Questions 1 - 16 Refer to Images in Image Set 1

1. What is the name of the object show in **Image A** ?
2. What spacecraft collected the observation shown in **Image A** ?
3. Which image depicts that spacecraft ?
4. What new information about the bright features on this object was revealed by the observation in **Image A** ?
5. What other two Images show optical imagery of this object ?
6. What is the name of the region in the solar system where this object is located ?
7. Is this region closer, farther, or equidistant from the sun as **Location i** in **Image H** ?

8. What is the the name of object labeled **iii** in **Image G** ?
9. **Image F** illustrates composition layers for which object in **Image G** ?
10. Which layer in **Image F** is composed of water-ice ?

11. What type of solar system object is shown in **Image B** ?
12. Which image shows the position of this type of object in the solar system ?
13. What other two images show optical imagery of this type of object ?
14. What is the name of the specific object shown in these images ?
15. Which image depicts the spacecraft that collected these images ?

16. Which location in **Image K** corresponds to the ion tail of a comet?

Questions 17 - 35 Refer to Images in Image Set 2

17. What is the name of the object shown in **Image N** ?
18. What planet does it orbit?

19. What is the name of the surface feature shown in **Image S** ?

20. What features are shown in **Image M** ?
21. What is the primary composition of these features ?

22. **Image Q** shows a set of models for the production of these features. Describe the difference between model **i** and model **v**.
23. Which arrow in **Image T** corresponds to the process in model **ii** in **Image Q** ?

24. Which image shows the angular orientation of the features in **Image M** ?
25. What is the colloquial name for the surface areas from which they emanate ?

26. **Image P** shows one such surface area. It was formed from visible observations and which other portion of the electromagnetic spectrum ?
27. What other image also includes observations from this portion of the electromagnetic spectrum?
28. What physical property of the surface does this indicate ?

29. What does **Image O** indicate about the location and extent of the subsurface sea of Enceladus ?
30. How might this explain the difference between the predicted and observed surface temperatures shown in **Image R** ?
31. How is this different than the location and extent of subsurface ocean of Europa?

32. What phase of water is indicated by region **i** in **Image T** ?
33. What phase of water is indicated by region **ii** in **Image T** ?
34. What phase of water is indicated by region **iii** in **Image T** ?
35. What is the name for point **xi** in **Image T** ?

Questions 36 - 49 Refer to Images in Image Set 3

36. What is the name for region shown as a green band in **Figure V** ?
37. Why is this band sloped in **Figure V** ?
38. **Image W** shows the same region for our solar system. Does Jupiter fall inside or outside of this band?
39. What does this (the answer to question 38) mean for the habitability of Europa?

40. What is the name of the object shown in **Image X** ?
41. Which other image shows the surface of this object ?
42. Which image depicts the spacecraft that collected this image?
43. Which image shows the planet around which this object orbits ?

44. What is the name of the object shown in **Image CC** ?
45. Which other two images shows the surface of this object ?
46. Which image depicts the spacecraft that collected this image?
47. Which image shows the planet around which this object orbits ?
48. What is the composition the lighter colored portion of the surface?
49. What is the composition of the darker portion of the surface?

Questions 50 - 73 Refer to Images in Image Set 4

50. What object is shown in **Image LL** ?
51. Does this object have more or less water (in any phase) than Europa?
52. Does this object have more or less water (in any phase) than Earth?
53. What is the name of the planet which this object orbits?
54. What is the name of the feature shown in **Image KK** ?

55. What is the composition of the dark features in **Image GG** ?
56. What phase of the matter are these features ?
57. What is the name of feature **ii** in **Image GG** ?
58. Which feature in **Image GG** is Kraken Mare ?

59. What is the composition of the topographic features shown in **Image II** ?
60. What phase of the matter are these features ?
61. What spacecraft collected the observations in **Image II** ?

62. What spacecraft collected the observations in **Image LL** ?

63. What is the composition and phase of layer **v** in **Image HH** ?
64. What is the composition and phase of layer **iii** in **Image HH** ?
65. Which layer in **Image HH** corresponds to high density ice ?

66. What instrument collected figure **i** in **Image JJ** ?
67. What figure in **Image JJ** was collected in the radio portion of the electromagnetic spectrum ?

68. What form of water is shown in **Image NN** ?
69. What other image shows this same form of water ?
70. What image depicts the spacecraft that collected **Image NN** ?

71. What mission is depicted in **Image PP** ?
72. The operation of what instrument is depicted in **Image PP** ?
73. Describe how this instrument can be used to study extraterrestrial water and ice in the solar system.

Questions 74 - 95 Refer to Images in Image Set 5

74. What solar system body is shown in this set of images ?

75. Is the feature shown in **Image SS** located near the north pole, south pole, or equator of that body?

76. What type of feature is shown **Image TT** ?
77. Is this feature near the north pole, south pole, or equator of that body ?
78. What other two images show this type of feature ?

79. Which type of instrument produced **Image ZZ** ?

80. Which image was collected in the infrared portion of the electromagnetic spectrum ?

81. How does **Image VV** show evidence of liquid surface water?

82. What instrument collected the observation shown in **Image UU** ?
83. Does **Image UU** show daytime or nighttime observations of the surface?

84. What is the composition of the precipitation shown in **Image XX** ?

85. Which figure in **Image AAA** was collected using a radar sounder?
86. Describe how a image like this is produced from radar sounder observations.
87. Which image depicts the spacecraft that collected these observations?
88. What is the name of the instrument that collected figure **ii** in **Image EEE** ?
89. Which image depicts the spacecraft that collected these observations?

90. Was the wavelength of the observations used to produce figure **ii** in **Image EEE** longer, shorter, or the same as wavelength of observations used to create **Image AAA** ?

91. Was the bandwidth of the observations used to produce figure **ii** in **Image EEE** larger, smaller, or the same as wavelength of observations used to create **Image AAA** ?

92. What do the horizontal layers figure **ii** in **Image EEE** indicate about formation of the feature in **Image SS** ?

93. In what form does **Figure YY** indicate most of the mid-latitude water is stored ?

94. For what features in **Figure SS** does the process illustrated in **Figure DDD** provide a potential formation mechanism.

95. Describe that potential formation process.

Questions 96 - 115 Refer to Images in Image Set 6

96. The surface of what solar system body is shown in **Image GGG** ?

97. What is the name for the type of surface features show in **Image GGG** ?

98. **Image FFF** depicts a potential formation process for what type of feature?

99. Describe this formation process.

100. How might this process affect the potential habitability of the shallow-subsurface?

101. Which image shows this type of surface feature ?

102. **Image JJJ** depicts a potential formation process for what category of surface feature?

103. Describe this formation process.

104. Which image shows this type of surface feature ?

105. **Image LLL** depicts a potential formation process for what category of surface feature?

106. Describe this formation process. Which process on earth is it similar too?

107. Which image shows this type of surface feature ?

108. **Image RRR** is an artist rendition of what type of feature?

109. Which image shows an observation that supports the existence of such a feature ?

110. In which portion of the electromagnetic spectrum was this observation collected.

111. Describe how such a feature could be formed from a shallow subsurface water body

112. What is the name of the mission depicted in **Image OOO** ?

113. What solar system body would this mission orbit during its observational campaign ?

114. Describe how the lander mission concept illustrated in **Image PPP** could potentially provide direct in-situ observations of the ice shell.

115. **Image SSS** shows a terrestrial example of penitentes, a surface feature that has been hypothesized for Europa. Describe their formation and how they might affect site selection for a potential lander mission.