SOUTH AFRICAN SAILING

YACHTMASTER OFFSHORE
ORAL GENERAL KNOWLEDGE QUESTIONS

(Updated 22 August 2012)

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.

While the oral will focus on the Yachtmaster offshore syllabus, the examiner will also cover selected topics from the Day Skipper or Coastal Skipper syllabuses. Yachtmaster Offshore candidates would be well advised to also test their knowledge against the Day Skipper and Coastal Skipper general knowledge questions.

1. CORAL NAVIGATION

1. Describe some of the dangers of coral navigation.
2. What specific precautions would you take when negotiating a difficult pass through a coral reef?
3. Describe how offshore coral reefs and atolls form, and what hazards this creates for yachtsmen.
4. What specific risk is associated with GPS navigation in coral waters?
5. You are going to act as the lookout for the helmsman as she negotiates her way through a difficult coral passage into an atoll. What sort of dark glasses should you wear if any? Explain. Where should you be positioned to best see the reef?
6. What time of day would you select to get the best clarity for a difficult passage through coral?

2. GPS

1. 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 160ºT and not 090ºT. Explain.
2. GPS satellites transmit two very different types of signals. You can only access one of these signals. Explain.
3. 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 yachtsmen.
4. 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?
5. You are delivering a power boat. How can you use a GPS to sail a great circle route? Explain.
6. You are sailing to a tropical island. Are you more concerned about the accuracy of your GPS or the accuracy of your chart? Explain.
7. 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.

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3. FIXING POSITION BY MERIDIAN PASSAGE

1. Demonstrate how to use a sextant to determine the altitude of the sun.
2. How do you check that you are holding your sextant vertically in order to get a vertical altitude reading?
3. Demonstrate how to set up a sextant.
4. What are the three sextant errors and how do you correct them?
5. Describe how to improvise to get an approximate position using the meridian passage of the sun without a sextant.
6. How can you estimate the time of meridian passage if you have no sextant?
7. How can you calculate the approximate time of meridian passage given an estimate of your longitude?

4. GLOBAL TIDES

1. Explain the difference between diurnal, semi-diurnal and mixed tides.
2. Name an area of the world for which tidal atlases are published.
3. Name an area of the world where you need to take tidal streams into account when navigating?
4. Do all hydrographic offices use LAT as the chart datum? Explain.
5. Your tide table for San Francisco shows low tide as – 2 ft. What is going on here? Discuss.
6. Your tide tables for the east coast of the USA talk about "reference stations" and "subordinate stations". What are reference stations and subordinate stations?

5. TROPICAL ROTATING STORMS (TRS)

1. What time of the year do TRSs generally occur? Why?
2. Do we get TRSs in the South Atlantic? Explain.
3. Do we get TRSs within 3º of the equator? Explain.
4. Describe the typical tracks of a TRS. Which way might a TRS typically recurve?
5. What is the dangerous semi-circle? Give three reasons why this semi-circle is more dangerous?
6. What does Buys Ballot's law say, and how you would use it to estimate the position of a TRS?
7. What is the symbol for a TRS on a synoptic chart?

6. GLOBAL WEATHER PATTERNS

1. Do we get warm fronts and cold fronts in South Africa? Do we get them in Europe? Explain.
2. Explain the sequence of events as a frontal system approaches and passes.
3. Draw a mid-latitude low pressure system with its associated warm and cold fronts in both hemispheres. Use this to compare how the wind changes in the two hemispheres as the frontal systems pass.
4. What is the ITCZ? What happens there?
5. What other terms do you know for the ITCZ?
6. What are the problems for a yachtsman crossing the ITCZ?
7. How does the ITCZ move with the seasons?
8. Describe global wind patterns.

9. Using global synoptic features and weather patterns, describe your weather routing from:
    a. Cape Town to the Caribbean
    b. Rio to Cape Town
    c. Europe to the Caribbean
    d. The Caribbean to Europe
10. What time of year would you avoid the Caribbean? Why?
11. What time of the year would you avoid the Mozambique Channel? Why?
12. Where do you find semi-permanent ocean highs?
13. Draw a rough sketch of the Atlantic Ocean – North and South – sketching in the position of any semi-permanent highs, the direction of movement of the mid latitude depressions showing the fronts and wind patterns associated with these systems.

7. COMMUNICATION AT SEA

1. Explain the difference in propagation between VHF, HF and MF and how this affects your choice of radio and frequency depending on the required communication range.
2. What are the frequency ranges which define MF, HF and VHF?
3. When would you use the 2MHz MF band on your marine MF/HF SSB radio? What range might you expect to achieve?
4. Explain why you need several HF bands on a marine MF/HF SSB radio.
5. What factors affect the HF band you might select for long range communication on your SSB radio?
6. What is the difference between a marine MF/HF SSB radio and a ham radio?
7. Compare the benefits of marine MF/HF SSB radio and satellite phones for offshore and mid ocean communication.
8. Why do many yachties who spend a few years cruising around the world often go to the trouble of getting their ham radio licence? What are the benefits?
9. You are preparing a yacht for an ocean crossing. What alternatives do you have for distress communication in mid ocean? What are their pros and cons?
10. What is an EPIRB? When would you use it? Do you need an EPIRB on a category A vessel.
11. What is critical about EPIRB registration. Explain.

8. STABILITY

1. What is the angle of vanishing stability? Under what conditions might it be relevant?
2. Draw a typical stability curve for a keelboat pointing out the angle of vanishing stability.
3. What alterations or additions to your yacht or its rig might affect the angle of vanishing stability?
4. All new yachts sold in the EU today have a STIX classification. What is that about?

9. VESSEL SEAWORTHINESS

1. Ball valves, tapered “Blake” valves and gate valves are used as sea cocks in yachts. Are they all suitable? Explain.
2. Brass ball valves are sometimes found on yachts. Are they suitable? Explain.
3. What is dezincification? Explain the significance for yachtsmen.
4. How would you check your seacocks?

5. What kind of drive shaft seal do you have on this yacht? Does it pose a risk of catastrophic failure?
6. Under what conditions does stainless steel corrode badly? How does this pose a risk to the typical yacht?
7. Is leakage at chain plates an issue? Explain.
8. How would you inspect your chain plates?
9. Does a typical rig have a working life, or can you just continue to use it as long as it passes an inspection? What guidelines might one use for replacing your rig?
10. How would you inspect your rig? What would you look for?
11. How is a typical fibreglass rudder constructed? What are the risks with an old rudder?
12. How would you check your rudder when the boat comes out of the water?
13. What system links the steering wheel to the rudder stock on this yacht? How would you inspect it. What would you look for?
14. What are the emergency steering arrangements on this yacht?
15. You have been asked to deliver a second hand yacht to America. Describe the inspection process you would go through.

10. LEGAL

1. You have an 8m sailing keelboat and a 10 HP rubber duck. Do these boats need a CoF? Do you need a CoC to skipper these boats? Do these boats have to carry the safety equipment listed in the National Small Vessel Regulations?
2. You have an 8m sailing vessel with a 20HP engine. Does it require a CoF. Do you require a CoC to be skipper?
3. What is the cut-off for certification of sailing boats and power boats? Is it based on power or length? Explain.
4. Small vessels are categorised as category A, B, C, D, E or R. What is all this about?
5. Does this yacht have a CoF? What category of CoF? How far offshore are you allowed to go with this CoF. Show me the CoF?
6. You want to go sailing at sea at night. Do you need to carry a liferaft? Discuss.
7. Your friend has just bought a large yacht with a displacement of 70 tonnes. However he does not yet have a skipper's ticket. He wants you to skipper it at sea for him because you have your SAS skipper's ticket. He tells you it is within the scope of your skipper's ticket because it has a displacement of less than 100 tonnes. Is his logic correct?
8. Is gross tonnes the same as displacement in tonnes? Explain.
9. You have a 20HP power vessel. Do you need a buoyancy certificate? Discuss.
10. You have a 10m sailing vessel. Do you need a buoyancy certificate? Discuss.
11. What are the limitations on a SAS Coastal Certificate? Can you sail at night? How far offshore can you go? Can you take paying passengers?
12. Describe some of your legal responsibilities as a skipper.
13. You wish to use your yacht for commercial purposes. Is a SAS CoF and CoC sufficient?
14. You wish to go foreign. Is a SAS CoF and CoC sufficient?