Basic Keelboat 2 Review Question Key

1. Identify the Leech
   The trailing edge (lee edge) of the sail.
2. Identify the Chord
   The imaginary line connecting the luff and the leech.
3. Identify the Luff
   The leading edge of the sail.
4. Identify the Draft
   The depth of the sail.
5. Describe the True Wind.
   The speed and direction of the wind over a stationary object.
6. Describe the Apparent Wind.
   The speed and direction of the wind as felt by a moving object.
7. On which side of the sail is the airflow faster in popular theory?
   The outside (back) of the sail.
8. What happens to the air flow when a sail stalls?
   The airflow separates from the back of the sail before it reaches the leech.
9. Do we trim to the apparent or the true wind?
   Apparent Wind
10. Which two components make up the apparent wind?
    Boat speed and true wind.
11. Describe how the force of lift affects the boat.
    It's caused by the high and low air pressure on the sides of the sail and results in a forward force and results in an unwanted heeling force
12. How does changing the boat's direction affect the angle of attack?
    It changes the angle of the apparent wind on the chord of the sail as does changing the trim of the sail.
13. What is wind gradient?
    The difference of apparent wind direction near the surface to the apparent wind direction higher up due to the higher wind speed away from the surface.
14. What is angle of attack?
    The angle between the direction of the apparent wind to the chord of the sail.
15. How can an impending jibe be stopped?
    By heading upwind.
16. Name the parts of the standing rig.
    Mast, Boom, Forestay, Backstay, Shrouds.
17. Describe the function of the forestay.
    To keep the mast from falling aft.
18. How can headstay (forestay) tension be adjusted while sailing?
    By tightening or loosening the backstay.
19. How does moving the jib fairlead position forward affect power of the jib?
    Increase power by deepening the shape at the foot.

20. How does moving the jib fairlead position forward affect the shape of the jib?
    Reduce twist.
21. When close hauled what is the effect of tightening the mainsheet mainsail shape?
    It will reduce twist and tighten the leech.
22. Which control affects the twist in the main when sailing off the wind?
    The boom vang.
23. Which control affects the twist in the main when sailing close hauled?
    The mainsheet.
24. Which control affects the depth in the main at the lower portion of the sail?
    The outhaul.
25. Which control component controls course and angle of attack?
    The Traveler.
26. What control changes the depth at the lower portion of the jib?
    The fairlead position.
27. What control changes the depth at the middle portion of the mainsail?
    Halyard tension.
28. What controls the luff tension and draft position?
    The halyard.
29. What is the primary responsibility of the skipper?
    Ensuring crew and vessel safety.
30. What is the relationship of Center of Effort to Center of Resistance for a balanced helm?
    The center of effort is positioned directly over the center of lateral resistance.
31. What happens to power when you reduce the angle of attack?
    Power decreases.
32. What does the mainsheet control when sailing close hauled?
    Power and balance.
33. How is a quick stop recovery MOB accomplished?
    Hail "Man Overboard" and tack without releasing the jib.
34. How is "dipping" accomplished when an obstacle in the water?
    Ease the main and bear away to duck the obstacle.
35. What are the steps for heaving to?
    Tack without releasing the jib and put the tiller to leeward.
36. What elements are required for efficient tacking?
    A smooth turn carrying speed from tack to tack.
37. What shape in the mainsail is required for optimal power in light wind?
    Trimmed to a deep shape and a wide angle of attack.
38. What are the ways adjustment of the jib sheet change the shape of the jib?
    Change Angle of Attack, Change jib depth, Control jib twist.
39. How should the mainsail be trimmed for Wing on Wing sailing?
    ON THE TEST: Eased all the way out, against the shrouds.
40. What can be done to stop an accidental jibe that is just starting to happen?
    If jib collapses indicating a jibe may happen, simply head up.
41. How does a boat react to being overpowered in heavy air?
    Boat heels way over and has strong weather helm.

42. What is the effect on the rudder and tiller when sailing backward?
    The force of the water against the rudder tries to jerk the tiller from side to side.
43. What does Feathering Up mean?
    Allowing the boat's weather helm to head the boat up slightly.
44. What is the result of pinching during an Up-and Over maneuver?
    The boat will slow down and lose steerage control.
45. What does the traveler do to mainsail trim?
    It adjusts the angle of attack.
46. What is the effect of easing the outhaul?
    Adding depth (draft) to the sail.
47. What is the ideal setting for the jib halyard in moderate air ?
    Just firm enough to remove wrinkles from the luff of the sail.
48. What can be done to the mainsail to reduce healing without sacrificing power?
    Flatten the sail (by tightening the outhaul, luff tension and backstay).
49. Most boats are designed to have what kind of helm balance?
    A slight weather helm.
50. How can backstay tension be adjusted to reduce weather helm?
    Increased.
51. How can pumping the sails be used allow the boat to Slow & Go?
    Using the mainsheet to "Fill & Spill" will control speed for an MOB approach.
52. How can the main be used as an Air Brake to slow the boat?
    Backwinding the main
53. What can you do to prioritize keeping the victim sight when doing a MOB recovery?
    Using a spotter to keep victim in sight is vital.
54. What are some reasons for the helmsman not to rush changing sides when tacking?
    Rushing causes the helmsman to push the tiller too far slowing down the boat.
55. When is apparent wind weaker than the true wind?
    When sailing downwind.
56. How does twist affect power?
    More twist (beyond an optimal amount) reduces power.
57. What the effect of backstay tension on mainsail power?
    Tighter backstay flattens the mainsail reducing power.
58. Increased backstay tension has what effect on twist and depth of the mainsail?
    Increases twist and reduces depth.
59. How does moving the jib leads affect the jib?
    It can help all telltales fly together, change the twist and change depth.
60. In which conditions will you want more depth in the mainsail?
    When the wind gets lighter.
61. How can you decide if the weather will be appropriate to sail on a particular day?
    By consulting the marine weather forecast.
62. Describe how to use the ducking maneuver to avoid an obstacle ahead?
    Bear away and ease the main to pass downwind of the obstacle.
63. What is jibing?
    Changing tacks downwind.

64. What is the purpose of tacking?
    To advance the boat upwind.
65. What are purposes of the tiller extension?
    To give better visibility and weight placement.
66. Sailing in which direction depends on lift of a sail?
    Sailing upwind.
67. What is apparent wind?
    The wind felt on a moving boat.
68. What are the major goals for efficient sailing close hauled?
    To maximize speed, pointing and balance.
69. What are the three sources of sail power?
    Angle of attack, sail depth and twist.
70. What is the relationship between a sail's flatness and the amount of power it produces?
    The deeper the shape the more power it produces.
71. In regard to jib power what does Telltale Break mean?
    The relationship of when the upper telltales show luffing compared to the lower telltales.
72. What is the effect of boom vang tension on a mainsail when sailing on a reach?
    It controls twist. (More tension = Less twist)
73. What is the effect of Outhaul Tension on mainsail shape and power?
    Less tension = More depth which makes more power.
74. What are the steps to initiate a figure-8 MOB rescue?
    Hail MOB and steer a beam reach away from the MOB.
75. What should be done immediately regardless of the kind of MOB recovery technique?
    Hail MOB and throw flotation. (Type IV pfd)
76. What is the function of the winch handle?
    To increase mechanical advantage.
77. What is the function of the boom vang?
    To control the height of the end of the boom.
78. What does increased jib sheet tension do to shape and power?
    It decreases twist and adds power.
79. How can the traveler and the outhaul be used to depower the mainsail in heavy air?
    Lowering the traveler (to leeward) and tightening the outhaul to flatten the sail.
80. Where does draft move when easing main halyard tension?
    It moves aft.
81. What should the helmsman keep an eye on to maintain maximum power sailing upwind?
    The (jib) telltales
82. What main sail adjustment can be made to increase power in light air?
    Ease the outhaul.
83. While sailing upwind name two responses when hit by a puff in moderate air sailing?
    Feather up with the helm and ease the traveler.
84. How can a sailor depower in heavy air while sailing upwind?
    Tightening the outhaul and lowering (easing) the traveler.
85. What does it mean to be sailing in the groove when sailing upwind?
    Maintaining optimal trim and sailing angle to the wind.

86. What information is needed to make an effective day-sail plan?
    The marine weather forecast and the contents of the nautical chart.
87. What are crucial considerations for crew and skipper preparedness for a day sail?
    Being aware of weather, safety gear, and crew roles.
88. Name some ways the boom, lines, sheets, and decks can become safety issues.
    During tacking, jibing and sudden maneuvers.
89. What are the steps for tacking as the helmsman?
    Turn, move and exchange, settle and steer.
90. What is weather helm?
    The tendency for the boat to turn towards the wind.
91. When surfing waves on a broad reach what actions will enhance safety?
    Steer actively and adjust sail trim and weight distribution to maintain a steady course.
92. What is the benefit of practicing coasting upwind?
    To know how far your boat glides depending on boat speed, wind speed and sea state.