea speed if there are no other vessels in the vicinity.
- Both 'I' and 'II';
 - 'I' only;
 - 'II' only;
 - Neither 'I' nor 'II'.
- 22: As an OOW of a vessel you sight another vessel visually or on the radar PPI or detect her on AIS and have a doubt that there is a likelihood of risk of collision with her. As per the Rules of IRPCS (or COLREGS) this means:
- Such risk shall be deemed to exist;
 - A doubt would fall under Rule 7(c), 'assumptions shall not be made on the basis of scanty information', so should not be taken into consideration and further checks done especially as per Rule 7(d);
 - Call the master because of the doubt, this is required by paragraphs 8.9 and 40.10 of the STCW Code A-VIII/2, the master shall assess the situation and decide;
 - All the above are correct.
- 23: Two vessels are approaching each other at considerably large range but also in sight of one another. In compliance with Rule 7 of the International Regulations for Preventing Collisions at Sea, 1972, as amended (IRPCS), and paragraph 43 of the STCW Code Section A-VIII/2, they shall determine if risk of collision exists between them?
- By monitoring each other's ranges and bearings obtained by AIS;
 - By monitoring the compass bearing of each other to check appreciable bearing change;
 - Assume it exists if either of the two vessels is heading towards the other;
 - At night, assume it exists if either of them sight both the sidelights of the other vessel on any bearing.
- 24: 'Proper use shall be made of radar equipment', which of the below best describes proper use of the radar.
- It may be as defined by the Company in their documented Safety Management system;
 - By using the radar properly as per the directives given in its own operating manual;
 - As required by Rules 6, 7, 8 and 19 of IRPCS in conjunction with the various requirements contained in STCW Code Section A-VIII/2 and in other industrial codes and guides;
 - All of the above.
- 25: Which of the following should be accepted as proper use of radar equipment to determine if risk of collision exists?
- Observations of targets on the radar by a competent person.
 - Bearing and distances of targets obtained on the radar at regular intervals and carefully evaluated.
 - 'A' only;
 - 'B' only;
 - Both 'A' and 'B';
 - Neither 'A' nor 'B'.

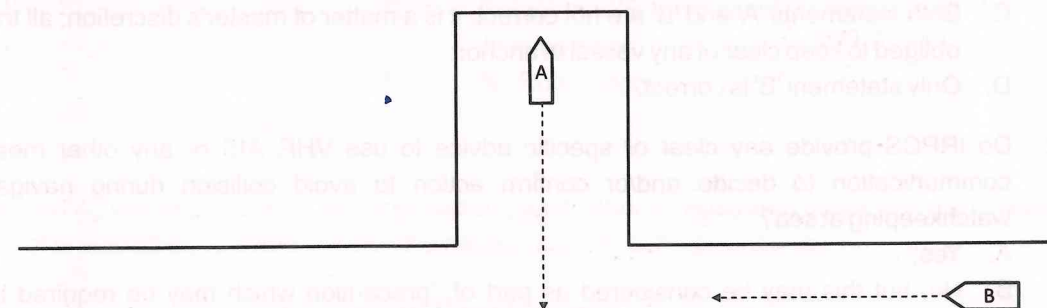
- 26: With respect to the radar is this statement 'the officer in charge of the navigational watch shall ensure that range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible. It shall be borne in mind that small or poor echoes may escape detection.'
- A. Is a part of ordinary practice of seamanship;
 B. Depends on the Company SMS;
 C. Is stated in legislation governing bridge watchkeeping;
 D. Do not know for sure.
- 27: The statement, 'the officer in charge of the navigational watch shall take frequent and accurate compass bearings of approaching ships as a means of early detection of risk of collision and bear in mind that such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large ship or a tow or when approaching a ship at close range.'
- A. Is based on Rule 7, compass bearing could be radar bearings and compass error must be applied to convert all compass bearings to true bearings first;
 B. Is a requirement stated in STCW Code A-VIII/2 paragraph 43 and supplements IRPCS (or COLREGS) requirements as prescribed in Rule 7, the latter applies at all times and in any condition of visibility;
 C. Is a practice handed down in time and is simply an ordinary practice of seamen;
 D. Is a requirement stated in the new SOLAS Chapter V and explained in the new edition of the Mariners Handbook.
- 28: When is Rule 8 on 'action to avoid collision' applicable?
- A. In all conditions of visibility, whenever any action to avoid collision is planned and executed;
 B. For any action to avoid collision but only when vessels are in sight of one another;
 C. For any action to avoid collision between vessels not in sight of one another when navigating in or near an area of restricted visibility;
 D. None of the above.
- 29: Rule 8(b) states, '*any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar*'.
- In case of a head-on situation involving two power-driven vessels, confirmed risk of collision in open sea, good visibility, vessels in sight of one another, at moderate to long range and moving at full sea speed, full sea speed considered to be safe speed in the circumstances.
- What should be the amount of initial course alteration in your opinion to comply with the above quoted requirement of Rule 8 to be readily apparent to the other vessel on her radar?
- A. 5° to 10°;
 B. 10° to 15°;
 C. 15° to 20°;
 D. 20° to 30° or even larger.
- 30: In a situation similar to the above but in restricted visibility, vessels not in sight of one another, still at moderate to long range and at safe speed. What will be amount of initial course alteration in your opinion to comply with the requirement of Rule 8-b quoted in the above question?

- A. 10° to 15°;
 B. 15° to 20°;
 C. 20° to 25°;
 D. Minimum 30° but preferably in the range of 60° to 90°.
- 31: In restricted visibility a power-driven vessel is proceeding at safe speed, propulsion at manoeuvring full ahead and the engines (propulsion machinery) in a state of readiness (stand by). To avoid risk of collision with a vessel forward of her beam confirmed by radar alone, the other vessel at moderate to long range, this power-driven vessel decides to change speed. In your opinion, which of the below actions may be considered the best to comply with Rule 8(b)?
- A. Reduce speed slowly to half ahead;
 B. Reduce speed slowly to slow ahead;
 C. Stop engines, allow a rapid reduction in speed, using astern propulsion if necessary, and then resume forward movement at minimum propulsion power, increasing speed only after the other vessel has passed well clear;
 D. Increase to full sea speed so as to quickly pass clear of the other vessel.
- 32: The term 'a close-quarters situation' as used in Rule 8(c), 19(d) and 19(e) means?
- A. The other vessel has a projected CPA so close that collision cannot be avoided by her action alone;
 B. The other vessel has a CPA bordering close to or within own vessels outer turning circle limits, where the advance should not exceed 4.5 ship lengths and the tactical diameter 5 ship lengths as per IMO criteria on ship manoeuvrability;
 C. This is a term with no clear definition and is open to a continuing debate on its exact meaning;
 D. All of the above statements can be used to define 'a close-quarters situation'.
- 33: In any condition of visibility, with respect to Rule 8 of the International Regulations for Preventing Collisions at Sea, 1972, as amended, in order to avoid collision, which of the following statement is **wrong**?
- A. If there is sufficient sea room, alteration of course alone may be the most effective action to avoid a close-quarters situation;
 B. Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar;
 C. A course alteration to port should always be the preferred best action;
 D. A succession of small alterations of course and/or speed should be avoided.
- 34: Rule 8(b) states that '**a succession of small alterations of course and/or speed should be avoided**'. In your opinion which of the below statement best describes this requirement?
- A. Small alterations of course and/or speed cause fluctuations to the engine load and RPM;
 B. Small course alterations, especially small speed alterations, will not be readily apparent to other vessels in the vicinity observing visually or by radar;
 C. Executing small course and/or speed alterations is a nuisance for the watchkeepers;
 D. Small course alterations take an extremely long time to implement because very little rudder angle is used.
- 35: IMO resolution MSC137(76) standards for ship manoeuvrability on turning ability states that, the advance should not exceed 4.5 ship lengths and the tactical diameter should not

exceed 5 ship lengths in the turning circle manoeuvre. This is based on using 35° rudder angle or the maximum rudder angle permissible at the test speed, following a steady approach with zero yaw rate. Crash astern stop distance should not exceed 15 ship lengths which a flag state may allow up to 20 lengths for large displacement vessels. In practice this means:

- A. The turning circle diameter at half speed will be much larger with both advance and tactical diameter increasing substantially, the time taken to execute the turn will be longer;
 - B. The turning circle diameter at half speed will be more or less the same, no substantial change for practical purposes, the time taken to execute the turn will be longer;
 - C. The turning circle diameter at half speed will be smaller with both advance and tactical diameter reducing slightly, the time taken to execute the turn will be longer;
 - D. None of the above, the manoeuvring characteristics vary from vessel to vessel and depend on the classification society Rules.
- 36: The statement: "Whenever radar is in use, the officer in charge of the navigational watch shall select an appropriate range scale and observe the display carefully, and shall ensure that plotting or systematic analysis is commenced in ample time".
- A. Is from Bridge Procedures Guide;
 - B. Is contained in MGN 315 pertaining to best navigational practices;
 - C. Is a legislative requirement in an IMO convention;
 - D. Is usually stated in the guidelines on navigational procedures of any organisation.
- 37: If commencing a large altering of course as an action to avoid collision and simultaneously reducing a vessels propulsion speed, what may happen?
- A. The pivot point will fall aft coupled with reduced thrust will result in a larger turning circle and reduced passing range;
 - B. Nothing will happen; speed changes take a long time to reflect;
 - C. The action will allow more time and increase the passing range from the other vessel;
 - D. Will reduce the stress on the hull and machinery.
- 38: In a narrow channel or fairway governed by Rule 9, which of the below statements is correct?
- A. Vessels over 20 m in length other than sailing vessels 'which can safely navigate only within a narrow channel or fairway' have absolute and full right of way;
 - B. A vessel engaged in fishing as defined in Rule 3(d) need not stay out of the way of 'any other vessel navigating within a narrow channel or fairway';
 - C. Vessels must continue to keep clear of each other only as prescribed in Rule 18;
 - D. A vessel shall not cross a narrow channel or fairway if such crossing impedes the passage of a vessel which can safely navigate only within a narrow channel or fairway.
- 39: A power-driven vessel 'A' constrained by her draught is proceeding along a narrow channel displaying the optional signals prescribed in Rule 28. A small vessel 'B' less than 20 m in length commences to cross this narrow channel from the starboard side to the port side of 'A'. It appears that she will impede the safe passage of 'A', though 'B' is obliged not to. What signal should 'A' give under these circumstances?
- A. One short blast;
 - B. At least five short and rapid blasts, which may be supplemented by a light signal of at least five short and rapid flashes;
 - C. Three short blasts;
 - D. One prolonged, one short, one prolonged and one short blast in that order.

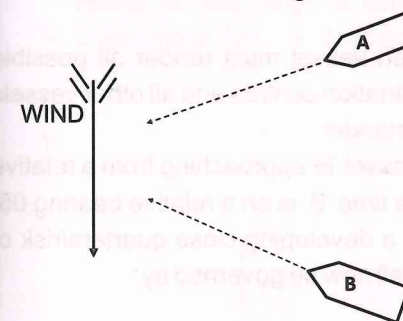
- 40: In the above scenario if these two vessels find that the situation is developing into a close-quarters and/or a risk of collision between them, assuming the visibility is good, the range between the vessels moderate and the time to collision still around 12 to 15 minutes provided they both keep their course and speed. What will be the best actions expected in compliance with the Rules?
- A. Vessel 'A' should keep her course and speed and wait for 'B' to take action to avoid impeding her safe passage;
 - B. Vessel 'B' should keep her course and speed and wait for 'A' to take action;
 - C. Vessel 'A' should take action to avoid collision as per the Rules in part 'B' of these Rules, while vessel 'B' continues to retain her obligation to not impede and keep clear and should also act as per the Rules of Part 'B' but in a manner so as not to embarrass or frustrate any actions which may be taken by 'A' to avoid the imminent developing close-quarters and/or a risk of collision situation;
 - D. The two vessels should communicate with each other by VHF or any other means to decide what actions they should take to avoid collision, or try and seek advice from the head office of the organisation.
- 41: A power-driven vessel proceeding up a narrow channel against the current, should?
- A. Navigate in the channel on the side opposite of the one maintained by the down bound vessels;
 - B. Proceed and keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable;
 - C. Proceed and keep as near to the outer limit of the channel or fairway which lies on her port side as is safe and practicable;
 - D. Always keep as close to the centre of the channel as possible.
- 42: Vessel 'A' is exiting stern first from a dock and is sounding one prolonged blast on her whistle as per Rule 34(e). Power-driven vessel 'B' is passing by as illustrated, hears the whistle signal but cannot see vessel 'A'. Vessel 'B' shall?



- A. Reduce speed or turn around to wait until vessel 'A' clears the slip;
 - B. Sound one prolonged blast using her whistle and navigate with particular alertness and caution;
 - C. Sound at least five short and rapid blasts on her whistle;
 - D. Take such action as may be felt necessary and required by the ordinary practice of seamen, or by the special circumstances of the case.
- 43: Requirements of Rule 10 of the International Regulations for Preventing Collisions at Sea, 1972, as amended, applies to traffic separation schemes:

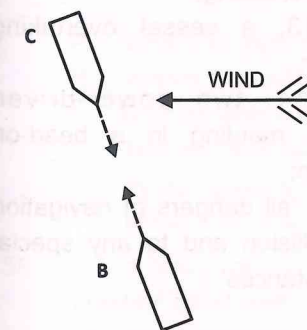
- A. Adopted by the International Maritime Organisation;
 - B. Adopted by local authorities;
 - C. Adopted by the association of the navies of the world;
 - D. All of the above.
- 44: As per Rule 10, referred to in the previous question, 'a vessel shall, so far as practicable, avoid crossing traffic lanes but if obliged to do so shall cross':
- A. At a course and speed which will lead to the least number of encounters with other vessels in the traffic lane;
 - B. On a heading, (heading means true course steered), that will cause her to spend the least time in the traffic lane;
 - C. On a heading, (heading means true course steered), as nearly as practicable at right angles to the general direction of traffic flow;
 - D. On a heading so that her track or course made good will be as nearly as practical at right angles to the general direction of the concerned traffic lane.
- 45 Which of the following vessels may use an inshore traffic zones any time?
- A. Any vessels constrained by her draught (CBD) or restricted in her ability to manoeuvre (RAM);
 - B. Vessels of less than 20m in length, sailing vessels and vessels engaged in fishing;
 - C. A vessels engaged in a towing operation;
 - D. All the above vessels.
- 46: Which of the following statement best describes a situation or situations when a vessel shall avoid anchoring:
- A: In a narrow channel, if the circumstances of the case admit.
 - B: In a traffic separation scheme or in areas near its terminations, so far as practicable.
- A. Only statement 'A' is correct;
 - B. Both statements 'A' and 'B' are correct;
 - C. Both statements 'A' and 'B' are not correct, it is a matter of master's discretion; all traffic is obliged to keep clear of any vessel at anchor;
 - D. Only statement 'B' is correct.
- 47: Do IRPCS provide any clear or specific advice to use VHF, AIS or any other means of communication to decide and/or confirm action to avoid collision during navigational watchkeeping at sea?
- A. Yes;
 - B. No, but this may be considered as part of, 'precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case', under Rule 2;
 - C. No, but this may be considered as use of 'all available means' under Rule 5 and/or Rule 7 of IRPCS or COLREGS;
 - D. No, there is no clear or specific advice in IRPCS or COLREGS. Compliance with them in silence alone is more effective in averting collisions rather than using VHF as a means for deciding and executing any action to avoid collision.
- 48: Rule 7 of the IRPCS and paragraph 43 of STCW Code Section-A VIII/2 mention compass bearing. Compass bearings should be?

- A. Visual bearings taken using the standard magnetic compass and any connected repeaters;
 - B. Visual bearings taken using the gyro compass and any connected repeaters;
 - C. Radar bearings taken from gyro stabilised radar if the above two options are not available, keeping in mind the inherent errors and/or reduced accuracy of radar bearings;
 - D. All of the above.
- 49: Which of the following statement is correct in describing the way any action to avoid collision should be executed in compliance with the IRPCS?
- I. in sight of one another, one or sometimes both vessels are obliged to take action;
 - II. All situations are usually governed by the relative aspect between the vessels. The exception being encounters between sailing vessels which depends on the wind direction relative to the sailing vessels as per Rule 12, and responsibilities between vessels as in Rule 18 where no specific directional aspects or actions are prescribed;
 - III. In or near an area of restricted visibility when not in sight of one another, both vessels are always required to take action irrespective of the type of vessel;
 - IV. The use of manoeuvring signals is applicable only to power-driven vessels provided they are within the approximate audible range of their sound signals;
- A. 'I' and 'II' are correct;
 - B. 'I', 'II' and 'III' are correct;
 - C. 'I', 'II' and 'IV' are correct;
 - D. All 4 options 'I', 'II', 'III' and 'IV' are correct.
- 50: In the illustrated encounter between two sailing vessels at medium range, in sight of one another and involving risk of collision; which of the below is correct as per IRPCS?



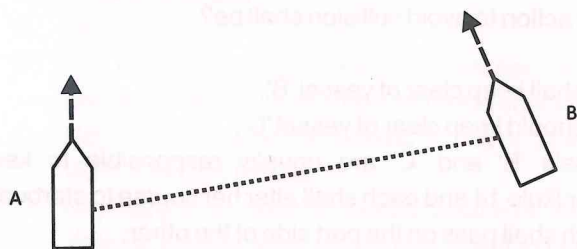
- A. A' keeps out of the way of 'B';
- B. B' keeps out of the way of 'A';
- C. Both 'A' and 'B' have equal responsibilities to keep clear;
- D. No Rules apply.

- 51: Two sailing vessels 'B' and 'C' are approaching each other as illustrated below and are in sight of one another. To avoid collision their action to avoid collision shall be?



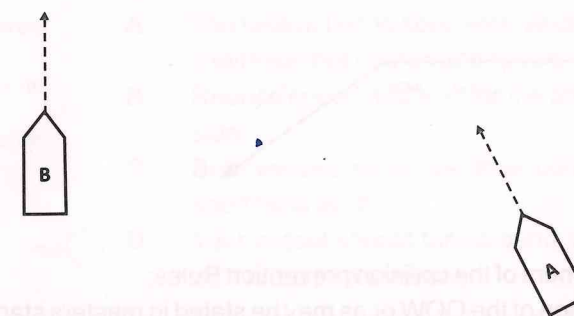
- A. Vessel 'C' shall keep clear of vessel 'B';
- B. Vessel 'B' should keep clear of vessel 'C';
- C. Both vessels 'B' and 'C' are equally responsible to keep clear as per Rule 14 and each shall alter her course to starboard so that each shall pass on the port side of the other;
- D. This is a case of special circumstances and ordinary practice of seamen to be applied, there are no specific Rules which prescribe responsibilities and/or actions for this.

- 52: You should assume that your vessel is overtaking another vessel if:
- By night, you are unable to see the other vessel's sidelights and/or her masthead light(s);
 - By day, you are in doubt whether your vessel is approaching from more than 22.5° abaft the beam of the other vessel or not but your vessel is somewhere near about this relative direction from the other vessel;
 - You can only see the sternlight of the other vessel;
 - If any of the above conditions exist.
- 53: When a sailing vessel is overtaking a power-driven vessel and both are in sight of each other:
- The power-driven vessel shall keep out of the way of the sailing vessel;
 - The sailing vessel shall keep out of the way of the power-driven vessel being overtaken;
 - Both vessels shall take action to stay away from each other;
 - There is no need for anyone to take action as the sailing vessel will stop as she approached close to the power-driven vessel, no wind will be left on her sails.
- 54: A vessel Not Under Command (NUC) is overtaking a normal power-driven vessel in conditions similar to the above, sufficient sea room and no other vessels in the vicinity, if there is a developing close-quarters and/or risk of collision how should it be prevented?
- The vessel 'NUC' should keep out of the way of the power-driven vessel as required by Rule 13;
 - Both should make all efforts to keep clear of each other because these are special circumstances and no Rules clearly apply in this situation;
 - The power-driven vessel should keep clear in these circumstances by application of 'precaution which may be required by the ordinary practice of seamen' and 'due regard shall be had to all dangers of navigation and collision and to any special circumstances including the limitations of the vessels involved';
 - This 'NUC' vessel is in distress and the power-driven vessel must render all possible assistance simultaneously informing the rescue coordination centres and all other vessels in the vicinity and assume the role of an on scene commander.
- 55: Power-driven vessel 'A' first visually sights power-driven vessel 'B' approaching from a relative bearing of about 29° abaft her starboard beam. After some time 'B' is on a relative bearing 05° forward of her starboard beam as illustrated and there is a developing close quarters/risk of collision, the range is still medium to large. The situation shall now be governed by:



- Rule 15, two power-driven vessels crossing;
- Rule 13, a vessel overtaking another;
- Rule 14, two power-driven vessels meeting in a head-on situation;
- Rule 2, 'all dangers of navigation and collision and to any special circumstances'.

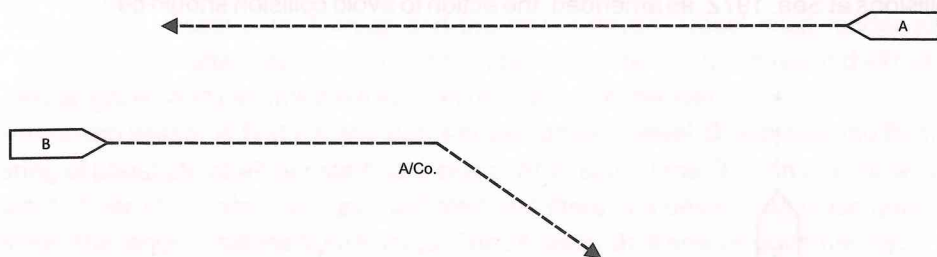
- 56: In the forward direction the sidelights?
- Do not overlap;
 - Practically cut off at 1° to 3° outside the prescribed sector while maintaining the minimum required intensity within the prescribed sectors;
 - Some overlap is allowed and depends on the classification society's rules;
 - There is no Rule regarding this.
- 57: In the aft direction, that is 22.5° abaft the beam, the masthead, stern and sidelights shall:
- Maintain their minimum required intensity up to 5° of the prescribed sector.
 - The intensity may decrease by 50 % from within 5° of the prescribed sector till the limit of the sector and thereafter decrease steadily to reach practical cut off at not more than 5° outside their prescribed sectors.
- Which of the above statements are correct?
- Both the above statements are not correct as are not defined in Rule 21;
 - Both the above statements are correct and are as given in SOLAS Chapter V;
 - There is no regulation in the SOLAS, STCW or the Loadline conventions about the cut off limits, lights must cut off exactly at the limits as prescribed in Rule 21 of the International Regulations for Preventing Collisions at Sea, 1972, as amended;
 - Both the above statements 'I' and 'II' are correct as are stated in Annex I of the International Regulations for Preventing Collisions at Sea, 1972, as amended.
- 58: At night, power-driven vessel 'A' is approaching a power-driven vessel 'B' as illustrated, 'B' is more than 50 m in length and there is developing risk of collision. In excellent visibility conditions vessel 'A' occasionally sees both white masthead lights and the green sidelight of vessel 'B', the range is over 5 miles. As per the International Regulations for Preventing Collisions at Sea, 1972, as amended, the action to avoid collision should be?



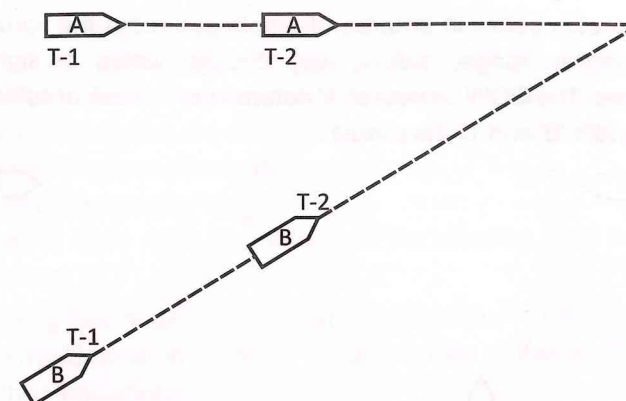
- Vessel 'B' must keep clear of vessel 'A' as this is a crossing situation;
 - Vessel 'A' must keep clear of vessel 'B' as she is clearly overtaking;
 - Both vessels are equally responsible for keeping clear, these are special circumstances;
 - This is a confusing situation and the OOW must notify the master immediately as required by paragraphs 8.9 and 40.2 of the STCW Code Section A-VIII/2 and not hesitate to take immediate action for the safety of the ship as per paragraph 41
- 59: If two power-driven vessels 'A' and 'B' are proceeding towards each other in sight of one another as shown at a reasonably large enough range of around 10 miles, which of the following statements is correct about their expected best action in full compliance with IRPCS?



- A. Both 'A' and 'B' shall alter their course to starboard so that each shall pass on the port side of the other to avoid collision, each shall indicate the manoeuvre by one short blast on her whistle;
 - B. Both 'A' and 'B' shall alter their course to starboard so that each shall pass on the port side of the other to avoid collision, no whistle signals are required to be sounded since they are very far and out of the range of sound signals;
 - C. 'A' or 'B' should each blow 5 blasts on their whistles and wait for a response from the other, if not call the other vessel by VHF after confirming her data using the AIS, then inform each other of their intended actions either by an AIS text message or by VHF radiotelephony using Standard Marine Communication Phrases published by IMO;
 - D. Either 'A' or 'B' should make a large course alteration to starboard, the one acting first is required to blow one prolonged blast on her whistle supplemented by an all-round light signal. With the risk of collision mitigated, the other vessel should keep her course and speed.
- 60: Two power driven vessels 'A' & 'B' in sight of one another are passing clear of each other with CPA over 2.0 miles as shown; there is no risk of collision. Vessel 'B' is about to make a normal navigational course alteration to starboard. Is vessel 'B' authorized or required by the International Regulations for Preventing Collisions at Sea, 1972, as amended, to sound one short blast to indicate her alteration of course to starboard?



- A. Yes and is a requirement of the collision prevention Rules;
 - B. It is left to the discretion of the OOW or as may be stated in masters standing orders;
 - C. Not specifically required by the collision prevention Rules but may be done as an ordinary practice of seamanship and by the 'authorized' clause of Rule 34(a);
 - D. None of the above.
- 61: Two power driven vessels 'A' & 'B' are approaching each other as shown involving risk of collision in good visibility and in sight of each other. 'A' is steering East (090°). T-1 indicates the time and position when they first sighted each at long range. At T-2 the range is just over 8 miles, the compass bearing between them has remained steady as 194° - 014°. Which of the following best describes the situation and the best action to be taken assuming ample sea room and no other vessels in the near vicinity?



- A. 'B' is overtaking and thus obliged to keep clear, 'A' to keep her course and speed;
 - B. This is a crossing situation, 'B' to keep her course and speed as a stand-on vessel, 'A' is the 'give-way vessel'. 'A' should preferably make a large alteration of her course to starboard, initially to around 197° and keep slowly returning to her course but always aiming to finally pass well clear astern of 'B', always ensuring that 'B' remains on her port sight. Instead she may even alter to port and take a full circle around or may even reduce speed by stopping or reversing her means of propulsion;
 - C. Special circumstances, both 'A' & 'B' to take action to keep clear of each other;
 - D. Both vessel's to identify each other by AIS, communicate by VHF and then decide the best actions between them.
- 62: In open waters, you are the OOW on a power-driven vessel and visually sight the lights illustrated right ahead, at medium range and confirm that risk of collision exists. The best action to avoid the risk of collision by your vessels shall be?

- white
 - white
 - white
 - green
 - red
- A. You take action to keep your vessel out of the way, the other vessel shall keep her course and speed;
 - B. Reduce speed and wait for the other vessel to indicate the passing side;
 - C. Both vessels shall alter their courses to starboard, sounding one short blast each;
 - D. Your vessel should turn around and run away at maximum speed as this is a pirate vessel.

- 63: Do the International Regulations for Preventing Collisions at Sea, 1972, as amended, provide any clear or specific advice on actions to be taken in case of multi vessel situations where each vessel in the vicinity may have or may develop a risk of collision or a close-quarters situation with more than one vessel in the vicinity?
- A. No;
 - B. Yes;
 - C. There is no clear advice; the Rules should be applied as best applicable in compliance with the spirit of the best expected actions in the situations and the requirements contained in Rules 2 and 8;
 - D. There is no clear advice for such situations; there are no Rules to apply and the navigating staff may take any action they deem fit as long as they manage to avoid collision.

- 64: In the situation shown below in an area of ample sea room the power-driven vessels are underway, at medium range, making way through water, in sight of each other and approaching closer. The OOW on vessel 'A' determines that risk of collision exists with both the approaching vessel's 'B' and 'C', he should?



- A. Comply with the International Regulations for Preventing Collisions at Sea, 1972, as amended, as a give-way vessel, by making a large alteration of course to starboard to avoid 'B' and sound one short blast. 'C' is the give-way vessel for his vessel and should be expected to keep clear of his vessel and act accordingly;
- B. Keep course and speed as a stand-on vessel with regard to 'C';
- C. Stop the vessels propulsion as being the best single action to avoid both 'B' and 'C' and notify the master immediately;
- D. Execute a bold alteration of course to port of about 90° to pass around the stern of 'C'.
- 65: You are the officer in charge of the navigational watch on a power-driven vessel proceeding in a traffic lane of a TSS and another large power-driven vessel, visible by sight, is crossing your vessel from the starboard side. There is developing risk of collision, there is deep water extending even outside the TSS but as part of the adjoining inshore traffic zone. Your vessel should?
- A. Keep her course and speed as a stand-on vessel. Following a traffic lane makes your vessel a privileged vessel and gives her an absolute right of way;
- B. Act as a 'give-way vessel' as per Rule 15 and keep clear even if it means crossing into an inshore traffic zone;
- C. Act as a 'give-way vessel' as per Rule 15 and try to keep clear but only if it can be done without crossing a separation line, a separation zone or entering the inshore traffic zone;
- D. Leave the traffic lane so that your vessel will have full freedom to manoeuvre as per your choice to enable avoid collision as per Rules 2 and 17.
- 66: Power-driven vessel 'K' sights a fast power-driven vessel 'L' as illustrated at a range of just over 10 miles, 'K' should initially?



- A. Keep her course and speed as a 'stand-on vessel', carefully observe the compass bearing of the approaching vessel 'L' and comply with all other requirements of Rule 7 to determine if a close-quarters situation and/or risk of collision is developing while maintaining proper look-out to see if 'L' is taking any action to avoid collision, if so required;
- B. Sound one short blast and alter to starboard;
- C. If necessary, reduce speed or stop;
- D. Reduce speed to allow more time to assess the situation while monitoring the compass bearings of vessel 'L'.
- 67: Which of the following describes the correct application of the Rules contained in IRPCS?
- A. Any action to avoid collision in normal circumstances is governed by the Rules contained in Part 'B' of the Regulations;
- B. Rules in section I of part B apply in any condition of visibility or at all times;
- C. In case vessels are not in sight of one another when navigating in or near an area of restricted visibility, Rules 4 to 10 of sections I and Rule 19 of section III apply but Rules 11 to 18 of section II do not, except the definition of overtaking from Rule 13. Rules 11 to 18 are applicable only when the vessels concerned can sight each other visually;
- D. All the above statements are correct.
- 68: As per Rule 8(f), which applies in all conditions of visibility, which of the following statement is in error?
- * A. A vessel required not to impede shall take early action to allow sufficient sea-room for the other vessel and avoid impeding their passage or safe passage;
- B. A vessel whose passage is not to be impeded remains fully obliged to comply with the Rules of Part B of these Rules to take action to avoid collision should risk of collision develop with the vessel which is required not to impede her passage or safe passage;
- C. In case Risk of collision develops between these two vessels concerned the relevant steering and sailing Rules shall be complied with and in case the vessels are in sight of one another the 'stand-on' and 'give-way' Rules 16 and 17 shall apply depending on the situation between the vessels;
- D. In case Risk of collision develops between these two vessels concerned the vessel required not to impede continues to retain her obligation to take action to keep clear of the vessel whose passage is not to be impeded.
- 69: When a power-driven vessel and a sailing vessel are approaching so as to involve risk of collision and are in sight of one another, the power-driven vessel shall keep out of the way of the sailing vessel:
- A. In all circumstances;
- B. Except when the sailing vessel is overtaking;
- C. Except when the sailing vessel is overtaking or the power-driven vessel is fishing;
- D. Except when the sailing vessel is overtaking the power-driven vessel, or the power-driven vessel is a fishing vessel actually engaged in fishing, or the power-driven vessel is either not under command or restricted in her ability to manoeuvre.
- 70: Rule 17(c) on a 'stand-on vessel' states, 'a power-driven vessel which takes action in a crossing situation in accordance with sub-paragraph (a) (ii) of this Rule to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side'. Assuming two power-driven vessels are involved in such a scenario, in application these requirements mean:

- A. A give-way vessel is not relieved of her obligation in such circumstances to keep out of the way and she alone must act properly to avoid collision, the stand-on vessel should continue to keep her course and speed;
- B. A stand-on vessel is restricted from altering her course to port when she takes action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules;
- C. A stand-on vessel is restricted from altering her course to port when she finds herself so close that collision cannot be avoided by the action of the give-way vessel alone;
- D. A give-way vessel is not authorised to invoke Rule 2 requirements which may make a departure from these Rules necessary to avoid immediate danger.
- 71: In open waters, a power-driven vessel observing the lights illustrated on a steady compass bearing and slowly decreasing range on the port side shall:
- white A. Keep her course and speed; keep a careful watch on the compass bearing of this other vessel and the OOW should notify the master;
- green B. Keep out of the way of the other vessel;
- white C. Execute a large course alteration to port and sound two short blasts in ample time;
- green D. Make a substantial alteration of course to starboard in good time and sound one short blast.
- 72: A power-driven vessel with operational radars is navigating inside an area of restricted visibility varying from 0.5 to 1.0 KM. She should proceed at?
- A. Any speed if there are no targets showing on her radars or on the AIS and she also cannot hear any sound signals other than her own;
- B. Full speed if there are no targets showing on her radars or on the AIS and she also cannot hear any sound signals other than her own but only in deep open waters;
- C. A safe speed always, further adapted to the prevailing circumstances and conditions of restricted visibility and her engines ready for immediate manoeuvre, that is on 'stand-by';
- D. Full sea speed with the engines ready for immediate emergency manoeuvring since a proper look-out watch is being maintained by all available means including hearing, visual, radar, VHF and AIS.
- 73: "The officer in charge of the navigational watch shall use the radar whenever restricted visibility is encountered or expected, and at all times in congested waters, having due regard to its limitations." And, 'in clear weather, whenever possible, the officer in charge of the navigational watch shall carry out radar practice'. These requirements are?
- A. Part of ordinary practice of seamanship;
- B. Depends on the procedures stated in the documented safety management system;
- C. Do not know for sure but are usually always practiced on board;
- D. Are stated in legislation governing bridge watchkeeping.
- 74: Rule 15 of IRPCS states, 'when two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way'. 'Her own starboard side' in this Rule side means?
- A. The other power-driven vessel is located anywhere from right ahead or 000° relative bearing till the starboard beam or 090° relative bearing;

- B. The other power-driven vessel is located anywhere from 003° relative bearing on the starboard bow till right astern or 180° relative bearing;
- C. The other power-driven vessel is located anywhere from very close to right ahead on the starboard side till 22.5° abaft the starboard beam;
- D. The other power-driven vessel is located anywhere from either absolute right ahead or anywhere very close to right ahead relative bearing on either port or starboard till 22.5° abaft the starboard beam.
- 75: You are OOW on a power-driven vessel crossing a traffic lane of a TSS steering a course as nearly as practicable at right angles to the general direction of traffic flow of that lane. You sight a large power-driven vessel proceeding in the general direction of the traffic flow lane for that lane; she is on your port bow and reasonable distance away. She is crossing your path from your vessels port to starboard, you are on her starboard side and risk of collision is determined to exist. You shall:
- A. Act as a give-way vessel and not impede her passage as per Rules 9-d and 8-f;
- B. Act as a stand-on vessel in compliance with Rule 17;
- C. Comply with IRPCS or COLREGS correctly, that is not cross a TSS but go around it;
- D. Leave the traffic lane, turn back immediately and await a clear passage free of any traffic before attempting to cross the TSS again.
- 76: You are OOW on a vessel navigating in an area of restricted visibility, which of the following statement(s) is/are correct?
- I. Detecting another vessel by radar requires, if necessary, that you take early action in ample time to avoid a close-quarters and/or a risk of collision situation from developing between your vessel and any other vessel which you cannot visually see or hear the sound signals of.
- II. In certain circumstances, an alteration of course to port may be required to avoid a developing close-quarters and/or a risk of collision situation with another vessel forward of the beam detected by radar alone.
- A. 'I' only;
- B. 'II' only;
- C. Both 'I' and 'II';
- D. Neither 'I' nor 'II'.
- 77: A power-driven vessel is approaching an area of restricted visibility to on her way to Mumbai during winters. She hears apparently from a direction 30° on her starboard bow a sound signal of one prolonged blast but no targets are visible or showing on her radar screen and/or AIS, she:
- A. Should sound one prolonged blast on her whistle to acknowledge the signal repeatedly and also put her engines on standby;
- B. She shall reduce her speed to the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over. She shall continue to comply with the sound signals prescribed in Rule 35 for use in or near an area of restricted visibility;
- C. May contact the VTIS/VTMS services monitoring traffic in the approaches to Mumbai and seek their guidance or instructions for actions to take if in VHF range;
- D. Should sound two short blasts on her whistle and give hard to port rudder.

- 78: When should a prudent OOW ensure that the Rules from IRPCS concerning lights are complied with?
- From sunrise to sunset in restricted visibility;
 - From sunset to sunrise, during darkness when there is no daylight;
 - In all other circumstances when it is deemed necessary irrespective of weather and/or visibility conditions;
 - All of the above, always ensuring that no other lights shall be exhibited which could interfere with the keeping of a proper look-out.
- 79: On a power-driven vessel of more than 12 m in length a masthead light should be placed over the fore-and-aft centerline of the vessel showing an unbroken light over an arc of the horizon of?
- 22.5° (2 points) forward of the beam from the port through the right ahead direction to 22.5° (2 points) forward of the beam on the starboard side of a vessel or a total of 135°;
 - 135° (12 points) on either side of the right ahead direction or a total of 270°;
 - 112.5° (10 points) on either side of the right ahead direction or a total of 225°;
 - 360° (32 points), or all around the horizon.
- 80: Atmospheric transmissivity or meteorological visibility used for calculating the minimum luminous intensity of navigational lights to ensure they can be sighted at the prescribed ranges by these Rules:
- Is always taken as 10 miles;
 - Is as per the formula given in SOLAS Chapter V;
 - Is considered equivalent to 13 nautical miles;
 - Is to be decided by the class or the flag state administration of the vessel;
- 81: On a vessel of 50 m or more in length engaged in towing, the yellow towing light should be visible for at least?
- 2 miles and visible over an arc of the horizon of 135°;
 - 3 miles and visible all round the horizon, the full 360°;
 - 3 miles and visible over an arc of the horizon of 135°;
 - 3 miles and visible over an arc of the horizon of 235°.
- 82: Can the intensity of navigational lights be kept higher than as stated in Annex I; for example by using a dimmer device whose minimum setting is equivalent to the required intensity.
- Yes, the intensity may be increased at the discretion of the master/OOW when situations so require, for example in restricted visibility or high traffic;
 - It depends on the flag state legislation which is supposed to only consider the guidelines stipulated by IMO in these Rules (COLREGS / IRPCS);
 - No, the maximum luminous intensity of navigation lights should be limited to avoid undue glare. This shall not be achieved by variable control of the luminous intensity;
 - It varies from vessel to vessel and as approved by class
- 83: On a vessel of 50 m or more in length, the all-round lights used to display the NUC or RAM signals shall be visible for a distance of at least?
- 5 miles for the white lights and 3 miles for the red lights;
 - 3 miles for the white lights and 3 miles for the red lights;
 - 3 miles for the white lights and 2 miles for the red lights;
 - 2 miles for the white lights and 3 miles for the red lights.

- 84: On a power-driven vessel of 50 m or more in length, at night the masthead light/s must be visible for a distance of at least?
- 3 miles, when the atmospheric transmissivity factor is 0.75;
 - 5 miles, when the atmospheric transmissivity factor is 0.8;
 - 6 miles, when the atmospheric transmissivity corresponds to a meteorological visibility of approximately 13 nautical miles;
 - 10 miles, when the atmospheric transmissivity is so good that all the stars are visible in the sky.
- 85: Which of the following statement(s) best describe the requirements of day signals or shapes prescribed by these Rules:
- 'I': All shapes should be black in colour, a ball and a cone shall have a diameter of not less than 0.6 metres, the cone having a height equal to its diameter. A diamond shall consist of two cones having a common base. A cylinder shall have a diameter of at least 0.6 meters and a height of twice its diameter.
- 'II': If more than one shape is exhibited, they shall be placed with at least 1.5 metre vertical separation between them. On a vessel less than 20 m in length shapes of lesser dimensions but commensurate with the size of the vessel may be used and the distance apart may correspondingly reduced.
- None of the above statements are correct; all these criteria depend on IMO resolution linked to the length of a vessel;
 - Statement 'II' is correct;
 - Statement 'I' is correct;
 - Both Statements 'I' and 'II' are correct.
- 86: On small power-driven vessels which of the following statement/s is/are correct?
- A power-driven vessel of less than 12 meters in length may in lieu of the lights prescribed in Rule 23(a) exhibit only sidelights and a sternlight combined in one lantern exhibited at or near the top of the mast where they can best be seen;
 - A power-driven vessel of less than 7 meters in length whose maximum speed does not exceed 7 knots may in lieu of the lights prescribed in Rule 23(a) exhibit only sidelights and a sternlight combined in one lantern exhibited at or near the top of the mast where they can best be seen;
 - A power-driven vessel of less than 12 meters in length may exhibit the masthead light displaced from the fore and aft centerline of the vessel, provided the sidelights are not combined in one lantern and are placed to be exhibited at or near the sides;
 - None of the above are correct as per Rule 23(d).
- 87: The intensity of electric lights fitted on all vessels other than sailing vessels, in the vertical sectors shall be as follows:
- 100% of the minimum required intensity is maintained from 5° above to 5° below horizontal and 60% beyond 5° to 7.5°;
 - 100% of the minimum required intensity is maintained from 5° above to 5° below horizontal and 75% beyond 5° to 6.5°;
 - 100% of the minimum required intensity is maintained from 5° above to 5° below horizontal and thereafter reduce steadily to reach 50% intensity on reaching the 7.5°. Vertical sector limit;

D. There is no Rule prescribing electric light intensities in the vertical sector.

88: The lights illustrated below indicate?

white

- A. A vessel towing a barge;
- B. A power-driven vessel underway, less than 20 m in length;
- C. A power-driven vessel underway, less than 50 m in length;
- D. A dredger indicating the safe side to pass from.

red

89: The lights below indicate?

white

white

- A. A power-driven vessel more than 50 m in length when underway;
- B. A power-driven vessel less than 50 m in length when underway, engaged in towing and the length of the tow does not exceed 200 m;
- C. A pushing vessel which is power-driven and a vessel being pushed ahead rigidly connected as a composite unit, the total length is more than 50 m;
- D. Any of the above vessels.

green

red

90: A power-driven vessel more than 50 m in length when engaged in towing and the length of the tow exceeds 200 m as measured from the stern of this power-driven vessel or the towing vessel to the after end of the tow, this power-driven vessel shall exhibit the following signals?

- A. Three masthead lights forward, one masthead light aft, sidelights, sternlight and a towing light;
- B. One mast head light forward, three masthead lights aft, sidelights, sternlight and a towing light;
- C. A diamond shape where it can best be seen;
- D. Option 1, 2 or 3 as and when required by Rule 20, always ensuring that no other lights are exhibited which may interfere with the keeping of a proper look-out.

91: When two vessels are in sight of one another, the main type of situations are as follows other than those covered by Rules 8(f), 9, 12 and 18:

- A. Overtaking by Rule 13, any vessel overtaking is to keep clear, the limits are clearly defined. An overtaking vessel is the one approaching from more than 22.5° abaft the beam of the one being overtaken or from the latter's sternlight sector; if in doubt a vessel shall assume she is overtaking and in any case retain her duty of keeping clear of the overtaken vessel until she is finally past and clear, this Rule over rides all other Rules from 4 to 18;
- B. Head-on by Rule 14, only applicable to power-driven vessels. The cut off limits of nearly right ahead limits are not clearly stated but implied, that is a sector from which the vessels should be able to see both the sidelights of each other, this could be a maximum of 3° on either side of the right ahead direction for each vessel. The nearly reciprocal courses thus may differ by up to 6°; if in doubt a vessel shall assume that such a situation exists and act accordingly;
- C. Crossing by Rule 15, applicable to power-driven vessels only. The limits are not stated but

implied. Whatever does not get covered by Overtaking and Head-on is to be considered crossing, so crossing range extends from around 3° on the starboard side of the right ahead direction till 22.5° abaft the starboard beam of the power-driven vessel concerned. Unless in the overlapping sector of lights, only one sidelight of the other vessel should be visible at night in such a situation;

D. All the above 3 statements are correct.

92: When navigating in or near an area of restricted visibility, other than when Rules 9 or 10 require otherwise, only Rule 19 applies to all vessels irrespective of their type for the purpose of taking action to avoid collision, which should be executed in compliance with the requirements of Rule 8. Of the below statement(s) which of them describe the best expected actions to avoid collision if another vessel is detected by radar alone and a close-quarters situation is developing and/or risk of collision exists with this vessel still at medium to large range:

- i. A vessel being overtaken shall keep her course and speed and act only if the overtaking vessel is getting so close that collision cannot be avoided by the action of the overtaking vessel alone;
 - ii. A vessel shall avoid altering her course to port for a vessel forward of the beam; this means she should ideally alter to starboard, except if approaching from the overtaking sector. Limits of overtaking are as stated in Rule 13;
 - iii. A vessel shall avoid an alteration of course towards a vessel abeam or abaft the beam; this means alter away from the vessel concerned;
 - iv. Requirements of Rule 34 on sound signals for manoeuvring and warning continue to remain applicable.
- A. All four statements 'i', 'ii', 'iii' and 'iv' are correct;
 - B. Only statements 'ii' and 'iii' are correct;
 - C. Only statements 'i', 'ii', and 'iii' are correct;
 - D. None of the above, a vessel navigating in or near an area of restricted visibility is required to act to avoid collision only when she hears apparently forward of her beam the fog signal of another vessel.

93: 'A vessel restricted in her ability to manoeuvre' other than one 'engaged in mine clearance operations' shall exhibit:

- X: Three all-round lights in a vertical line namely red-white-red when underway or at anchor.
 - Y: In addition to the above when making way through the water, a masthead light or lights, sidelights and a sternlight and when at anchor the usual lights prescribed by Rule 30 for vessels at anchor.
- A. Only statement 'X' is correct;
 - B. Both statements 'X' and 'Y' are not correct;
 - C. Only statement 'Y' is correct;
 - D. Both statements 'X' and 'Y' are correct.

94: A group of vessels being pushed ahead, not being part of a composite unit, shall exhibit?

- A. Red and green sidelights on each vessel;
- B. Red and green sidelights at the forward end of the leading vessel;
- C. Red and green sidelights at the forward end of the leading vessel and a white all-round light on each vessel;
- D. A white all-round light at the forward end of each vessel.

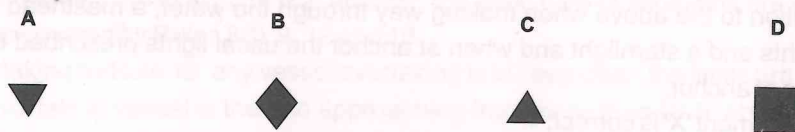
- 95: The lights illustrated indicate that the power-driven vessel showing them is?
- white
 - white
 - red
 - white
 - red
 - green
 - green
- A. A vessel towing a vessel astern, the length of the tow exceeds 200m, seen from their starboard side;
- B. A vessel towing a vessel made fast alongside;
- C. A vessel towing more than one vessel astern;
- D. A power-driven vessel less than 50 m in length engaged in towing a vessel or object not inconspicuous or partly submerged. The length of the tow is less than 200 m and they are severely restricted in their ability to deviate from their course, seen from their starboard side.

- 96: A power-driven vessel is towing a single vessel alongside on her port side. As prescribed by Rule 20, this towed alongside vessel shall exhibit:
- A. Sidelights only;
- B. Asternlight and at the forward end, sidelights;
- C. Port sidelight and a sternlight;
- D. Starboard sidelight only.

- 97: A sailing vessel over 25 m in length shall exhibit?
- A. Sidelights and a stern light;
- B. Sidelights and a stern light and a white light towards any approaching vessel;
- C. An all round flashing yellow light;
- D. Sidelights and a stern light and at or near the top of the mast, where they can best be seen red over green all-round lights in a vertical line.

- 98: A vessel under oars at night:
- A. Shall carry one light at each end of the vessel;
- B. Should carry a white light forward at least 2 m above the surface of the water;
- C. May exhibit the lights prescribed for a sailing vessel or show a white light in sufficient time to prevent collision;
- D. Shall exhibit the lights prescribed for a sailing vessel.

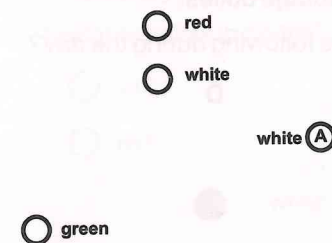
- 99: A sailing vessel underway when also using propelling machinery shall exhibit forward where it can best be seen, the following shape:



- 100: The lights below indicate?
- green
 - white
 - green
- A. A vessel less than 50 m in length engaged in trawling, making way through the water;
- B. A vessel engaged in trawling at anchor;
- C. A vessel over 50 metres in length engaged in trawling;
- D. A vessel engaged in trawling with her outlying gear extending more than 150 metres.

- 101: How can you differentiate between a fishing vessel when engaged in fishing between the following 2 conditions, (i) underway but not making way through the water and (ii) at anchor?
- A. If the vessel engaged in fishing is at anchor, she will also exhibit the normal anchor lights prescribed in Rule 30;
- B. It is not possible since in both the situations the lights and shapes exhibited are the same;
- C. By prudent navigation, proper look-out and radar plotting or equivalent systematic observations. If her speed is '0' she should be at anchor;
- D. By judging her heading in comparison with other vessels at anchor, if it is matching, she should also be at anchor, application of ordinary practice of seamen.

- 102: The white light marked 'A' means?



- A. That this vessel is at anchor;
- B. This is her forward masthead light;
- C. It is the sternlight of a power-driven vessel as seen from her starboard side from the overlap sector of her green sidelight;
- D. It is indicating the direction of outlying gear of a fishing vessel extending more than 150 m horizontally.

- 103: During the day a vessel displaying two black cones with their apexes together in a vertical line indicates that this vessel is:

- A. Hard aground;
- B. Engaged in underwater diving operations;
- C. Engaged in laying, servicing or picking up a navigation mark, submarine cable or pipeline;
- D. Engaged in trawling or engaged in fishing.

- 104: A vessel exhibiting two all-round red lights in a vertical line is Not Under Command (NUC). When also exhibiting sidelights and a sternlight it means she is?

- A. Underway;
- B. Underway and also making way through the water;
- C. Now able to keep clear of vessels being overtaken;
- D. Is testing her propulsion machinery.

- 105: For 'fishing vessels' which of the following statement(s) is/are correct?

- A. A vessel engaged in trawling shall always exhibit 2 masthead lights in addition to the green over white all-round lights when underway, making way through water or at anchor. Such a vessel less than 50 m in length shall exhibit only 1 single masthead light;
- B. A vessel engaged in fishing is required to exhibit a masthead light/s whether underway, making way through the water or at anchor;
- C. Both 'a vessel engaged in trawling' and 'a vessel engaged in fishing' shall exhibit sidelights and a sternlight only when underway but not if anchored;
- D. A 'fishing vessel' when not 'engaged in fishing' shall comply only with the requirements of Annex II of these regulations.

- 106: Sighting a rigid replica of the International Code Flag 'A' on a vessel at sea means keep clear of this vessel which is:

- A. Engaged in diving operations;
- B. Engaged in mine laying operations;

- C. Engaged in fishing with purse seine gear;
- D. Engaged in guiding a submarine which is navigating below the water surface.

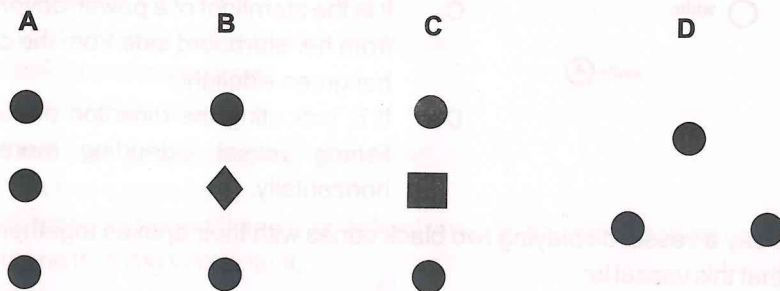
107: The following lights if seen at night indicate:

- red
- white
- red

- A. A vessel engaged in trawling using pelagic gear;
- B. Two sailing vessels engaged in towing a vessel restricted in her ability to manoeuvre;
- C. A vessel engaged in underwater operations not making way through the water or at anchor indicating the side on which an obstruction exists and the side from which another vessel may pass;
- D. A vessel engaged on pilotage duties.

- red green
- red green

108: A vessel engaged in hydrographic surveying shall exhibit the following during the day?



109: The International Regulations for Preventing Collisions at Sea, 1972, as amended, state the following about safe passing distances:

- A. From a vessel engaged in trawling, the distance specified is 1000 yards;
- B. From a vessel engaged in minesweeping operations, the distance specified is 1000 metres;
- C. From a dredger engaged in underwater demolition work, the distance specified is 2.3 nautical miles;
- D. From a loaded oil, chemical or gas tanker and passenger vessels the distance specified is 2'50'00'00'000.00 centimetres.

110: Vessels not required to exhibit masthead light or lights are:

- A. A vessel engaged in fishing other than trawling. For a vessel engaged in trawling this exemption is optional if she is less than 50 m in length;
- B. A vessel Not Under Command if not making way through the water;
- C. Pilot Vessels when engaged on pilotage duty;
- D. All the above options are correct as per the International Regulations for Preventing Collisions at Sea, 1972, as amended.

111: A power-driven vessel underway is sighted exhibiting a black cylinder during day, at night the equivalent lights this vessel, in addition to the lights prescribed by Rule 23, should be:

- A. Three all-round lights in a vertical line, the upper and the lower green, the middle one white;
- B. Three all-round red lights in a vertical line;
- C. Two all-round lights in a vertical line, the upper one red and the lower one white;
- D. Two all-round red lights in a vertical line.

112: The optional signals prescribed in Rule 28 for a vessel constrained by her draught (CBD) mean:

- A. They are only meant to warn other vessels that these are special circumstances with the vessel exhibiting the signals indicating that she has some manoeuvring limitations;
- B. The vessel CBD has no specific right of way and she should comply with the Rules of Part B for any actions to avoid collisions with particular caution having full regard to her special condition;
- C. All other vessels shall not impede her safe passage except, if circumstances so allow, except 'a vessel not under command' or 'a vessel restricted in her ability to manoeuvre';
- D. Such vessels should not transit areas with traffic and wait till all traffic clears as part of ordinary practice of seamen and prudent safe navigation.

113: The lights below indicate?

- white
- red
- white

- A. A group of trawlers using demersal or pelagic gear hauling their nets;
- B. A pilot vessel engaged in fishing indicating the direction of the nets;
- C. A pilot vessel at anchor, probably more than 50 m in length;
- D. A vessel engaged in fishing underway or at anchor.

114: A sailing vessel, more than 20 m in length, restricted in her ability to manoeuvre when making way through the water, shall exhibit:

- A. Only the sidelights, sternlight and the optional red over green all-round lights as prescribed in Rule 25;
- B. The lights and shapes prescribed in Rule 25. That is the all-round lights red-white-red at night or three shapes ball-diamond-ball during day and in addition masthead light or lights;
- C. The lights and shapes prescribed in Rule 25 and in addition exhibit in a vertical line all-round lights in the order red-white-red at night or three shapes in the order ball-diamond-ball during daylight hours;
- D. The lights and shapes prescribed in Rule 25 and also transmit a caution message to warn other vessels of her special condition asking them to keep clear of her.

115: Which of the following requirement/s is/are correct for a vessel 150 m in length at anchor at night:

- I: Exhibit one all-round white light forward and one all-round white light aft.
- II: Use the available working or equivalent lights to illuminate her decks.
- A. Both 'I' and 'II';
- B. 'I' only;
- C. 'II' only;
- D. Neither 'I' nor 'II'.

116: A vessel sighted exhibiting the following signal is?



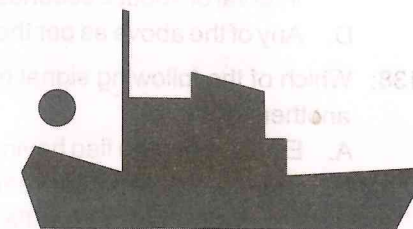
- A. Any vessel aground;
- B. A vessel in distress and requiring immediate assistance;
- C. A sailing vessel aground;
- D. A vessel engaged in underwater demolition work.



- 117: The equivalent night signal for the vessel shown in the previous question should be?
- 2 all-round red lights in a vertical line and anchor lights;
 - 3 all-round red lights in a vertical line and anchor lights;
 - 2 all-round red lights in a horizontal line, anchor lights and lights to illuminate her decks;
 - 3 all-round green lights, one near the foremast head and one at each end of the fore yard.
- 118: When navigating on water and if there is any risk of collision with another vessel, a seaplane:
- Is granted full right of way, all other vessels must keep clear of her;
 - Shall be considered a stand-on vessel;
 - Should be considered under all dangers of navigation or special circumstance under Rule 2 and all vessels should keep clear of such dangerous seaplanes which can be a menace to their safe navigation;
 - Shall comply with the Rules of part 'B' like any other vessel to prevent collision.
- 119: As an OOW on a power-driven vessel you visually sight a vessel aground right ahead, what is the best set of actions to execute?
- Order engines full astern, give three short blasts on the whistle and inform the Master;
 - Alter hard over to port or starboard and give 2 or 1 short blasts on the whistle as applicable, turn your vessel to the reciprocal course, use echo sounder to check depths, verify your vessels position and simultaneously notify/call the master;
 - Reduce speed, identify the other vessel using AIS, immediately establish contact with her by VHF and simultaneously notify/call the master;
 - This is a case of special circumstances to be considered under Rule 2 which may make a departure from these Rules necessary to avoid immediate danger.
- 120: A power-driven vessel when towing and exhibiting towing lights and/or shapes as per Rule 24 means she:
- Is restricted in her ability to manoeuvre and has right of way over any other vessel except a vessel not under command;
 - Does not have an absolute right of way but all other vessels other than a vessel not under command should try and avoid impeding her passage;
 - Is required to behave like any other normal power driven vessel and take action to avoid collision as per these Rules (IRPCS / COLREGS);
 - Stands covered by Rule 2 clauses of 'special circumstances' and 'ordinary practice of seamen' which should be considered by all other vessels in the vicinity who should, as far as possible, keep clear of her.
- 121: Which of the following best describes the requirements for masthead lights?
- Any vessel engaged in fishing other than trawling shall never and a vessel engaged in trawling if less than 50 m in length may not display masthead light/s;
 - A power-driven vessel when Not Under Command should exhibit masthead light(s) when making way through the water;
 - A pilot vessels is exempted from exhibiting masthead lights in all circumstances, even when not on pilotage duty;
 - A sailing vessel when restricted in her ability to manoeuvre in a condition covered by Rule 3(g) and exhibiting the signals prescribed in Rule 27(b) when making way through water is exempted from exhibiting masthead lights.
- 122: The term 'short blast' means a sound signal any sound signalling appliance complying with the

- specifications in Annex III to these Regulations and having a duration of about?
- One second;
 - Two seconds;
 - Three seconds;
 - Four seconds.
- 123: The bell or gong or both may be replaced by other equipment having the same respective sound characteristics. However it shall always be possible to sound the prescribed signals by?
- Manual means;
 - Automatic mechanical means;
 - Both manual and automatic means;
 - Either manual or automatic means.
- 124: A power-driven vessel underway, when manoeuvring as authorized or required by these Rules shall indicate her manoeuvre. A sound signal of three short blasts by such a vessel means:
- She is making way through the water in the astern direction;
 - She is operating astern propulsion;
 - She only has her main engine operating in the astern direction;
 - All the above three options are correct.
- 125: The doubt or 'wake-up' signal prescribed by Rule 34(d) is?
- Five short blasts only using the ships whistle which may be supplemented by similar flashes using a light and applicable to all vessels;
 - Five or more short rapid blasts using the ships whistle which may be supplemented by similar flashes using a light and applicable to all vessels;
 - Five or more short rapid blasts using the ships whistle which may be supplemented by similar flashes using a light and applicable only to power-driven vessels;
 - Five or more short rapid blasts using the ships whistle which must always be supplemented by similar flashes using a search light and applicable to all vessels.
- 126: When vessels are in visual sight of one another, by Rule 34, which statement(s) is/are correct?
- 'I' Only power-driven vessels are required to give the manoeuvring signals when taking action to avoid collision, sailing vessels are exempted from this requirement.
- 'II' All vessels including sailing vessels are required to give the signal of at least five short and rapid blasts when in doubt about the intentions of another vessel, which may be supplemented by a light signal of at least five short and rapid flashes. (For example, when in sight of one another, a stand-on vessel should execute this action as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules).
- 'I' only;
 - 'II' only;
 - Neither 'I' nor 'II';
 - Both 'I' and 'II'.
- 127: In a narrow channel or fairway:
- If a vessel, which can safely navigate only within such channel or fairway is in doubt as to the intention of the crossing vessel she may use the sound signal prescribed in Rule 34(d);
 - In a narrow channel or fairway a vessel to be overtaken if in doubt about the intentions or expected actions of a vessel intending to overtake may sound the signals prescribed in Rule 34(d);

- C. By Rule 34(d) if any vessel is in doubt, she shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle;
- D. All the above statements are correct.
- 128: Which of the following vessels, when at anchor, are clearly exempted by these Rules from exhibiting anchor lights and/or shapes prescribed in Rule 30?
- I: A vessel engaged in dredging or underwater operations, when restricted in her ability to manoeuvre, when an obstruction exists.
- II: A vessel engaged in fishing.
- A. Both 'I' and 'II';
- B. 'I' only;
- C. 'II' only;
- D. Neither 'I' nor 'II', any vessel at anchor is obliged to only comply with the requirements of Rule 30 without any exemptions.
- 129: When proceeding along the course of a narrow channel or fairway, there is a vessel following your vessel and can be seen visually. You hear this vessel sound two prolonged blasts followed by two short blasts using her whistle, this sound signal indicates?
- A. The other vessel intends to overtake your vessel from your starboard side;
- B. The other vessel intends to follow your vessel;
- C. The other vessel intends to overtake your vessel from your port side;
- D. The other vessel wishes to attract your attention so that you may establish VHF communication with her.
- 130: As per Rule 33 and Annex III:
- A. A whistle may be replaced with other alternate equipment which shall produce sounds of the same intensity and frequency as prescribed for a whistle;
- B. The bell or gong cannot be replaced by any alternate equipment because they have to be sounded manually;
- C. A whistle cannot be replaced by alternate equipment. Only the bell or gong or both may be replaced by other equipment having the same respective sound characteristics, provided that manual sounding of the required signals is always possible;
- D. There is no restriction on the alternate types of equipments used as long as the sounds produced are exactly as prescribed by IRPCS / COLREGS.
- 131: A sound signal at intervals of not more than 2 minutes consisting of two prolonged blasts in succession with an interval of about 2 seconds between them indicates?
- A. A power-driven vessel underway but stopped and making no way through the water;
- B. A sailing vessel underway but stopped and making no way through the water;
- C. Any vessel of any category underway but stopped and making no way through the water;
- D. None of the above.
- 132: In restricted visibility a vessel towed or the last vessel of the tow if it's a group of vessels being towed, if manned, when practicable shall sound immediately after the sound signal made by the towing vessel, at intervals of not more than 2 minutes, a signal of:
- A. Four blasts in succession, namely one short followed by three prolonged blasts;
- B. Four blasts in succession, namely two prolonged followed by two short blasts;
- C. Four blasts in succession, namely one prolonged followed by three short blasts;
- D. Four blasts in succession, namely two short followed by two prolonged blasts.

- 133: A small vessel of 32 m in length as illustrated, when in restricted visibility is required to sound:
- A. One prolonged followed by two short blasts using her whistle at intervals of one minute;
- B. Four strokes on the bell at intervals not exceeding one minute;
- C. At intervals of not more than one minute ring the bell rapidly for about 5 seconds and in addition three separate and distinct strokes on the bell immediately before and after the rapid ringing of the bell;
- D. At intervals of not more than one minute ring the bell rapidly for about 5 seconds and she may in addition sound three blasts in succession, namely one short, one prolonged and one short blast.
- 134: A vessel of length 95 m when aground inside a narrow channel or fairway in restricted visibility is required to sound:
- A. Three short blasts using her whistle followed by rapid ringing of the bell for about 5 seconds at intervals of not more than one minute;
- B. A prolonged blast by her whistle at intervals of not more than one minute and in addition three separate and distinct strokes on the bell immediately before and after the prolonged blast from her whistle;
- C. Four strokes on the bell at intervals of one second with the cycle repeated at intervals not exceeding 1 minute;
- D. At intervals of not more than one minute rapid ringing of the bell for about 5 seconds and three separate and distinct strokes on the bell immediately before and after the rapid ringing of the bell, in addition she may sound an appropriate whistle signal; generally accepted as 'U'.
- 135: In restricted visibility, in addition to the signals prescribed by paragraphs (a), (b) or (g) of Rule 35, a sound signal of four short blasts may be sounded by:
- A. A vessel engaged in towing;
- B. A pilot vessel when engaged on pilotage duty;
- C. A vessel constrained by her draught;
- D. Any of the above.
- 136: For a vessel 198 m in length the approximate range at which the sound signal made by her whistle may be heard in conditions of still air on board is:
- A. 1.5 miles with 90 % probability in the forward axis;
- B. 2.0 miles with 95 % probability in the forward axis;
- C. 3.0 miles; actual range subject to prevailing weather conditions;
- D. 2.0 miles if only one whistle is used and 3.0 miles if both whistles are used, the latter ensures almost 100% efficiency.
- 137: A power-driven vessel when engaged in towing or pushing another vessel, not restricted in her ability to manoeuvre, when underway in or near an area of restricted visibility shall:
- A. Sound at intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts;
- B. Sound at intervals of not more than 2 minutes one prolonged blast;



- C. Sound at intervals of not more than 2 minutes two prolonged blasts in succession with an interval of about 2 seconds between them;
 D. Any of the above as per the master's standing orders.
- 138: Which of the following signal may be used by a vessel, if necessary, to attract the attention of another vessel:
 A. Exhibit a square flag having above or below it a ball or anything resembling a ball;
 B. Direct the beam of her searchlight in the direction of the danger;
 C. Fire a rocket parachute flare or a hand-flare showing a red light;
 D. Give at least five short and rapid blasts using her whistle.
- 139: Which of the following is NOT a signal used by a vessel in distress?
 A. Flames on the vessel (as from a burning tar barrel, oil barrel, etc);
 B. A rocket parachute flare or a hand flare showing a red light;
 C. Two all-round red lights one over the other flashing alternately;
 D. A distress alert by means of digital selective calling (DSC) transmitted on VHF channel 70.
- 140: As per the requirements prescribed by Rule 34, which of the following statement is wrong:
 A. The Rule clearly prohibits repetition of the sound signals prescribed in paragraphs 'a' and 'd';
 B. Any vessel may supplement the whistle signals prescribed in paragraph (a) of this Rule by light signals, repeated as appropriate so that the interval between successive signals is not less than ten seconds;
 C. The signal of five short and rapid blasts on the whistle prescribed in paragraph 'd' may be supplemented by a light signal of at least five short and rapid flashes;
 D. The light used to supplement the whistle signals prescribed in paragraph 'a', if fitted, be an all-round white light, visible at a minimum range of 5 miles but any light may be used to supplement the whistle signals prescribed in paragraph 'd', for example a search light or daylight signalling lamp may be used for the latter.
- 141: A continuous sounding with any fog-signalling apparatus by a vessel indicates that she is?
 A. Aground, in or near a narrow channel or fairway;
 B. Trying to attract the attention of another vessel;
 C. In distress and in need of assistance;
 D. Not under command.
- 142: A vessel requesting assistance for picking up man overboard should indicate this by using the following prefix in her initial radiotelephony message.
 A. May-day; May-day; May-day;
 B. Pan-Pan; Pan-Pan; Pan-Pan;
 C. Securite; Securite; Securite;
 D. May-day relay; May-day relay; May-day relay.
- 143: At sea you sight the following signal being exhibited by a vessel during the day in good visibility, your vessel should?


 A. Keep well clear as this vessel is restricted in her ability to manoeuvre;
 B. Keep well clear as this vessel is accompanying a dracone;
 C. Keep well clear as this vessel is escorting a submarine;
 D. Render assistance as soon as possible as this vessel is in distress.

- 144: On a vessel 125 m long and of breadth 25 m, the forward masthead light shall be at a height above the hull not less than:
 A. 05 metres;
 B. 10 metres;
 C. 12 metres;
 D. 25 metres.
- 145: The vertical separation of masthead lights of power-driven vessels shall be such that in all normal conditions of trim the after light will be seen over and separate from the forward light at a distance of 1000 m from the stem when viewed from sea-level. However, the aft masthead shall be placed vertically higher than the forward one by at least:
 A. 5.5 m
 B. 3.0 fathoms
 C. 450 cm
 D. There is no requirement for this, as long as the one aft light can be seen over and separate from the forward light
- 146: The horizontal distance between the two white masthead lights carried by a power-driven vessel is required to be?
 A. Not less than half the length of the vessel but need not be more than 100 m apart;
 B. Not less than 33% of the length of the vessel but need not be more than 75 m;
 C. Not less than 15 fathoms;
 D. Minimum 27.5 m plus 20% of the overall length of the vessel.
- 147: With regard to shapes, for vessels 20 m or over in length, which of the following statement is **wrong**?
 A. A ball shall be black and not less than 0.6 metres in diameter;
 B. A cone shall be black with a base diameter of not less than 0.6 metres;
 C. A cylinder shall be black, have a diameter of at least 0.6 metres and a height of twice its diameter;
 D. A diamond shall consist of two cones pointing at each other painted red in colour.
- 148: On vessels over 20 m in length the internal screens of the sidelights shall be painted as follows:
 A. Use matt finish paint which is not glossy;
 B. Both screens matt black;
 C. Port screen red, starboard screen green using non glossy finish;
 D. There is no regulation regarding this.
- 149: With respect to bells and gongs the correct requirement from Annex III, Section II is:
 A. The range of their sound signals varies from 0.5 to 2.0 miles depending on the length of the vessel they are fitted on;
 B. They shall be made of corrosion-resistant material and on a vessel over 20 m in length the minimum diameter of the mouth of the bell shall be 0.3 metres. They shall produce a sound pressure level of not less than 110 dB at a distance of 1 meter from it;
 C. A bell or gong or other device having similar sound characteristics shall be capable to be sounded by a power-driven bell striker using electrical input of 110 volts from a supply source located at a distance of not more than 1 meter from it;
 D. When a power-driven bell striker is fitted instead of manual sounding, to ensure constant force the mass of the striker shall be not less than 300 grams.

150: If the lights illustrated below are sighted at night, they indicate that the vessel exhibiting them is:



white



green

red

- A. A power-driven vessel engaged in trawling as seen from her ahead direction;
- B. A power-driven pilot vessel on pilotage duty, underway and as seen from her ahead direction;
- C. A power-driven vessel of less than 50 m in length underway;
- D. A power-driven vessel of less than 12 metres in length underway as seen from her right ahead direction.

151: A vessel engaged in trawling is exhibiting one white light over one red light in a vertical line at a level lower and weaker than her other navigational lights when in close proximity of other fishing vessels, these lights indicate:

- A. She is shooting nets;
- B. She is picking up fishes;
- C. She is over 20 m in length, is using demersal or pelagic gear and is hauling its nets;
- D. Her nets have become fast upon an obstruction.

152: At night you sight, in addition to any other navigation lights, two yellow lights in a vertical line which are flashing alternately every second with equal light and occultation duration, these flashing lights indicate?

- A. A vessel engaged in towing seen from more than 22.5° abaft her beam;
- B. An air cushion vehicle operating in the displacement mode;
- C. A vessel engaged in fishing hampered by her purse seine gear;
- D. A dredger indicating her side from where other vessels may pass safely.

153: A long vessel is fitted with two whistles placed more than 100 m apart along her length in the fore and aft direction. The regulations require that:

- A. The forward whistle shall sound before the after whistle;
- B. The two shall not be sounded simultaneously;
- C. The after whistle shall sound before the forward whistle;
- D. The two should, as far as possible, be sounded simultaneously to ensure a good signal.

154: As per the requirements stated in Rule 35 which statement is correct?

- A. A vessel engaged in towing shall comply with paragraph 'c' of the Rule only if she is restricted in her ability to manoeuvre; otherwise she shall comply with paragraph 'a';
- B. A vessel of less than 12 m in length shall still remain obliged to give the signals prescribed in this Rule. However, if she does not, she shall blow a manual whistle at intervals of not more than 1 minute;
- C. A power-driven vessel underway with her propulsion stopped but still making way through the water shall sound at intervals of not more than 2 minutes two prolonged blasts in succession with an interval of about 2 seconds between them;
- D. When a pushing vessel and a vessel being pushed ahead are rigidly connected in a composite unit they shall be regarded as a power-driven vessel and shall give the signals prescribed in paragraphs (a) or (b) of this Rule.

155: A vessel engaged in fishing, 75 m in length, when at anchor in restricted visibility should sound the following signals?

- A. At intervals of not more than one minute ring the bell rapidly for about 5 seconds Sound

signal of a normal power driven vessel at anchor in restricted visibility;

- B. Two prolonged blasts in succession at intervals of not more than 2 minutes;
- C. At intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts
- D. None of the above, she may give any sound signal to warn other vessels to keep clear, preferably the danger signal 'U'.

156: Why is it necessary to navigate with caution inside or near the terminations of traffic separation schemes?

- * A. Since there may be a large concentration of vessels which may be moving in complex directions approaching or departing from the end termination points of the schemes;
- B. Because of multiple and variable vessel encounters due to statement 'A' there is likelihood of increased risk of collision encounters with vessels crossing, joining or leaving traffic lanes or even turning around to join the opposite traffic lane;
- C. It is so stated in IRPCS Rule 10(f); In STCW Code Section A-VIII/2 paragraph 16.2, 'the attention necessary when navigating in or near traffic separation schemes' and also in paragraph 17.3, 'the attention necessary when navigating in or near traffic separation schemes or other routeing measures';
- D. All of the above are correct.

157: Your power-driven vessel is approaching an East-West TSS from the South, you need to cross the East traffic lane and then turn West to join the West bound traffic lane but there is very heavy traffic going in the Easterly direction, assuming all traffic consists of normal power-driven vessels. You should con your vessel such as to:

- A. Continue crossing the East lane, your vessel would be on the starboard side of and crossing the East bound vessels, as such they are required to give-way and your vessel gets a deemed right of way as a stand-on vessel;
- B. Turn to starboard and join the East lane as prudent navigation best practice demands (ordinary practice of seamen) so as not to embarrass other vessels, slowly creep in closer to the separation zone or line dividing the two lanes and when there is a clear window in the traffic proceeding in the West bound lane take a U turn and join the West lane, all along keeping your propulsion systems on standby and enhanced bridge watch levels;
- C. Stop and wait endlessly close to the East lane till your vessel gets a clear window to cross the same;
- D. Turn back, stop and look for alternate routes.

158: A vessel restricted in her ability to manoeuvre when carrying out her work at anchor in restricted visibility shall sound the following signals:

- A. Sound at intervals of not more than 2 minutes two prolonged blasts in succession with an interval of about 2 seconds between them;
- B. Sound at intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts;
- C. Shall at intervals of not more than one minute ring the bell rapidly for about 5 seconds. In a vessel of 100 m or more in length the bell shall be sounded in the forepart of the vessel and immediately after the ringing of the bell the gong shall be sounded rapidly for about 5 seconds in the after part of the vessel;
- D. Shall at intervals of not more than one minute ring the bell rapidly for about 5 seconds. In a vessel of 100 m or more in length the bell shall be sounded in the forepart of the vessel and

immediately after the ringing of the bell the gong shall be sounded rapidly for about 5 seconds in the after part of the vessel. In addition she shall give three separate and distinct strokes on the bell immediately before and after the rapid ringing of the bell.

- 159: When navigating in restricted visibility of near zero, if you hear a continuous sounding of the whistle (a fog-signalling apparatus) of another vessel, from somewhere forward of the bridge of your vessel, the action should be:
- Reduce speed of your vessel to the minimum at which your vessel can be kept on her course. If necessary take all her way off and in any event navigate with extreme caution until danger of collision is over;
 - This signal indicate distress and need of assistance by the other vessel, consider proceed towards the signal with caution to render assistance, acknowledge the signal, inform other vessels and the closest shore based MRCC;
 - Execute a large alteration of course to starboard since the following shall be avoided by Rule 19-d, that is, 'an alteration of course to port for a vessel forward of the beam';
 - Contact the superintendent, marine operations manager or the DPA of the management office and act as per their advise, till then stop your vessel and maintain strict radio silence.
- 160: The clause 'so as to involve risk of collision':
- Has been used in each and every Rule which describe the various situations and assign the responsibility of keeping clear to one or both the vessels so as to prevent collision;
 - The application of these Rules is independent of this clause;
 - Has been used only in Rules 8, 12, 14 and 15. However, Rule 18(e) uses the term 'where risk of collision exists'. Except the 'not to impede' requirements in Rules 8, 9, 10 and 18, the application of these Rules are linked to the development of a firm 'close quarters and/or risk of collision' situation, including the application of Rules 13, 18 and 19, whether stated or not;
 - None of the above. All Rules from 1 to 38 contained in the 5 parts of which part B is subdivided into 3 sections and Annexes I to IV apply at all times whether there is any 'risk of collision' or not.
- 161: By Rule 17, a 'stand-on vessel':
- May take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that a 'give-way vessel' is not taking appropriate action;
 - Shall taken such action as will best aid to avoid collision when she finds herself so close that collision cannot be avoided by the action of the give-way vessel alone, in this case a power-driven vessel may even alter her course to port for another power-driven vessel on her port side;
 - Shall also give at least five short and rapid blasts on the whistle which may be supplemented by a light signal of at least five short and rapid flashes to wake up the 'give-way vessel', this action prescribed by Rule 34(d) applies even to a sailing vessel;
 - All the above actions are correct.
- 162: With respect to Rule No.19, Conduct of vessel's in restricted visibility, which of the following statements is/are true?
- When Rule No.19 applies, vessels are obliged to comply with Rules 4 to 10 contained in section I of Part B, the Steering and Sailing Rules.
 - Rules 16 and 17 on 'give-way' or 'stand-on vessel' respectively or similar terms are not

applicable when the application of section III of Part B of IRPCS gets activated as per Rule 19(a).

- I only;
 - II only;
 - Both I and II are true;
 - None of the two are correct.
- 163: You are OOW on a vessel and detect another vessel exactly one point on the port bow of your vessel by radar in restricted visibility and determine that risk of collision exists. The course of your vessel is 284° and the other vessels course as per ARPA is determined as 306.5°, as per Rule 19, in order to avoid collision your vessel:
- Shall alter course only to port;
 - May make a large course alteration to port or to starboard or even reduce speed substantially;
 - Shall alter course only to starboard;
 - Shall reduce speed only.
- 164: A vessel engaged in a rescue operation should exhibit lights and shapes to indicate that she is:
- Not under command;
 - Restricted in her ability to manoeuvre;
 - Need not exhibit any special lights or shapes;
 - These are special circumstances, put on all navigational lights, all-round lights and deck lights; also put up two large balls in a vertical line coloured bright red.
- 165: A power driven vessel would normally become sluggish and/or lose control during manoeuvring if:
- The propeller RPM is suddenly reduced to below dead slow ahead or set to very low pitch, the rudder efficiency would drop to near zero;
 - By stopping the propeller, or making the propeller pitch zero to stop the thrust of water across the rudder even though the vessel has headway;
 - Only bow/stern thrusters are used to control the vessel at high speeds of over 5 knots;
 - All the above statements are correct.
- 166: Rule 38 allows permanent exemptions for the following:
- The repositioning of all-round lights resulting from the prescription of section 9(b) of Annex-I to these Regulations;
 - The repositioning of lights as a result of conversion from imperial to metric units and rounding off measurement figures;
 - The repositioning of masthead lights on vessels of less than 150 m in length, resulting from the prescriptions of section 3(a) of Annex-I to these Regulations;
 - All of the above.
- 167: The STCW Code Section A-VIII/2 requires that an OOW shall notify or inform the Master for various reasons, where in the STCW Code are these requirements stated?
- In paragraphs 8.9, 19, 40, 41, 45.1, 50, 51.6 and 51.8;
 - In paragraphs 9, 12, 16, 17, 26 and 37;
 - In paragraphs 41 and 50;
 - The STCW Convention has no relevance to watchkeeping.
- 168: You are the OOW on a shallow draught power-driven vessel navigating through Malacca

Straits at night. You determine that your vessel may develop a close-quarters situation with another power-driven vessel displaying three all-round red lights in a vertical line after some time. Good visibility prevails; you can see the other vessel by sight and can clearly see all her navigational lights through the binoculars. The situation and action shall be as follows:

- A. Action to avoid collision shall be as per one of the Rules 13, 14 or 15 applicable to vessels in sight of one another;
- B. This is a case of special circumstances, place engines on stand-by, place the vessel on hand steering as per paragraph 35 of the STCW Code A-VIII/2, post additional look-out and notify the master;
- C. Take action so as to avoid impeding the safe passage of this other vessel;
- D. Contact the other vessel by VHF after checking and verifying her identity using AIS or other means and work out a reasonable and practical solution to prevent collision.

169: A VLCC on even keel with a mean draught of 20.8 metres is navigating through an area near one fathom bank (Malacca Straits entrance from East) at safe speed. The charted depth is 15.5 fathoms. Assuming no hog, sag, squat and/or tide, what should be the expected UKC when transiting this area?

- A. 5.3 metres;
- B. 24.76 feet;
- C. 5.3 fathoms;
- D. 279.21 feet.

170: In the above scenario if there is need to take action to avoid collision by making a 45° alteration of course to starboard, the minimum charted depth on this proposed amended track is 14.5 fathoms. Assuming a 6.0% reduction in UKC due to squat, can this VLCC take this proposed action? If yes, what will be the expected UKC when passing the 14.5 fathoms patch?

- A. No she cannot do this as she may run aground;
- B. Yes she can and the expected UKC will be 24.67 feet;
- C. Yes she can and the expected UKC will be 4.24 fathoms;
- D. Yes she can and the expected UKC will be 4.47 metres.

171: Vessel 'X' is approaching vessel 'Y', both vessels are inside restricted visibility and not in sight of one another, the range between them is 8.3 miles, risk of collision is confirmed. The compass bearing between them, obtained by radar, is constant as 100 – 280°, range is reducing slowly. Vessel 'Y' is heading 000° and vessel 'X' heading 335°. The best action to avoid collision in compliance with these Rules should ideally be as follows:

- A. 'X' is overtaking and shall be obliged to keep clear, 'Y' to keep her course and speed;
- B. 'Y' to alter her course substantially to port as 'X' is abaft her starboard beam. 'X' as the overtaking vessel may alter her course substantially to port or starboard;
- C. 'Y' to alter her course substantially to port as 'X' is abaft her starboard beam. 'X' has 'Y' forward of her beam but is not approaching 'Y' from more than 22.5° abaft the beam of 'Y' so is not in the overtaking zone, as such shall alter her course substantially to starboard. However, 'X' may even consider a substantial reduction in speed in the shortest time to ensure it is readily apparent to 'Y';
- D. 'Y' to alter her course substantially to port, 'X' as the overtaking vessel has full right of way and shall keep her course and speed.

172: Watchkeeping legislation states, 'when the route planning is verified taking into consideration all pertinent information, the planned route shall be clearly displayed on appropriate charts and shall be continuously available to the officer in charge of the watch, who shall verify each course to be followed prior to using it during the voyage. In practice this means:

- A. The plan is such that it ensures sufficient sea room for the safe passage of the ship throughout the voyage as required by SOLAS Chapter V, Regulation 34.2.2;
- B. A vessel need not always be maintained on or very close to the charted course/track but is free to stay within 'margins of safety' or not go into any 'no go areas', especially for collision prevention;
- C. Navigational guidelines especially Master's standing orders or bridge/night orders should not state 'maintain vessel on-track' or similar terms as it may confuse an OOW, if an alteration of course executed as action to avoid collision should take the vessel more than slightly away from the charted course/track;
- D. All the above statements are correct.

173: When restricted visibility is encountered or expected, the first responsibility of the officer in charge of the navigational watch is to:

- A. Inform the master and post a proper lookout;
- B. Operate and use the radar;
- C. Exhibit navigation lights;
- D. Comply with the relevant rules of the International Regulations for Preventing Collisions at Sea, 1972, as amended with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre.

174: A vessel is underway and navigating well away from land. She is encountering near zero visibility, is fully complying with the safe speed and all other requirements to be followed in restricted visibility, all her radars fail.

- A. She should navigate with extreme caution at 'safe-speed' with additional 'look-out' and sound signals as per Rule 35(a) using AIS supplemented by VHF for collision prevention;
- B. She should stop, or anchor if depths allow, maintain additional 'look-out', sound signals as per Rule 35(b)/(g), repeatedly broadcast a warning for vessels in the vicinity till the visibility improves or at least one of her radar becomes operational and she can resume her passage;
- C. It all depends on the master's discretion subject to any past or likely expected traffic in the vicinity or not;
- D. Contact the vessel's superintendent / shore based manager / DPA to seek their guidance and act accordingly.

175: 'The owner, the charterer, the company, or any other person shall not prevent or restrict the master of the ship from taking or executing any decision which, in the master's professional judgement, is necessary for safety of life at sea and protection of the marine environment'. A master gets this authority from:

- A. The Company SMS based on the ISM Code – the overriding authority clause;
- B. Is based on the STCW Convention and incorporated as an obligation of every master with his certificate of competency whenever taking over command of a vessel as master;
- C. Is stated in SOLAS (5th edition of 2009) Chapter V, Regulation 34-1;
- D. Is part of the merchant shipping act of IMO which is automatically incorporated in the flag state legislation as soon as they sign up as members of IMO.

Q.NO	BEST ANSWER	RULE REFERENCES WITH REMARKS / COMMENTS
1	D	STCW Code Regulation VIII/2 paragraph 1.
2	C	STCW Code Section A-VIII/2 paragraph 8.
3	D	See introduction chapter explaining the layout / break up.
4	A	Rule 1(b).
5	B	Rule 1(c).
6	D	See Rule 2 explanations.
7	D	Rules 2, 7(a) and guidance given in UKHO – NP 100 (Mariners handbook), section 12.33.
8	B	Rule 3(f).
9	D	Rule 3(g).
10	A	Rule 3(i), flag 'M' is required as per the international code of signals.
11	C	Rule 3(b).
12	B	Rule 3(k).
13	C	Rule 3(l) – any other similar causes.
14	D	Rule 3(i).
15	C	Self explanatory.
16	D	Rules 5 and 7.
17	C	An OOW may be the sole lookout in daylight as per paragraph 16 of the STCW Code Section A-VIII/2.
18	D	STCW Code Section A-VIII/2.
19	C	Paragraph 17 of the STCW Code Section A-VIII/2.
20	D	Rule 5 and the various requirements in STCW Code A-VIII/2, paragraph 14.1 is quoted in the choice.
21	B	Rule 6, 1st paragraph.
22	A	Rule 7(a).
23	B	Rule 7(d-i) and paragraph 43 of the STCW Code Section A-VIII/2.
24	D	Self explanatory.
25	C	Statement 'B' is clear, but observations have to be taken by a competent person, competent means duly qualified as required by the STCW Convention, that justifies statement 'A'.
26	C	STCW Code Section A-VIII/2 paragraph 38.
27	B	Rule 7(d-i) / STCW Code A-VIII/2.
28	A	Rule 4, application of the Rules of Part B Section I.
29	D	These questions do not have a clear answer in IRPCS, at lesser range a larger course or speed alteration is needed. However, the best answers given are based on the authors experience and practical research. Actual actions may vary in the prevailing circumstances, the answers stated are not a verdict on right or wrong.
30	D	
31	C	

Q.NO	BEST ANSWER	RULE REFERENCES WITH REMARKS / COMMENTS
32	D	Self explanatory.
33	C	Rule 8 does not recommend any action, all others are correct as per Rule 8 itself.
34	B	Self explanatory.
35	B	Ship Handling.
36	C	STCW Code Section A-VIII/2 paragraph 39.
37	A	Ship handling.
38	D	Rule 9(d).
39	B	Rule 34(d).
40	C	Rules 8(f) & 9(b).
41	B	Rule 9(a).
42	B	Rules 9(f) & 34(e).
43	A	Rule 10(a).
44	C	Rule 10(c).
45	B	Rule 10(d-i).
46	B	Rules 9(g) and 10(g).
47	D	Self explanatory, based on many investigations and recommendations by Governemnts after finding that many collisions were caused due to communication misunderstandings.
48	D	Self explanatory.
49	B	Application of the Rules of Part B. 'd' is not correct, the requirements of Rule 34-a grant no exemptions for the range between vessels.
50	A	Rule 12(a-ii).
51	A	Rule 12(a-i).
52	D	Rule 13.
53	B	Rule 13(a).
54	C	The vessel 'NUC' cannot manoeuvre as required by these Rules by definition and hence cannot act as required by Rule 13. The definitions in Rule 3 of Part A are independent of the 'notwithstanding' and overriding clause of Rule 13.
55	B	Rule 13(d).
56	B	Annex I, paragraph 9(a-i).
57	D	Self explanatory, as per the quiz choice, paragraph 9-a of Annex I.
58	B	By Rule 13 (a). Note: In case of doubt 'A' should keep clear as per Rule 13(c). However, as per the screening, side lights can show up to 5o outside the prescribed sectors. By seeing them occasionally 'A' is surely more than 22.5° abaft the beam of 'B' and hence overtaking therefore there should be no doubt on this aspect. 'B' can easily determine if 'A' is approaching from more than 22.5° abaft her beam or not.
59	A	Rules 14 & 34(a).
60	C	A course alteration is not a manoeuvre required by these Rules.
61	B	Rule 15, crossing limit stays till 22.5° abaft the beam of 'A'.

SELF ASSESSMENT TEST - ANSWERS

Q.NO	BEST ANSWER	RULE REFERENCES WITH REMARKS / COMMENTS
62	C	Rules 14(a) and 34(a). It is a tow not showing RAM lights as such not entitled to any special right of way.
63	C	Only two vessels are referred to at a time in any situation described.
64	A	Ordinary practice of seamen, comply with Rule 14 with respect to vessel 'B'.
65	B	Rules 10(a), 10(d-ii) - (to avoid immediate danger) & Rule 15.
66	A	Rules 7, 15, 16 and 17 (a-i).
67	D	Self explanatory; as per the quiz choice, application of the IRPCS explained in the introduction.
68	C	Rule 8-f.
69	D	Rules 13(a) & 18(b).
70	B	Self explanatory as per Rule 17.
71	B	Rule 18(a-iii).
72	C	Rule 6, 19(b) and 19(c), the last refers back to section I of part B which contains Rule 6.
73	D	STCW Code Section A-VIII/2 paragraphs 37 and 44.
74	C	Rule 15.
75	B	Rules 10(a), 15 and 17.
76	C	Rules 8, 19(d) and 19(d-i).
77	B	Rules 19(e) & 35(a).
78	D	Rule 20(b & c).
79	C	Rule 21(a) and also see Rule 23(d-i).
80	C	Annex I section 8-a.
81	C	Rule 21(d) & 22(a).
82	C	Annex I section 8-b, note.
83	B	Rule 22(a).
84	C	Rule 22(a) & Annex I paragraph 8(a).
85	D	Annex I, section 6.
86	D	Rule 23(d).
87	A	Annex I, 10(a).
88	B	Rule 23(a), Annex I, paragraphs 3(b & d). Side light appears placed forward of the masthead light.
89	D	Rules 23(a) and 24(a and b).
90	D	Rule 24(a) seems to over ride 23(a), but 24(d) requires a second mast head light. See Annex I, paragraph 2(e).
91	D	Rules 13, 14, 15, 21 and Annex I - 9(b).
92	B	Rule 19(d).
93	D	Rule 27(b).
94	B	Rule 24(f-i).
95	D	Rules 24(a and e) & 27(b).
96	B	Rule 24(f-ii).
97	A	Rule 25(a).

SELF ASSESSMENT TEST - ANSWERS

Q.NO	BEST ANSWER	RULE REFERENCES WITH REMARKS / COMMENTS
98	C	Rule 25(d-ii).
99	A	Rule 25(e).
100	A	Rule 26(b).
101	B	Rule 26(a).
102	D	Rule 26(c-ii & iii).
103	D	Rule 26(b-i) & (c-i).
104	B	Rule 27(a-iii).
105	B	Rule 26(b).
106	C	Rule 27(d).
107	B	Rules 3(g-ii) & 27(b).
108	A	Rule 27(e-ii).
109	B	Rule 28(f).
110	D	Rules 26, 27(a) and 29(a).
111	B	Rule 28.
112	C	Rule 18(d-i).
113	C	Rule 29, also refer Rule 26(d).
114	B	Rule 27(b-iii).
115	A	Rule 30(a & c).
116	A	Rule 30(d-ii).
117	A	Rule 30(d).
118	D	Rule 18(e).
119	B	Since vessels size and draughts are not mentioned, the action may also be considered a case of avoiding collision with the vessel aground along with the normal seamanship action of immediately turning to a reciprocal course.
120	C	She is not showing lights and/or shapes to indicate she is restricted in her ability to manoeuvre.
121	A	Rule 26 (b and c).
122	A	Rule 32.
123	A	Rule 33(a) and Annex III, Section 2-b.
124	B	Rule 34(a).
125	B	Self explanatory from Rule 34-d.
126	D	Rule 34(a & d).
127	D	Self explanatory.
128	A	Rule 27(d-iii) and Rule 26(a).
129	C	Rule 34(c) linked with Rule 9(e).
130	C	Rule 33(a) and Annex III, section 2-b.
131	A	Rule 35(b).
132	C	Rule 35(e).
133	D	Rule 35(g).
134	D	Rule 35(h).
135	B	Rule 35(k).

Q.NO	BEST ANSWER	RULE REFERENCES WITH REMARKS / COMMENTS
136	A	Annex III, paragraph 1(c).
137	A	Rule 35(c).
138	B	Rule 36.
139	C	See Annex IV.
140	A	Self explanatory.
141	C	Annex IV, paragraph 1(b).
142	A	Annex IV, paragraph 1(e) and SOLAS.
143	D	Annex IV, paragraph 1(g).
144	C	Annex I, paragraph 2(a-i).
145	C	Annex I, paragraph 2(a-ii) & 2(b).
146	A	Annex I, paragraph 3(a).
147	D	Annex I, paragraph 6.
148	B	Annex I, paragraph 5.
149	B	Self explanatory.
150	D	Rule 23(d-i and iii), (The white light should be an all-round light).
151	C	Annex II, paragraph 2(a-ii).
152	C	Annex II, paragraph 3.
153	B	Rule 34(f) & Annex III paragraph f.
154	D	Rule 35(f).
155	C	Rule 35(d) clearly requires compliance with Rule 35(c). This is similar to the requirements of lights prescribed in Rule 26.
156	D	Rule 10(f), choice 'C' of the question itself & requirements of Rule 2.
157	B	Prudent safe navigation to avoid embarrassing other vessels.
158	B	Rule 35(d/c).
159	B	This is a distress signal as per Annex IV.
160	C	Self explanatory.
161	D	Self explanatory.
162	C	Self explanatory.
163	B	Rule 19(d) and 19(d-i), overtaking in restricted visibility.
164	B	Rule 3(g) and Rule 2.
165	D	Self explanatory.
166	D	Rule 38.
167	A	Self explanatory.
168	C	Rule 18(d) and 8(f).
169	B	Self explanatory.
170	D	Self explanatory.
171	C	Rules 19(d), 8(b and c).
172	D	Self explanatory.
173	D	STCW Code A-VIII/2, paragraph 45.
174	B	Rule 2.
175	C	Self explanatory

BAHAMAS MARITIME AUTHORITY

BMA INFORMATION BULLETIN No. 14 BMA.B14 - 12/00

USE OF ARPA RADAR FOR COLLISION AVOIDANCE

1. It was noted during the investigation of a recent collision that the ARPA radars were not used to best advantage for the avoidance of collision. The failure to use the ARPA radar correctly is considered to have been a contributory cause of the collision.
2. Two ARPA radars were in use at the time of the incident, one 10 cm and one 3 cm. The shipping traffic was very heavy, requiring the close concentration of the officer of the watch. Both radars were in true north-up relative motion mode and both ARPA displays were being used to determine if a close quarters situation was developing with any of the vessels in the area as they approached. The use of more than one ARPA display for anti collision purposes by one officer is likely to lead to increased scope for error. It is accordingly recommended that only one display should be used for collision avoidance at any one time.
3. Where the automatic plotting function is being used for anti-collision purposes the risk of error will be reduced if Relative vectors are used to determine the risk of a close quarters situation developing. True vectors should be used mainly to determine the aspect of other ships, particularly in a multi-ship situation. The use of True vectors to determine risk of collision is likely to lead to error, especially when traffic is heavy. Using one display for True vectors and another for Relative vectors is also likely to lead to errors being made when traffic is heavy.
4. It was noted in the investigation that speed over the ground was used for the anti collision plot. It is important that the speed input for all anti-collision plots on radar or ARPA should be speed through the water and not speed over the ground. The use of speed over the ground can lead to errors especially when predicting the effect of intended manoeuvres.
5. It is strongly recommended that:
 - (a) only one radar should be used at any one time for anti-collision plotting; and
 - (b) Relative vectors should be used to determine the risk of collision and True vectors to determine aspect.
6. Owners and managers of Bahamian vessels are requested to bring this bulletin and the above recommendations to the attention of masters and navigating officers on their vessels, and to remind them that course and speed through the water and not over the ground should be used for all anti-collision plotting.

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MARINE SAFETY ADVISORY NO. 23-04

To : Regional Marine Safety Offices, Nautical Inspectors, Masters, Owners/Agents

Subject : RADAR FOR COLLISION AVOIDANCE

Date : 22 March 2004

Accuracy of inputs:

In radar plotting, the measurement of the course, speed and aspect of the target is used to determine the time and closest approach of the target and whether or not there is risk of collision.

The accuracy of the radar plot will depend upon the accuracy of the input information to the radar itself. Such information includes ship's course and speed. Any errors of this input information during the plotting period will lead to inaccuracies of calculated target vectors. When the speed log is not operational, the speed may be input manually using the engine rpm and applying a suitable calculated allowance for slip.

The plotting inaccuracies will have the most effect when the target is in a head-on situation. This may make a target appear to be passing clear, when in fact it is crossing ahead or nearly ahead.

Electronic Plotting Devices:

On larger ships at least one of the radars provided will have ARPA. Smaller vessels may be provided with Automatic tracking aids. Watchkeepers must be aware of the limitations of both these devices and avoid being over-reliant on them. They must:

- Understand the types of errors that are possible and recognize the operational warnings that appear on the display.
- Understand the limitations of the device.
- Regularly test the devices using the built - in test functions.
- If targets are to be processed correctly, it is essential that accurate speed and heading information are fed into the ARPA.
- Speed and heading inputs must be sea stabilized (water tracked) to provide the ARPA or ATA with speed and course through the water. To use ground stabilized display (bottom track) could be dangerous when assessing the risk of collision especially in sea areas that experience significant tidal streams and currents. When the speed log is not operational through any reason, the speed should be input manually.

SC No. 23 of 2005

16-06-2005

CAUTION ON THE USE OF VHF RADIO IN COLLISION AVOIDANCE

Applicable to: This circular is for the attention of shipowners, shipmanagers, masters and crews of Singapore registered ships.

Many investigations worldwide have revealed that VHF communication is one of the contributing factors in collisions at sea. In many of the so called "VHF assisted" collisions, the "VHF communication" between the bridges had created misunderstanding among the officers, which led to close quarter situations and collisions. We are of the view that compliance with the International Regulations for Preventing Collisions at Sea will be more effective to avert a collision rather than the use of VHF communications, based on scanty and unclear information, to avoid a close quarter situation. A recently concluded investigation showed that both the vessels were using VHF communication to agree on a collision avoidance action, which led to the collision later.

- 2 "VHF assisted" collisions, contacts or near misses are not uncommon occurrences at sea. IMO has taken a serious view of this trend and has issued Resolution A. 954(23) on "Proper Use of VHF channels at Sea".
- 3 Based on our findings and experience in similar occurrences, we believe that such incidents are avoidable. We wish to reinforce this learning among all the masters and navigators serving on Singapore ships through this circular. We take this opportunity to reiterate the following possible dangers involved in the use of VHF communication as a means to avoid collision. The factors to be considered are as follows:
 - (a) Uncertainty over the identity of vessels¹, especially during periods of darkness, poor visibility, and in situations when there is more than one vessel;
 - (b) Uncertainty over the interpretation of messages received due to language difficulties and an imprecise or ambiguously expressed message;
 - (d) The danger of agreeing to a course of action that does not comply with the Collision Regulations resulting in a situation that the action was intended to avoid.
- 4 Shipowners, managers and agents are advised to bring the contents of this circular to the attention of their shipmasters and all navigating officers.
- 5 For any query regarding this circular, please contact Capt Sunil Thapliyal at Tel: 63756209 or Shipping@MPA.gov.sg.

LEE SENG KONG
 DIRECTOR OF MARINE
 MARITIME AND PORT AUTHORITY OF SINGAPORE

¹Not applicable where vessels are fitted with AIS



File picture of the 2007 built VLCC with a DWT of 3'17'000 mt.



File picture of the 2006 built cellular container ship of Dwt. 72'968 MT, 6300 TEU capacity.



The VLCC and the container ship after collision in 2007, see pages 88 & 96



29th August 2009
see page 89

Vessel on her way back to port, the damage from the collision is clearly visible.



Container vessel still afloat with her aft deck and containers submerged under water.



◀ Kariba after the collision.

14th December 2002
See page 42 ▶

The Tricolor after the accident, valued at about US\$ 45 million and its cargo about US\$ 50 million.



Gas Tanker Collision with Cargo Vessel, off Singapore, February 2003



Oil Tanker after collision in Malacca Straits in May 2009 - spilled 2000 mt of crude oil. ▶

▶ Nuclear submarine surfaced on its own mother ship - March 2009 in Straits of Hormuz.



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