

COASTAL SKIPPER PRACTICAL AND ORAL GENERAL KNOWLEDGE QUESTIONS

This list has been devised to give candidates a feel for the range of questions that could be asked during the practical and oral examination. The list is not exhaustive. Candidates should be prepared to answer questions on any topic covered in the syllabus. Candidates should also be prepared to answer the Day Skipper questions.

1. CHARTWORK AND NAVIGATION

- 1.1 How many metres in the international nautical mile? How many cables in a nautical mile.
- 1.2 Plot a fix using your hand bearing compass.
- 1.3 Plot a fix using a GPS.
- 1.4 Do you use your deviation table for your ship's compass when you take a bearing with a hand bearing compass? Explain. What precautions should you take to ensure that the bearings you take with your hand bearing compass are not affected by deviation?
- 1.5 How would you check your ship's compass for deviation? Or, please demonstrate how you can check your ship's compass for deviation.
- 1.6 Check your compass deviation using a transit.
- 1.7 Why is it impractical to have a deviation card for a hand bearing compass? What checks should you do on your boat to determine whether bearings taken with a hand bearing compass are likely to be affected by deviation?
- 1.8 You take three bearings and plot a fix. The size of your cocked hat is quite acceptable. Would you be reasonably confident that you are inside your cocked hat?
- 1.9 When fixing position with a hand bearing compass, what would a good angle of cut be for two charted objects? What would be a good angle of cut for three charted objects? What angles of cut should be avoided?
- 1.10 Use blind navigation to go from A to B.
- 1.11 What does the chart symbol on this chart mean? (You would only be expected to know common chart symbols and the chart symbols on the charts of your home waters)
- 1.12 You see the following symbols next to a lighthouse. What do they mean?
 - a. Fl. 10s34m25M
 - b. Oc. 7s47m15M

- 1.13 Where would you look up a chart symbol? Demonstrate by looking up this chart symbol.
- 1.14 There is an area of the chart coloured in green. What does this mean?
- 1.15 The charted depth of a rock is given as 1,5. Why is it underlined? What does this mean?
- 1.16 For some reason this chart does not have an inner magnetic compass rose. Why might this be? If there is no inner magnetic compass rose, where on the chart would you expect to find information on magnetic variation?
- 1.17 What is the correct nautical meaning of the word "heading"? A hand held GPS typically gives you a "heading." Is this the same thing? Explain.

2. GPS

Please remember that you are expected to have a GPS or chart plotter on board for your practical exam.

- 2.1 Describe very briefly how GPS works. How many satellites do you need to get a proper fix?
- 2.2 You have a simple hand held GPS. You notice that it gives you a "heading." The heading jumps all over the show when you stand still but settles down to a steady reading if you walk in a straight line. Explain what is happening.
- 2.3 You have a friend in Australia who lives at the same latitude as your home in SA. So you put the co-ordinates of his home into your GPS as a waypoint. Although you can see from the Mercator world map on your wall that his home is due East of you, your GPS indicates that the bearing of his home from yours is 160°T and not 090°T. Explain.
- 2.4 GPS satellites transmit two very different types of signals. You can only access one of these signals. Explain.
- 2.5 In 2000 the US discontinued the policy of Selective Availability and announced a policy of Regional Denial. Explain what this was all about and what the implications are for yachties.
- 2.6 Talk about some of the dangers of GPS navigation.
- 2.7 Talk about some of the dangers of using chart plotters for navigation.
- 2.8 On what horizontal datum does the GPS system naturally operate? Are all charts on the same horizontal datum? Explain?
- 2.9 Are all South African charts on the same horizontal datum? What is going on here?
- 2.10 You have a chart of a remote atoll in the Pacific. You are using your GPS to approach it. What specific issue must you be aware of?



- 2.11 You are delivering a power boat. How can you use a GPS to sail a great circle route? Explain.
- 2.12 Demonstrate on your GPS how you would find the range and bearing of any waypoint.
- 2.13 Demonstrate how you would use a route in your GPS.
- 2.14 Demonstrate how you would follow a fog route back into port.
- 2.15 You are sailing to a tropical island. Are you more concerned about the accuracy of your GPS or the accuracy of your chart? Explain.
- 2.16 You are in the southern hemisphere. You put in a waypoint at your latitude but several thousand nautical miles to the west. What would you expect the bearing of this waypoint to be from your current position? Explain

3. ANCHORING

- 3.1 Describe what you could do to ensure that your anchor had set securely.
- 3.2 Is it better to have all chain, or a combination of chain and nylon? Explain.
- 3.3 You and your crew are tired and need a good night's rest at anchor. What alarms could you set to alert you to the possibility of your anchor dragging?
- 3.4 Describe and/or demonstrate how you could sail off your anchor in a strengthening wind if you had lost all power.
- 3.5 When might you want to deploy more than one anchor? Describe each situation.
- 3.6 How do you decide how much anchor cable to put out?
- 3.7 Your anchor is stuck. Describe some of the techniques you could employ to break it free.
- 3.8 You have to advise a friend on what anchor and anchor cable to buy for her new boat. What can you tell her?
- 3.9 What precautions should you take when sailing with your anchor stowed on your bow roller?
- 3.10 If you have an all chain anchor cable, what are the benefits of using a strop and anchor hook when at anchor?

4. RADIO, GMDSS AND COMMUNICATION AT SEA

- 4.1 How do you make a Mayday call on a VHF radio without DSC? Recite the Mayday call.
- 4.2 How do you make a Mayday call on a VHF radio with DSC?
- 4.3 What is the distress and calling channel on VHF?
- 4.4 When should you use the distress and calling channel?
- 4.5 What is dual watch and when would you use it.
- 4.6 Demonstrate your command of the phonetic alphabet by spelling out your name or your yacht's name (or some arbitrary word that the examiner chooses) in the phonetic alphabet.
- 4.7 Demonstrate your command of the phonetic alphabet by recognising a word, or sequence of words, that the examiner spells out to you in the phonetic alphabet.
- 4.8 What is the range of a VHF radio? Explain.
- 4.9 What is DSC? Explain.
- 4.10 What is an EPIRB? How does it work?
- 4.11 You are on a coastal passage. Your mast broke when the cap shroud popped out of the spreader. As a result your VHF aerial is in the water and you have lost VHF communication. What phone numbers do you have programmed into your cellular phone to help in such an emergency?

5. WEATHER

Synoptic Charts and Weather Systems

- 5.1 What is an isobar?
- 5.2 What units do we use to measure and report barometric pressure?
- 5.3 Unfortunately barometric pressure is sometimes quoted in millibars and sometimes in hectopascals. What is the difference?
- 5.4 Is a 'high' referred to as a cyclonic or an anti-cyclonic circulation? Is it the same in both hemispheres?
- 5.5 Which way do the winds go around a low in the Southern Hemisphere? And in the Northern Hemisphere?
- 5.6 Explain how you can use Buys Ballot's law to indicate in which direction the low pressure system is located?
- 5.7 Is a high associated with rising or sinking air?
- 5.8 Give four early signs of an approaching low and frontal system?
- 5.9 In the Southern Hemisphere, what is the wind direction ahead of the cold front and after the cold front passes.
- 5.10 What do we mean when we say the "wind veers" or the "wind backs"?
- 5.11 What is Buys Ballot's law?
- 5.12 Looking at the synoptic chart, what can you say about the expected weather at your home port over the next day or two?
- 5.13 Describe the sequence of events as a warm front, and then a cold front, approaches and passes in the Northern (or Southern) Hemisphere.

SA Weather Patterns – Local Knowledge

- 5.14 Why is the sea along the West coast so cold? Why so rich in sea life?
- 5.15 When is the Agulhas current dangerous? What do you do to avoid this danger?
- 5.16 What synoptic condition leads to a burg wind? Explain.



- 5.17 You are on the West Coast and a coastal low is passing. What dangerous weather condition must you be alert for?
- 5.18 You are off the coast of KZN and a coastal low is expected. What dangerous weather condition must you be alert for?
- 5.19 What synoptic condition leads to a strong SE wind? Explain
- 5.20 What is advection fog? Where in SA does it occur most often? Why?
- 5.21 What is upwelling? What danger can it pose to the yachtsman?
- 5.22 Where do coastal lows develop in southern Africa, how do they typically move and what weather do they bring?
- 5.23 What synoptic conditions typically follow behind a coastal low in SA?
- 5.24 How does the Agulhas current affect your navigation strategy when you sail from Cape Town to Durban or from Durban to Cape Town? What weather conditions are exceptionally dangerous? How would you handle these weather conditions?
- 5.25 What time of year would you avoid the Mozambique Channel? Why?

Effects of Land and Sea

- 5.26 Explain land breezes. Under what conditions do they occur? At what time of day do they occur?
- 5.27 Explain sea breezes. Under what conditions do they occur? At what time of day do they occur?

Weather Forecasts

- 5.28 Where can you get official weather forecasts?
- 5.29 How can you get weather forecasts at sea?
- 5.30 What weather forecasts do you personally use to plan your sailing around your home port in South Africa?
- 5.31 What is the time of the next weather forecast on VHF? Where can you look up the details? Demonstrate by looking it up.
- 5.32 What Internet weather forecasts do you use – if any?

THUNDERSTORMS



- 5.33 What cloud is associated with thunderstorms?
- 5.34 Under what circumstances would you expect cumulonimbus to develop?
- 5.35 What shape might you see at the top of a towering cumulus cloud to indicate that you have a fully developed cumulonimbus? Why does it form?

Warm Fronts and Cold Fronts

- 5.36 Do warm fronts and cold fronts occur in SA? Do they occur in Europe? Explain.
- 5.37 Explain the sequence of events as a frontal system approaches and passes.

6. FIRST AID AT SEA

- 6.1 How would you recognise and treat hypothermia?
- 6.2 How would you recognise the need for CPR and/or AR? Describe how you would apply CPR and/or AR.
- 6.3 How would you treat burns?
- 6.4 How would you treat sea sickness?
- 6.5 How would you staunch severe or arterial bleeding?
- 6.6 Do you have a First Aid reference book on board?

7. DIESEL ENGINES

- 7.1 Where are the spark plugs and how do you change them?
- 7.2 What can you do to minimise the risk of fungal growth in your diesel?
- 7.3 Your starter motor works fine but your diesel engine will not start. What are the likely causes? Describe your actions to resolve the problem.
- 7.4 Explain how you would bleed your engine.
- 7.5 Your engine will not start. Describe the fault finding sequence of checks you would do to locate the problem.
- 7.6 What engine checks would you do?
- 7.7 Point out all the oil and diesel filters. Describe how you would change them.

- 7.8 What spares do you have for your diesel engine? Find them and discuss how you would use them.
- 7.9 How would you change the cooling water impeller?
- 7.10 Describe some alternative battery configurations and the battery management disciplines that go with them.
- 7.11 What is the difference between a high crank and a deep cycle battery?
- 7.12 Would you use a deep cycle battery as your engine battery or your house battery?
- 7.13 You try to start your engine but there is not enough power in the battery. What can you do about it?
- 7.14 What are decompression levers? When might you use them?
- 7.15 You need to replace your oil filter. You have tried to unscrew it by hand but you are not strong enough. What can you do?

8. HEAVY WEATHER SAILING

- 8.1 You are expecting a severe storm. Describe your preparations.
- 8.2 Describe various methods of riding out a severe storm.
- 8.3 What is a drogue and how would you use it? What is a sea anchor and how would you use it?

9. RADAR AND AIS

There is no requirement to have radar or AIS on board for the practical exam. However candidates are expected to understand the principles involved.

- 9.1 Explain the various adjustments you would make to set up your radar.
- 9.2 Explain the risks you face if you ask someone to operate a radar who does not know how to set it up.
- 9.3 Explain the effect of beam width and pulse length on the resolution of your radar.
- 9.4 You have a knob called EBL and another called VRM on your radar. What are they and how would you use them.
- 9.5 Your radar is displaying a CPA of 20 meters and a TCPA of one minute. What does this signify? What are CPA and TCPA?

- 9.6 How would you use your radar to see if you were on a collision course?
- 9.7 What is AIS and how does it work? Which vessels are required to carry AIS?

10. COLREGS AND IALA BUOYAGE

The written Colregs exam will test candidates' knowledge of the shapes, lights and sounds as well as the stand on and give way rules in considerable detail. So those questions will not be duplicated here. However candidates' understanding of the underlying concepts and principles is likely to be tested by the examiner during the oral exam.

- 10.1 What is a traffic separation scheme? What are the key things that Colregs says about TSSs that are relevant to sailing vessels?
- 10.2 Is there a traffic separation scheme in your home cruising area? How would you know?
- 10.3 What is an inshore traffic zone. How should sailing vessels use this zone? Given the choice in fog, would you use the traffic lane or the inshore traffic zone? Explain why.
- 10.4 What does Colregs say about yachts crossing traffics separation schemes?
- 10.5 When two vessels are approaching one another on a collision course, what are the responsibilities of the give way vessel?
- 10.6 When vessels are approaching one another on a collision course, what are the responsibilities of the stand on vessel? Explain the sequence of actions that the stand on vessel should take if the give way vessel does not give way.
- 10.7 You see a fishing vessel moored in harbour with its twin cone shapes up. What is wrong here?
- 10.8 What does Colregs say about narrow channels?
- 10.9 What does Colregs say about assessing risk of collision?
- 10.10 You are sailing on a port tack at night. On your windward side you see the starboard light of a sailing vessel coming towards you on a collision course. However you cannot see the sails well enough to decide what tack the vessel is on. Does Colregs address this situation? Explain.
- 10.11 How does Colregs define a vessel "not under command"? Can you give any examples?
- 10.12 How does Colregs define a vessel "restricted in its ability to manoeuvre"? Can you give any examples of such a vessel?



- 10.13 You see a South cardinal buoy. Does that mean that the danger is South of the buoy, or does it mean that the danger is North of the buoy and you should stay South of it?
- 10.14 What is the general rule for the direction of buoyage? What symbol is used to indicate the direction of buoyage when it is not clear from the situation?

11. SAILS AND SAIL TRIM

- 11.1 Explain the function of the telltales on the foresail and the mainsail. Where would you place the telltales on the foresail and the mainsail, and how would you use them?
- 11.2 Explain weather helm and lee helm.
- 11.3 What are the centre of effort and the centre of lateral resistance?
- 11.4 When you reef the main sail does the centre of effort move forward or aft? What effect will this have on weather helm?
- 11.5 Explain the effect of moving the jib car forward or aft. How would you set the position of the jib car?
- 11.6 Explain how you would use the telltales to set the position of the jib car.
- 11.7 Explain the effect of moving the mainsheet traveller. How would you set the position of the mainsheet traveller on different points of sailing?
- 11.8 Some yachts with fractional rigs have equipment to adjust the tension of the back stay. What is the purpose of this adjustment? How would you use it?
- 11.9 You are sailing close hauled. Initially your yacht was beautifully balanced, but as the wind builds you are beginning to experience excessive weather helm in the gusts. Explain what is happening here. Explain the sequence of steps you can take as the wind builds to manage this situation.
- 11.10 Explain the difference between true wind and apparent wind. In general, is the apparent wind forward or aft of the true wind, or does it depend on other factors? Explain.
- 11.11 While roller furling headsails are convenient, what are the negatives?

12. BOAT HANDLING UNDER POWER

- 12.1 What is prop walk?
- 12.2 You have a right handed prop. Which way would you expect the stern to swing when you give a short burst of astern power?

- 12.3 You are tied up alongside. During the night a boat tied up ahead of you and another behind you. There is a fresh breeze blowing your boat onto the walk. Discuss your options for motoring off.
- 12.4 You need to tow another yacht. Discuss the key issues and how you would set about the task.

13. TIDES

- 13.1 What causes the tides? What causes spring and neap tides? Explain.
- 13.2 What phases of the moon are associated with neap tides and spring tides? Explain.
- 13.3 What does LAT mean?
- 13.4 What is the chart datum for charted depths in SA?
- 13.5 What does the IMO recommend that hydrographic offices should use as the chart datum for charted depths? Do all countries follow suite?
- 13.6 You are chartering a yacht in a foreign country. The tide table shows negative tidal heights at low tide. Is this a mistake? Explain.
- 13.7 What is a tidal diamond, and how would you use it? Explain.
- 13.8 What is the difference between diurnal tides, semidiurnal tides and mixed tides? Explain.
- 13.9 What is slack tide?
- 13.10 What colours are used on a chart to signify areas that are "drying"? What does this mean?
- 13.11 How are drying heights marked on a chart?
- 13.12 In SA, are the tides earlier or later each day? If so, by about how much?
- 13.13 You are in SA and you see a full moon. What time would you expect low tide and high tide to be tomorrow? Would you expect spring or neap tides?
- 13.14 Your friend has a SAS Coastal Skipper ticket and is planning to charter a yacht in the UK. He is feeling confident about handling the more extreme tides because he has brushed up on the rule of twelfths. Discuss.
- 13.15 What do we mean by the expression "reduction of soundings"? When would you want to "reduce your soundings" and why would you want to do it?

14. EMERGENCIES AND SAFETY AT SEA

- 14.1 You, as skipper, are in the cockpit when the mast breaks. You are not quite sure where all the crew are so you rush below to get the bolt cutters. While you are digging them out you hear one of your crew starting the engine to manoeuvre the boat around so that the mast does not bang against the boat. What are your priorities? Discuss this situation.
- 14.2 Discuss the various precautions you would take to minimise the risk of a gas explosion.
- 14.3 Your boat is moored in a marina. As you climb on board and go below you get a strong smell of gas. Describe your actions.
- 14.4 You are on watch at sea. As you go below to wake your replacement you get a strong smell of gas. Describe your actions.
- 14.5 Discuss the various types of fire extinguisher and when you **would** and **would not** use each type.
- 14.6 What are the likely causes of a fire or explosion aboard a sailing boat? What precautions would you take to minimise the risk of fire on board?
- 14.7 You have an injured person on board and a helicopter is coming to pick him up. What are the key issues here? Describe your preparations. What would you say to brief your crew?
- 14.8 Describe the key issues when abandoning to a life raft.
- 14.9 Your boat is holed and flooding. What can you do to reduce the rate at which water is coming into the boat?
- 14.10 Your boat is holed and flooding. You have done your best to staunch the flow, but the water is still coming in faster than the bilge pump, or pumps, can pump it out. What options do you have to get more water out?
- 14.11 Describe how you could manage steering failure on this yacht.
- 14.12 Your boat hit something in the dark and is sinking rapidly. The power has gone and it is totally dark (the examiner may simulate this situation by blindfolding you.) The skipper asks you to fire flares. Find the flares and demonstrate how you would fire them.
- 14.13 Describe the modern technologies that can be used to reduce the risk of collisions at sea at night or in fog. Describe their advantages and disadvantages.
- 14.14 Describe the precautions you would take in fog.
- 14.15 What are some of the common causes of an electric fire on a yacht? What can you do to minimise the risk of an electric fire?

- 14.16 You have bought a new piece of electrical equipment for your boat and plan to wire it yourself. What are the critical things that have to be done to minimise the risk of an electric fire?
- 14.17 A technician is installing gas and a gas stove on your yacht. What are the critical things you would check to minimise the risk of fire or explosion?
- 14.18 You have to decide where to stow your life raft on your yacht. Discuss the alternatives and their merits and disadvantages.
- 14.19 You have lost your mast. Describe the alternatives you have for setting up a jury rig. The question could be specific to the boat used in the exam, or a general question for a deck stepped or keel stepped mast.
- 14.20 What is a lee cloth and when would you use it?

15. SAFETY BRIEFING AND SAFETY EQUIPMENT

- 15.1 You are about to depart on a coastal passage. Give a comprehensive safety briefing. (You are encouraged to use a brief agenda as a reminder of the major topics, but reading from a long list of crib notes would not be acceptable.)
- 15.2 Describe the precautions you would take when cooking at sea.
- 15.3 Explain where all the safety equipment is on your boat and demonstrate how to use it.
- 15.4 You have been asked to deliver a yacht from Cape Town to Durban. How would you assess whether the boat is seaworthy? Describe some of the important checks you would do.
- 15.5 Unpack the contents of your grab bag, describing each item and how you would use it. What items might you add to your grab bag for a coastal passage?

16. LOCAL KNOWLEDGE – TABLE BAY

- 16.1 What do the lights on the port control building mean?
- 16.2 For which areas do you have to ask permission from port control before you can enter?
- 16.3 What VHF channel is used for the port of Cape Town?
- 16.4 Identify the leading lights for Duncan Dock.
- 16.5 Identify the light houses and their flash sequences.
- 16.6 What kind of buoy is buoy no 10 in Table Bay? What is its purpose?



- 16.7 Identify the buoys in Table Bay and explain their purpose.
- 16.8 Explain the cap cloud (or orographic cloud) that develops over Table Mountain in a SE wind. Why does it only develop in a strong SE and not a light SE?
- 16.9 Describe the traffic separation scheme in Table Bay.

(Local knowledge questions from other centres such as Saldanha and Durban may be added.)

17. PASSAGE PLANNING

- 17.1 You are about to set off on a 4-day coastal passage. You have two crew members (or maybe more). Describe your watch keeping organisation.
- 17.2 What documentation is available to help you plan a coastal passage in South Africa?
- 17.3 Describe your navigational disciplines for a coastal passage.
- 17.4 What log entry disciplines would you set for a coastal passage?