



METEOROLOGY

1) Air is a mixture of different gases. The most important components are:

- a. 80% oxygen and 20% nitrogen.
- b. 80% nitrogen and 20% oxygen.
- c. 80% carbon dioxide and 20% oxygen.

2) What pattern of directions do the sea breezes follow?

- a. They blow from sea to land at all levels.
- b. On the surface they blow from sea to land, at height the return from land to sea circulates.
- c. On the surface they blow from land to sea, at height the return from sea to land circulates.

3) What is the mean pressure at sea level, defined for the standard atmosphere?

- a. 1013.2 hpa.
- b. 1033.6 hpa.
- c. 760.0 hpa.

4) Pressure at sea level:

- a. It is always constant.
- b. It can, in rare cases, increase relative to the average.
- c. It can increase or decrease in relation to the average depending on the weather conditions.

5) In which layer of the atmosphere do the meteorological phenomena that determine the weather occur?

- a. Ionosphere
- b. Mesosphere
- c. Troposphere

6) The temperature of the air layers near the ground is mainly determined by:

- a. Soil temperature.
- b. Solar radiation to which airborne particles are exposed.
- c. The relative humidity of the air.



7) What are the main factors that influence the temperature of the ground surface?

- a. The heat of the earth, the temperature of the atmospheric layers in the proximity of the ground.
- b. The incidence of solar radiation, the temperature of the atmospheric layers in the proximity of the ground.
- c. **The nature of the surface, the incidence of solar radiation.**

8) How do the volume and temperature of a descending air mass evolve?

- a. Its volume increases, its temperature decreases.
- b. Its volume increases, its temperature increases.
- c. **Its volume decreases, its temperature increases.**

9) An inversion is a layer of air whose temperature:

- a. It decreases with increasing altitude.
- b. **Increases with increasing altitude.**
- c. It is above freezing.

10) An isotherm is a layer of air whose temperature ...

- a. It decreases with increasing altitude.
- b. Increases with increasing altitude.
- c. **It remains constant.**

11) Where does the temperature start to increase with altitude?

- a. At the base of the cumulus clouds.
- b. **At the lower limit of an investment.**
- c. By a difference between the dew point and temperature of 0° C.

12) What is called a katabatic wind?

- a. To the combination of real wind and local breezes.
- b. To the wind that blows in the center of the valleys during the hours of maximum sunshine.
- c. **To the downward wind that blows as the areas that have generated the breezes cool down.**



13) What condition is essential for a thermal to continue its ascent?

- a. That the air around it at each level remains colder than the thermal itself.
- b. That the equilibrium level is above the condensation level.
- c. That it does not reach the dew point temperature before reaching the inversion.

14) What change in the physical state of matter is called condensation?

- a. The transition from the liquid state to the solid state.
- b. The passage from the liquid state to the gaseous state.
- c. The passage from the gaseous state to the liquid state.

15) In meteorology, the term "dew point" designates ...

- a. The specific temperature of a matter when it passes from the solid state to the liquid state.
- b. The temperature to which the air must cool for the water vapor it contains to begin to condense.
- c. The moisture content of the air when it reaches the condensing temperature.

16) Why does rising moist air, when it starts to condense, cool more slowly than rising dry air?

- a. Because water cools slower than air.
- b. Because humid air rises faster and thus cooling is delayed.
- c. Because the heat released by the effect of condensation influences the temperature of the air that produces it.

17) What type of clouds can be indicative of the existence of convective updrafts (thermal)?

- a. Cirrus.
- b. Cumulus clouds.
- c. Strata.

18) There is cloud formation ...

- a. When there is a lot of water evaporation (for example above the sea).
- b. When warm continental air passes over the cool surface of the sea.



- c. When the air is cooled down to the dew point.

19) Among the following types of clouds, which is the most dangerous for free flight?

- a. Cirrocumulus.
- b. Cumulonimbus.
- c. Cumulohumilis.

20) The direction of the winds on a surface map goes:

- a. Directly from the high pressure center to the low pressure center.
- b. More or less parallel to the isobars from the high pressure center to the low pressure center.
- c. Directly from the low pressure center to the high pressure center.

21) If we face the main direction of the wind, the center of the anticyclone is ...

- a. On the right.
- b. In front.
- c. On the left.

22) From the tracing of the isobars on a surface weather map, it can be deduced ...

- a. The main direction of the wind and its intensity.
- b. The temperature gradient and the intensity of the wind.
- c. The air temperature and the intensity of the wind.

23) What is the name of the descent generated by the forced wind to go up a relief?

- a. Thermal descent.
- b. Dynamic ancestry.
- c. Adiabatic descent.

24) A 135° wind direction is:

- a. A wind from the northwest.
- b. A wind from the northeast.
- c. A southeast wind.

25) A northwest wind corresponds to:

- a. 45°
- b. 315°



c. 225°

26) A wind with an intensity of 15 knots blows approximately at:

- a. 15 km / h.
- b. 25 km / h.
- c. 35 km / h.

27) A 270° / 10 knot wind is ...

- a. An east wind with an approximate speed of 18 km / h.
- b. A west wind with an approximate speed of 10 km / h.
- c. A west wind with an approximate speed of 18 km / h.

28) If in the plain we compare the wind on the ground with the wind 300 meters above, the wind on the ground will generally be:

- a. Stronger and more turbulent.
- b. Weaker and more turbulent.
- c. Stronger and less turbulent.

29) What does the concept of relative humidity of a certain air mass refer to?

- a. To the proportion of water contained in relation to the total amount of air.
- b. At the dew point temperature.
- c. To the proportion of moisture contained with respect to the saturation point.

30) The term shear turbulence designates in meteorology the turbulence caused by ...

- a. Hot air pockets that break off the ground and rise.
- b. An air mass that moves along the ground and when encountering obstacles such as relief, houses, trees, causes turbulence.
- c. Two masses of air in contact moving in different directions and / or at different speeds.

31) The term thermal turbulence designates in meteorology the turbulence caused by ...

- a. Rising hot air bags.



b. An air mass that moves along the ground and when encountering obstacles such as reliefs, houses, trees, turbulence is caused.

c. Technical means such as aircraft, etc. that move in the air.

32) Which of the following instruments is appropriate to measure wind speed?

- a. Barometer.
- b. **Anemometer.**
- c. Hygrometer.

33) Which of the following instruments is appropriate to measure air humidity?

- a. Barometer.
- b. Anemometer.
- c. **Hygrometer.**

34) In meteorology, what do we call air mass?

- a. **A volume of air that has homogeneous characteristics.**
- b. The specific mass per meter at a temperature of 15° C above the Equator and at sea level.
- c. An area in the center of the anticyclone where there is a high concentration of air.

35) In meteorology, the term "front" designates ...

- a. The line of separation between two different air masses at sea level.
- b. An alignment of rainfall zones.
- c. **The area of separation between two air masses with different characteristics.**

36) What element can indicate the beginning of an investment in a sky with clouds?

- a. The base of the clouds.
- b. The dew point.
- c. **The upper limit of the clouds.**



37) What is the dew point?

- a. **The temperature at which air condenses.**
- b. The height at which the air condenses.
- c. Serene drops condensed on objects during the night.

38) What are the best conditions for favorable thermal currents to appear in a given area?

- a. Exposed to the wind and wet.
- b. Exposed to the wind and dry.
- c. **Protected from the wind and dry.**

39) Considering a rising air mass that reaches its level of condensation, what effect does this condensation have on the ascendancy itself?

- a. **It brings warmth to the descent and strengthens it.**
- b. Generate the inversion layer that will stop the ancestry.
- c. Chill the ancestry to form the cloud.

40) What marks the lower limit of a cloud?

- a. The beginning of the investment.
- b. **The level of condensation.**
- c. The level of balance.

41) In the atmosphere, in general, how do air pressure and density evolve with height due to the effect of gravity?

- a. **Both decrease geometrically with height.**
- b. Pressure decreases linearly with height, density increases.
- c. Pressure increases linearly with height, density remains constant.

42) In order to correctly assess the flight conditions in a certain area, what type of wind must be taken into account?

- a. Only local winds that affect the flying zone.



b. The combination of the prevailing or general wind (meteo) and the local winds of the flight zone.

c. The geostrophic wind.

43) Who is ultimately the agent responsible for the generation of any type of wind?

a. The evaporation of water from the earth's surface, which modifies the density of the air depending on the amount of water vapor contained in it.

b. The Coriolis effect, by printing uneven acceleration to the different air masses spread over the planet.

c. The uneven warming of different regions of the planet (globally) or areas of the ground (locally), which causes differences in pressure and temperatures in the air.

44) What indicates a smaller separation between isobars in a given area of a surface pressure map?

a. The existence of a greater pressure gradient in that area and, therefore, greater wind intensity.

b. The existence of a lower pressure gradient in that area and, therefore, greater wind intensity.

c. The existence of a lower pressure gradient in that area and, therefore, less wind intensity.

45) Why are clouds mainly composed?

a. Water in a gaseous state (water vapor).

b. Water in liquid (droplets) or solid (ice) state.

c. Nitrogen and oxygen.

46) What does it mean for a certain layer of air to be stable?

a. That will favor convection and, therefore, the formation of cumulus and cumulonimbus.

b. That under its influence the meteorological conditions will remain more or less constant.



- c. That does not favor air movements, or even blocks them.

47) An inversion is a layer of air where the temperature ...

- a. It decreases with increasing altitude.
- b. Increases with increasing altitude.
- c. It is above freezing.

48) If with a barometer we perceive a slight rise in atmospheric pressure, we can expect:

- a. Tendency to improve
- b. Tendency to get worse.
- c. Time does not vary.

49) What is the wind?

- a. It is the compensation of the atmospheric pressure differences between two points.
- b. Air displacement.
- c. All are correct.

50) What are the main factors that influence the temperature of the earth's surface?

- a. The heat of the earth, the temperature of the atmospheric layers in the proximity of the ground.
- b. The incidence of solar radiation, the temperature of the atmospheric layers in the proximity of the ground.
- c. The nature of the surface, the incidence of solar radiation.

51) What is the main cause of all meteorological changes on earth?

- a. The movement of air masses from humid areas to dry areas.
- b. Variations in solar energy on the earth's surface.
- c. Air pressure changes over the earth's surface.

52) The wind is produced by:

- a. The pressure difference between the different air masses in different areas of the earth.
- b. Temperature differences between different areas of the earth



- c. The answer a and B both are corrects.

53) Air circulates:

- a. From high pressures to low pressures.
- b. From low pressures to high pressures.
- c. From west to east.

54) The height of the tropopause is:

- a. Approximately constant throughout the atmosphere.
- b. Lower at the equator and higher at the poles.
- c. Higher at the equator and lower at the poles.

55) In a thermal inversion, by raising an air mass, it becomes warm and dense than the surrounding air.

- a. more more
- b. less more
- c. more less

56) A thermal inversion represents atmospheric conditions:

- a. Indifferent.
- b. Extremely unstable.
- c. Extremely stable.

57) When the outside pressure decreases, an air mass:

- a. It compresses.
- b. It expands.
- c. Does it move.

58) We define atmospheric pressure as:

- a. At the density of the air above the surface of the earth.
- b. The height of the air above the ground.
- c. The weight of air on the surface of the earth.



59) Half of the atmospheric mass is approximately below:

- a. 10 km
- b. 16 km
- c. 5.5 km

60) The conditions for the formation of storm clouds are:

- a. Atmospheric stability and air supersaturation.
- b. Instability on the surface, high humidity and strong convection.
- c. Instability at high levels, high humidity, and rising currents.

61) The weight of the air column of a place per unit area determines:

- a. The height of the air above the ground.
- b. Atmospheric pressure.
- c. The isobars.

62) The separation distance between the isobars tells us:

- a. Little wind in the areas where the isobars are further away.
- b. Very windy in areas where the isobars are closer together.
- c. The answer a and B both are corrects.

63) In a low pressure system, is the lower value in:

- a. Edges.
- b. The center.
- c. Between the center and the edges.

64) What is the characteristic movement of air in a high pressure area?

- a. Exit the high pressure center at higher levels and enter the high pressure center at higher levels.
- b. Rise from high pressure to the surface to lower pressures at higher altitudes.
- c. Descend to the surface and then move away from the center of the high pressure.



65) The effect of altitude on atmospheric pressure refers to the fact that atmospheric pressure:

- a. Remain constant at all times.
- b. **It decreases with increasing altitude.**
- c. Increases with increasing altitude.

66) Calm clear nights are generally the coldest due to:

- b. On clear nights, the water vapor content is lower.
- d. **On nights with clouds, they absorb and re-emit infrared radiation towards the surface.**
- e. Heat conduction in cloud droplets is greater.

67) The presence of an inversion can be predicted by ...

- a. A cumulonimbus.
- b. A lenticular.
- c. **A sea of fog.**

68) We can recognize a warm front by the appearance of the following clouds:

- a. Cirrostratus.
- b. Altostratus.
- c. **All of the above.**

69) What currents are the cause of the turbulent vertical accelerations that paragliders experience?

- a. The horizontal ones.
- b. **The convective ones.**
- c. The conductive ones.

70) The main causes of turbulence are:

- a. Convective currents.
- b. Obstructions to the flow of the wind.
- c. **All of the above.**