

NAUTICAL SCIENCE
GRADE 11
OPEN BOOK TEST 201101

Learners may use their notes to answer the questions asked. The purpose of this test is to familiarise learners with the type of questions they could be asked during tests and exams. At the same time the learners will become familiar with the content of the notes they have been given.

INTERNATIONAL REGULATIONS FOR THE PREVENTION OF COLLISIONS AT SEA

PART A GENERAL

1. To whom do the regulations apply? (rule 1.a) (4)
2. Which international organisation is tasked with the overall responsibility for safety at sea? (rule 1.d) (1)

DEFINITIONS (rule 3)

3. Define the word "vessel". (4)
4. Define a "sailing vessel". (2)
5. What is a "vessel not under command"? (2)
6. Give five examples of a vessel restricted in its ability to manoeuvre. (5)
7. When is a vessel considered to be "under way"? (3)
8. When are vessels considered to be in sight of one another? (2)

PART B STEERING AND SAILING RULES

Section 1: Conduct of vessels in any condition of visibility

9. What is meant by "maintaining a proper look-out"? (rule 5) (3)
10. What is meant by a "safe speed"? (rule 6) (3)
11. Give six factors to be taken into account when deciding on a safe speed. (rule 6.a & b) (6)
12. How will you know when "a risk of collision exists"? (rule 7.d.i) (2)
13. Any action you take to avoid a collision should meet three criteria. What are they? (rule 8.a) (3)
14. There are four possible actions which you can take to avoid a collision. What are they? (rule 8.e) (4)
15. When steaming in a narrow channel or fairway to which side should vessels keep? (rule 9.a) (1)
16. If a vessel is proceeding in a narrow channel and the officer of the watch is uncertain about the actions of another vessel, what should he do to draw the other vessel's attention to the situation? (rule 9.e.i & 34.d) (1)
17. If a vessel wants to overtake another vessel in a narrow channel and he can only do so if the vessel to be overtaken has to take action to permit safe passing, what should the officer of the watch do if (rule 9.e.i & 34.c.i)
 - a. he wants to overtake on the vessel's port side? (2)
 - b. he wants to overtake on the vessel's starboard side? (2)
18. In the scenario above, if the vessel to be overtaken is in agreement with the overtaking vessel's intentions, what does he do? (rule 34.c.ii) (2)
19. If a vessel proceeding in a narrow channel is approaching a bend in the channel around which the officer of the watch cannot see, what must he do? (rule 9.f & rule 34.e) (1)
20. If there is another vessel approaching from the other side of the bend, what should the officer of the watch on that vessel do? (rule 9.f & 34.e) (1)

21. Most ports and restricted traffic points have Traffic Separation Schemes. If a vessel needs to use the scheme he must abide by three basic rules regarding :

- a. The lane chosen; (rule 10.b.i)
- b. The traffic separation zone; and (rule 10.b.ii)
- c. Where he may join/leave the lane. (rule 10.b.iii)

What are these rules? (3)

22. If a vessel needs to cross a traffic lane he shall do so at? (rule 10.c) (1)

23. Only certain vessels may use the inshore traffic zone. Which are they? (rule 10.d.i) (3)

24. There are only certain conditions which could result in a large vessel entering the inshore traffic zone. Which are they? (rule 10.b.ii) (2)

25. May a vessel anchor in a traffic separation scheme? (rule 10.g) (1)

Section II: Conduct of vessels in sight of one another

26. In the following cases, when two sailing vessels are approaching one another with a risk of collision, which vessel has the right of way:

- a. when each has the wind on a different side. (rule 12.a.i) (1)
- b. when both have the wind on the same side. (rule 12.a.ii) (1)
- c. if a vessel with the wind on the port side sees a vessel to windward it cannot determine whether the other vessel has the wind on the port side or not. (rule 12.a.iii) (1)

27. If one vessel is overtaking another, which vessel gives way? (rule 13.a) (1)

28. When is a vessel deemed to be overtaking another? (rule 13.b.) ((2)

29. When two power driven vessels are approaching on reciprocal or nearly reciprocal courses, what action must the two vessels take? (rule 14) (2)

30. When two power driven vessels are crossing and risk of collision exists which vessel has the right of way? (rule 15) (1)

31. In a close quarters situation what is the responsibility of the giving way vessel? (Rule 16) (2)

32. What are the responsibilities of the stand-on vessel in a close quarters situation? (Rule 17) (3)

33. The following vessels are approaching one another in a close quarters situation: (rule 18)

- a. A power driven vessel;
- b. A sailing vessel;
- c. A vessel engaged in fishing;
- d. A vessel restricted in its ability to manoeuvre and
- e. a vessel not under command.

By comparing each vessel with each of the others, Indicate which vessel is the giving way vessel in each case. (10)

34. A vessel constrained by her draft travelling in a narrow channel or fairway has right over all other vessels. Is this true? (rule 18.d) (1)

35. A seaplane on the water has right of way over all other vessels. is this correct? (rule 18.e) (1)

SECTION III: CONDUCT OF VESSELS IN RESTRICTED VISIBILITY

36. If a vessel in restricted visibility detects another vessel by radar only and determines that a risk of collision exists, what should its reaction be? (rule 19) (2)

37. If the vessel mentioned in question 36 decides to alter course, what must it avoid? (rule 19.d) (4)

PART C LIGHTS AND SHAPES

37. When are a ship's navigation lights to be displayed? (rule 20) (2)

38. When must the shapes be displayed? (1)
39. By means of a sketch as seen from above a vessel, the arcs and colours of the (rule 21)
- masthead light;
 - side lights;
 - stern light; and
 - towing light (10)
40. Indicate the laid down minimum visibility of the following lights in a vessel of 50 metres or more in length: (rule 22)
- Masthead light.
 - Side lights.
 - Stern light.
 - towing light.
 - white, red, green, yellow all round lights. (5)
41. By means of the following sketches show the relative positions of the navigation lights of a power driven vessel of more than 50 metres in length: (rule 23.a)
- As seen from dead ahead. (4)
 - As seen from the starboard side. (3)
 - As seen from astern. (1)
42. In addition to the above nav lights an air cushion vessel when operating in the non displacement mode will also display an.....,, light. (rule 23.b) (3)
43. What may a power driven vessel of less than 12 metres in length display in place of the normal nav lights, (rule 23.c) (3)
44. By means of sketches show the lights a towing vessel and her tow would display if the towing vessel is greater than 50 metres in length and the tow is greater than 200 metres: (rule 24.a)
- As seen from the front; (6)
 - As seen from the port side; (6)
 - As seen from astern. (3)
45. By means of sketches show what lights a power driven vessel towing a vessel alongside (on port side) would display: (rule 24.c & 24.f.ii)
- As seen from the front; (6)
 - As seen from the port side; (4)
 - As seen from the stern. (2)
46. What shape would the towing vessel and her tow mentioned in 45. display during the day? (Rule 24a.v and 24c.iii)
47. What lights must a partially submerged vessel or object, less than 25 metres in breadth, display when being towed? (rule 24.g) (2)
48. By means of sketches show what lights a 30 metre sailing vessel will display at night: (rule 25.a and c)
- As seen from the front. (4)
 - As seen from the starboard side. (3)
 - As seen from the stern. (3)
49. What is the minimum lights a sailing vessel of less than 7 metres in length and a vessel under oars must display? (rule 25.d) (1)
50. What shape would a sailing vessel display if she has her sails hoisted and she is being propelled by her engine? (rule 25.e) (2)

51. Show by means of sketches the lights a vessel engaged in trawling, greater than 50 metres in length, would display: (rule 26.b)
- a. As seen from the front; (5)
 - b. As seen from the starboard side; (4)
 - c. As seen from astern. (3)
52. Show by means of sketches the lights a vessel engaged in fishing, other than trawling, would display: (rule 26.c)
- a. As seen from the front; (4)
 - b. As seen from the starboard side; (3)
 - c. As seen from astern. (3)
53. What shapes would a vessel engaged in fishing display during the day? (rule 26.b.i & c.i) (2)
54. What lights would a power driven vessel, not under command, making way through the water, display: (rule 27.a.i and a.iii)
- a. As seen from the front; (4)
 - b. As seen from the starboard side; (3)
 - c. As seen from astern. (3)
55. What shapes would the vessel not under command display during the day? (rule 27.a.ii) (3)
56. Show by means of sketches the lights a vessel (over 50 metres in length) restricted in its ability to manoeuvre, would display: (rule 27.b)
- a. As seen from the front; (7)
 - b. As seen from the port side; (6)
 - c. As seen from astern. (4)
57. What shapes would the vessel mentioned in 56 display during the day? (rule 27. b.ii) (3)
58. Show by means of sketches the lights a vessel engaged in dredging would display indicating that there is an obstruction on the port side and that it safe to pass her on her starboard side: (rule 27.d)
- a. As seen from the front; (10)
 - b. As seen from the port side; (7)
 - c. As seen from astern. (6)
59. What shapes would the dredger display during the day (rule 27.d) (7)
60. What does a vessel engaged in diving operations display, other than the two black balls and diamond shape? (rule 27 .e) (1)
61. What lights will a vessel engaged in mine clearance operations display, other than her steaming lights? (rule 27.f) (3)
62. What shapes would a mine clearance vessel display during the day? (rule 27.f) (3)
63. Show by means of sketches the lights a vessel, over 50 metres in length and constrained by her draught, would display: (rule 28)
- a. As seen from the front; (7)
 - b. As seen from the port side; (6)
 - c. As seen from astern. (4)
64. Show by means of sketches the lights a vessel engaged on pilotage duty, would display: (rule 29)
- a. As seen from the front; (5)
 - b. As seen from the port side; (4)
 - c. As seen from astern. (3)

65. Show by means of sketches the lights a vessel, greater than 50 metres in length, would display while lying at anchor: (rule 30.a)
- a. As seen from the front; (1)
 - b. As seen from the port side; (2)
 - c. As seen from astern. (1)
66. What shape would the vessel mentioned in 65 display during the day? (rule 30.a) (1)
67. Show by means of sketches the lights a vessel aground, greater than 50 metres in length, would display. (rule 30.d)
- a. As seen from the front; (3)
 - b. As seen from the port side; (4)
 - c. As seen from astern. (3)
68. What shapes would a vessel aground display during the day? (rule 30.d) (3)

PART D: SOUND AND LIGHT SIGNALS

69. What is the duration of : (rule 32)
- a. A short blast. (1)
 - b. A prolonged blast. (2)
70. What sound making devices should the following vessels carry: (rule 33)
- a. Vessels 13 to 99 metres long (2)
 - b. vessels 100 metres and above. (3)
71. In clear visibility, what sound signals would you make if you were carrying out the following actions: (rule 34.a)
- a. You are altering course to starboard. (2)
 - b. You are altering course to port. (2)
 - c. I am operating astern propulsion. (2)
72. In clear visibility, what sound signal would you make if you intended to do the following in a narrow channel or fairway: (rule 34.c)
- a. I intend to overtake you on your starboard side; (2)
 - b. I intend to overtake you on your port side. (2)
73. If the ship being overtaken is in agreement with our intentions, what sound signal does he make? (rule 34.c.ii) (2)
74. If you are approaching another vessel in a close quarter situation and you are uncertain about his intentions what signal do you make? (rule 34.d) (2)
75. If you are approaching a bend in a narrow channel and you cannot see around the corner, what should you do? (rule 34.e) (2)
76. What sound signals should you make in restricted visibility in the following cases: (rule 35)
- a. A power driven vessel making way through the water. (2)
 - b. A power driven vessel under way but stopped and making no way through the water. (2)
 - c. A vessel not under command. (2)
 - d. A vessel restricted in its ability to manoeuvre. (2)
 - e. A vessel constrained by its draught. (2)
 - f. A sailing vessel. (2)
 - g. A vessel engaged in fishing. (2)
 - h. A vessel engaged in towing operations. (2)
77. What should a vessel towed or the last vessel towed if more than one, sound (RULE 35.E) (2)

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| 78. | What sound signals does a vessel at anchor give? | (rule 35.g) | (2) |
| 79. | What sound signals does a vessel aground make? | (rule 35.h) | (4) |
| 80. | What sound signal does a pilot vessel on station make | (rule 35.j) | (4) |
| 81. | Give five signals a vessel in distress would make to draw attention. | (rule 37 and annexure IV) | (5) |

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