1. An air temperature of 95ºC most often exists in which layer of the atmosphere?
   (1) troposphere  (3) mesosphere
   (2) stratosphere  (4) thermosphere

2. Earth’s troposphere, hydrosphere, and lithosphere contain relatively large amounts of which element?
   (1) iron  (3) hydrogen
   (2) oxygen  (4) potassium

3. As the altitude increases within Earth’s stratosphere, air temperature generally
   (1) decreases, only
   (2) increases, only
   (3) decreases, then increases
   (4) increases, then decreases

4. Ozone is concentrated in Earth’s atmosphere at an altitude of 20 to 35 kilometers. Which atmospheric layer contains the greatest concentration of ozone?
   (1) mesosphere  (3) troposphere
   (2) thermosphere  (4) stratosphere

5. In which atmospheric layer is most water vapor found?
   (1) troposphere  (3) mesosphere
   (2) stratosphere  (4) thermosphere

6. What do the tropopause, stratopause, and mesopause all have in common?
   (1) Each is a point of maximum temperature in its layer of the atmosphere.
   (2) Each is an interface between two layers of the atmosphere.
   (3) Each is a region of increasing pressure within the atmosphere.
   (4) Each is a zone of decreasing water vapor content within the atmosphere.

7. The temperature in the stratosphere ranges from approximately
   (1) –55ºF to 0ºF  (3) 10ºF to 35ºF
   (2) –55ºC to 0ºC  (4) 10ºC to 50ºC

8. The total amount of water vapor per cubic meter in the atmosphere at sea level is approximately
   (1) 1 g/m³  (3) 15 g/m³
   (2) 8 g/m³  (4) 30 g/m³

9. Why do most clouds form in the troposphere?
   (1) Air pressure rises with increasing altitude.
   (2) The dewpoint is too high in the other layers of the atmosphere.
   (3) The other layers of the atmosphere are too cold to contain water.
   (4) The lowest 11 km of the atmosphere contains almost all of the atmospheric water vapor.

10. As altitude increases from the tropopause to the mesopause, the atmospheric temperature will
   (1) decrease, only
   (2) increase, only
   (3) decrease, then increase
   (4) increase, then decrease

11. What is the approximate thickness of the troposphere?
   (1) 7 km  (3) 27 km
   (2) 12 km  (4) 50 km

12. What is the temperature of the atmosphere at the stratopause?
   (1) –90ºC  (3) 0ºC
   (2) –55ºC  (4) 15ºC

13. Which element has the highest percentage by volume in the troposphere?
   (1) oxygen  (3) hydrogen
   (2) nitrogen  (4) carbon dioxide

14. What is the approximate altitude of the mesopause in the atmosphere?
   (1) 50 km  (3) 82 km
   (2) 66 km  (4) 90 km
15. Which graph best represents the relationship between air temperature and elevation in the troposphere?

1. \[ \text{ELEVATION} \quad \text{TEMPERATURE} \]
2. \[ \text{ELEVATION} \quad \text{TEMPERATURE} \]
3. \[ \text{ELEVATION} \quad \text{TEMPERATURE} \]
4. \[ \text{ELEVATION} \quad \text{TEMPERATURE} \]

16. As altitude within the troposphere increases, the amount of water vapor generally
(1) decreases, only
(2) increases, only
(3) remains the same
(4) decreases, then increases

17. Which circle graph best represents the volume of gases in the troposphere?

1. \[ \text{OTHER GASES} \quad \text{OXYGEN} \quad \text{NITROGEN} \]
2. \[ \text{OTHER GASES} \quad \text{NITROGEN} \quad \text{OXYGEN} \]
3. \[ \text{OTHER GASES} \quad \text{NITROGEN} \quad \text{OXYGEN} \]
4. \[ \text{OTHER GASES} \quad \text{OXYGEN} \quad \text{NITROGEN} \]

18. The greatest atmospheric pressure occurs in the
(1) troposphere (3) mesosphere
(2) stratosphere (4) thermosphere

19. Which part of the atmosphere has the smallest distance from the bottom to the top of its zone?
(1) troposphere (3) mesosphere
(2) stratosphere (4) thermosphere

20. An observer recorded the barometric pressure while traveling up the west side of a mountain and down the other side. Which graph best represents the probable air pressure changes that were observed?

1. \[ \text{AIR PRESSURE} \quad \text{WEST SIDE OF MT} \quad \text{MT TOP} \quad \text{EAST SIDE OF MT} \]
2. \[ \text{AIR PRESSURE} \quad \text{WEST SIDE OF MT} \quad \text{MT TOP} \quad \text{EAST SIDE OF MT} \]
3. \[ \text{AIR PRESSURE} \quad \text{WEST SIDE OF MT} \quad \text{MT TOP} \quad \text{EAST SIDE OF MT} \]
4. \[ \text{AIR PRESSURE} \quad \text{WEST SIDE OF MT} \quad \text{MT TOP} \quad \text{EAST SIDE OF MT} \]
Answer Key

1. 4
2. 2
3. 2
4. 4
5. 1
6. 2
7. 2
8. 4
9. 4
10. 4
11. 2
12. 3
13. 2
14. 3
15. 1
16. 1
17. 1
18. 1
19. 1
20. 2