METEOROLOGY

1.What is the gas composition of "air"?

a. Oxygen 21 %

Nitrogen 78 %

Noble gases / carbon dioxide 1 %"

b. Nitrogen 21 %

Oxygen 78 %

Noble gases / carbon dioxide 1 %"

c. Oxygen 78 %

Water vapour 21 %

Nitrogen 1 %"

d. Oxygen 21 %

Water vapour 78 %

Noble gases / carbon dioxide 1 %"

2. Weather phenomena are most common to be found in which atmospheric layer?

Stratosphere

Troposphere

Tropopause

Thermosphere

3. Which answer names the correct order of the atmospheric layers?

Strato-, Tropo-, Meso-, Thermo(Iono)sphere

Strato-, Tropo-, Thermo(Iono)-, Mesosphere

Tropo-, Strato-, Meso-, Thermo(Iono)sphere

Tropo-, Thermo-, Meso-, Ionosphere

4. What is the percentage of oxygen in dry air?

78 %

14 %

50 %

21 %

5. At what rate does the temperature change with increasing height according to ISA (International Standard Atmosphere) within the troposphere?

Increases by 2° C / 100 m

Decreases by 2° C / 100 m

Decreases by 2° C / 1000 ft

Increases by 2° C / 1000 ft

6. The term "tropopause" is defined as...

the boundary area between the troposphere and the stratosphere.

the layer above the troposphere showing an increasing temperature.

the boundary area between the mesosphere and the stratosphere.

the height above which the temperature starts to decrease.

7. Temperatures will be given by meteorological aviation services in Europe in which unit?

Kelvin

Degrees Fahrenheit

Degrees Centigrade (° C)

Gpdam

8. What is meant by "inversion layer"?

An atmospheric layer where temperature increases with increasing height

An atmospheric layer where temperature decreases with increasing height

An atmospheric layer with constant temperature with increasing height

A boundary area between two other layers within the atmosphere

9. The physical phenomena through which water either uses or releases a certain amount of heat when changing its condition of aggregation is an important factor in the atmosphere for...

the horizontal and vertical transportation of heat.

the horizontal and vertical transportation of moisture.

the horizontal and vertical exchange of air layers.

the horizontal transportation of moisture.

10. The mean temperature lapse rate with increasing height within the troposphere is...

2° C / 100 m.

2° C / 100 ft.

1° C / 100 m.

0,65° C / 100 m.

11. What atmospheric process requires stable conditions?

Foehn

Thermal lift

Formation of clouds

Precipitation

12. Which indication identifies an unstable air mass?

Very light precipitation

High environmental lapse rate

The break up and disappearance of clouds

Pronounced inversion layers at mid altitudes

13. Which indication identifies a stable air mass?

Heavy rain showers

A clear sky

Strongly decreasing temperature with height

Steady or increasing temperature with height

14. Which process may result in an inversion layer at about 5000 ft (1500 m) height?

Ground cooling by radiation during the night

Widespread descending air within a high pressure area

Intensive sunlight insolation during a warm summer day

Advection of cool air in the upper troposphere

15. An inversion layer close to the ground can be caused by...

ground cooling during the night.

thickening of clouds in medium layers.

large-scale lifting of air.

intensifying and gusting winds.

16. What is the ISA standard pressure at FL 180 (5500 m)?

1013.25 hPa

250 hPa

500 hPa

300 hPa

17. The QNH is used in aviation...

to determine the service ceiling.

to determine the take-off performance.

to determine the true height above obstacles.

for cross country flights below transition altitude.

18. Isobars are lines of equal...

QNH.

QFE.

QFF.

QNE.

19 .During a flight from an area of low pressure to an area of higher pressure with no change in the subscale setting, the true altitude...

does not change.

becomes lower than indicated.

becomes higher than indicated.

equals the indicated altitude.

20. The pressure which is measured at a ground station and reduced to mean sea level (MSL) by means of the actual atmospheric conditions is called...

QFF.

QNH.

QFE.

QNE.

21. Which processes result in decreasing air density?

Increasing temperature, increasing pressure

Decreasing temperature, increasing pressure

Decreasing temperature, decreasing pressure

Increasing temperature, decreasing pressure

22. With atmospheric pressure and temperature remaining constant, increasing air humidity results in...

higher air density.

higher spread.

lower dew point.

lower air density.

23. The pressure at MSL in ISA conditions is...

1013.25 hPa.

113.25 hPa.

15 hPa.

1123 hPa.

24. The purpose of the ICAO standard atmosphere is to...

enable all aircraft in flight to use the same altitude / pressure reference system.

allow conversions from pressure values to altimeter readings.

determine an aircraft's true height above the ground (AGL).

avoid flights into forecasted extended cloud coverages.

25. Which value has been set for the relative humidity in the ISA (International Standard Atmosphere)?

0%

50%

100%

75%

26. The barometric altimeter indicates height above...

mean sea level.

a selected reference pressure level.

standard pressure 1013.25 hPa.

ground.

27. The term "elevation" is defined as...

vertical distance of a horizontal level or a point on the earth's surface, measured from mean sea level (MSL).

the height of the highest obstacle in the approach sector of an airport over the aerodrome reference point (ARP).

the reference point of a weather station.

the height above an airport.

28. The term "altitude" is defined as height above...

ground level.

1013.2 hPa.

MSL.

an airport.

29. What is the meaning of the term "transition altitude"?

At or below this altitude the pilot has to set the altimeter to QNH

The minimum altitude when crossing a mountain range

The minimum vertical separation between two flight levels when altimeters are set on QFE

At or below this altitude the pilot has to set the altimeter to standard

30. The altimeter can be checked on the ground by setting...

QNE and checking that the indication shows zero on the ground.

QFE and comparing the indication with the airfield elevation.

QFF and comparing the indication with the airfield elevation.

QNH and comparing the indication with the airfield elevation.

31. The barometric altimeter with QFE setting indicates...

height above standard pressure 1013.25 hPa.

true altitude above MSL.

height above the pressure level at airfield elevation.

altitude above MSL.

32. When adjusting the pressure value scale of an altimeter, the...

instrument error will be compensated.

deviation between the actual air pressure and the standard atmosphere will be corrected.

entire system will set on the selected pressure reference value.

scale will be adjusted to the scale for altitude.

33. Which altitude is displayed in an altimeter with standard altimeter setting?

The true altitude above 1013.2 mb or 29.92 inches

Height above ground level

The pressure altitude of the airplane

Height above MSL

34. How can wind speed and wind direction be derived from surface weather charts?

By alignment and distance of isobaric lines

By alignment and distance of hypsometric lines

By alignment and labels of wind indicating arrows

By annotations from the text part of the chart

35. Which force causes "wind"?

Coriolis force

Centrifugal force

Pressure gradient force

Thermal force

36. Above the friction layer, with a prevailing pressure gradient, the wind direction is...

perpendicular to the isobars.

perpendicular to the isohypses.

at an angle of 30° to the isobars towards low pressure.

parallel to the isobars.

37. What is the reason for the formation of wind?

Pressure gradients caused by topographical differences

Pressure gradients caused by temperature differences

Topographical differences causing temperature differences

Temperature differences caused by the pressure differential

38. Which of the stated surfaces will reduce the wind speed most due to ground friction?

Flat land, lots of vegetation cover

Mountainous areas, vegetation cover

Flat land, deserted land, no vegetation

Oceanic areas

39. The impact of friction by the earth's surface on wind will reduce with height, but significantly affects wind over a land mass up to...

3000 ft AGL.

7500 ft AGL.

10000 ft AGL.

12000 ft AGL.

40. The movement of air flowing together is called...

divergence.

subsidence.

convergence.

soncordence.

41. What weather development will result from convergence at ground level?

Descending air and cloud dissipation

Descending air and cloud dissipation

Ascending air and cloud formation

Ascending air and cloud formation

42. A so-called convergence (merging air flow) close to the ground always results in...

a downward airflow.

an airflow toward the area with low pressure.

an airflow toward the area with high pressure.

an upward airflow.

43. With regard to global circulation and air masses, what are the air masses that Central Europe is mainly influenced by?

Tropical and arctic cold air

Arctic and polar cold air

Tropical and substropical warm air

Polar cold air and subtropical warm air

44. The term "general circulation" of the atmosphere is defined as...

the large scale vertical airflow systems in the atmosphere.

direct interchange of airflow between high and low pressure systems.

the large scale land and sea wind systems along the shores of the oceans.

the large scale lifting processes in the polar high pressure systems.

45. Winds blowing uphill are defined as...

anabatic winds.

katabatic winds.

convergent winds.

subsident winds.

46. Air descending behind a mountain range is defined as...

anabatic wind.

katabatic wind.

convergent wind.

divergent wind

47. Which wind phenomenon arises mainly due to the orography?

Scirocco

Passat

Monsoon

Mistral

48. The Bora is a cold, catabatic wind that can be found...

in the Rhone valley.

in the upper Italian lowlands.

on the north side of the Appennines

at the Adriatic Sea.

49. The mountain-valley air circulation is caused by...

a large scale wind pattern.

the diurnal temperature variation caused by solar radiation.

the steepness of the mountain slopes.

the suction created by large scale cumulus clouds.

50. "Foehn" conditions usually develop with...

stability, high pressure area with calm wind.

instability, high pressure area with calm wind.

instability, widespread air blown against a mountain ridge.

stability, widespread air blown against a mountain ridge.

51. The term "rotor" as used in aviation meteorology is defined as...

the axis of a high extending low.

a clockwise and slowly turning vertical axis.

a thermal updraft that spins around its axis.

a roll shaped cloud on the leeside of a mountain.

52. Light turbulence always has to be expected...

below cumulus clouds due to thermal convection.

above cumulus clouds due to thermal convection.

when entering inversions.

below stratiform clouds in medium layers.

53. Which answer comprises every state of water in the atmosphere?

Liquid

Liquid and solid

Liquid, solid, and gaseous

Gaseous and liquid

54. Which component of the gas-mix in the atmosphere is responsible for weather?

Helium

Nitrogen

Oxygen

Water vapour

55. In which aggregate phases can water occur in the atmosphere?

Liquid and solid

Gaseous, liquid and solid

Gaseous and solid

Liquid and gaseous

56. How do dew point and relative humidity change with decreasing temperature?

Dew point remains constant, relative humidity increases

Dew point decreases, relative humidity increases

Dew point remains constant, relative humidity decreases

Dew point increases, relative humidity decreases

57. How do spread and relative humidity change with increasing temperature?

Spread remains constant, relative humidity decreases

Spread increases, relative humidity decreases

Spread increases, relative humidity increases

Spread remains constant, relative humidity increases

58. With other factors remaining constant, decreasing temperature results in...

increasing spread and increasing relative humidity.

decreasing spread and decreasing relative humidity.

decreasing spread and increasing relative humidity.

increasing spread and decreasing relative humidity.

59. How will temperature, dew point, spread and relative humidity interact with each other during fog?

High spread, high relative humidity, temperature differs from dew point

Small spread, low relative humidity, temperature equals dew point

Temperature equals dew point, relative humidity close to or equal to 100%, zero spread

Temperature, dew point and relative humidity are all the same

60. A cubic meter of air may absorb according to its temperature 9.2 grams of water, but presently contains only 4.6 grams. What is the amount of the relative humidity?

9.2 %

4.6 %

100 %

50 %

61. Which factor is responsible for reduced visibility when all other conditions remain the same?

A temperature rise

An increase in pressure

A drop of relative humidity

A smaller spread

62. What process causes latent heat being released into the upper troposphere?

Evaporation over widespread water areas

Descending air across widespread areas

Stabilisation of inflowing air masses

Cloud forming due to condensation

63. Evaporation is the transition from...

liquid to gaseous.

gaseous to solid.

solid to liquid.

gaseous to liquid.

64 .How is the transition from solid to a gaseous state over snow- and ice covered areas called?

Sublimation

Evaporation

Condensation

Vaporation

65. The saturated adiabatic lapse rate is...

proportional to the dry adiabatic lapse rate.

equal to the dry adiabatic lapse rate.

higher than the dry adiabatic lapse rate.

lower than the dry adiabatic lapse rate.

66. The dry adiabatic lapse rate has a value of...

0,65° C / 100 m.

1,0° C / 100 m.

0,6° C / 100 m.

2° / 1000 ft.

67. What weather conditions may be expected during conditionally unstable conditions?

Towering cumulus, isolated showers of rain or thunderstorms

Layered clouds up to high levels, prolonged rain or snow

Shallow cumulus clouds with base at medium levels

Sky clear of clouds, sunshine, low winds

68. Which answer defines the term "adiabatic process"?

A change in volume and temperature of air during vertical movement with no thermal or particle interaction with its environmental area

A change only in temperature of air during vertical movement with constant volume and no thermal interaction with its environmental area

A change in volume and temperature of air during horizontal movement with no thermal or particle interaction with its environmental area

Every vertical movement of air where condensation takes place, thus producing heat

69. Which answer defines the term "saturated adiabatic process"?

Descending dry air reaches condensation level and forms clouds

Water vapour condenses because of descending moist air masses

Saturated air continuously ascends and cools by less than 1 K per 100 m

Air saturated with moisture ascends and cools by more than 1 K per 100 m

70. Clouds are basically distinguished by what types?

Thunderstorm and shower clouds

Layered and lifted clouds

Cumulus and stratiform clouds

Stratiform and ice clouds

71. Clouds in high layers are referred to as...

Strato-.

Cirro-.

Nimbo-.

Alto-.

72. Which are the different categories of clouds according to their heights and levels?

Low clouds, medium clouds, high altitude clouds and clouds with large vertical extension

Low and high altitude clouds and clouds with large vertical extension

Low and high clouds, high altitude clouds

Surface cloud layer, low clouds, medium and high clouds

73. Which are the different categories for clouds in reference to their elements?

Water, ice and mixed-content clouds

Water, ice and hail clouds

Rain, snow and hail clouds

Water, sleet and snow clouds

74. Which of the following cloud types have a large vertical extension?

Nimbostratus, cumulonimbus

Altocumulus, altostratus

Stratocumulus, cumulus

Stratus, nimbostratus

75. Which is the most common cause for the development of stratus clouds?

Gradual lifting of an entire airmass spreading across a large area

Gradual but localized lifting of air packages scattered evenly throughout the airmass

Strong and localized lifting of air packages scattered evenly throughout the airmass

Rising air packages (thermal bubbles) reaching the condensation level

76. What factor may affect the top of cumulus clouds?

Relative humidity

The spread

The presence of an inversion layer

The absolute humidity

77. A pilot observes cumulus formation in the morning with the cloud base rising quickly until early afternoon. Later the cumulus clouds disappear, then cumulus clouds are forming again in even higher levels.

Which is the most likely reason?

A temporary loss of thermal lift

A temporary low humidity in ground vicinity

A rise in ceiling of the cumulus clouds through an inversion or isotherm

A temporary shortfall of the responsible temperature due to the blockage of the sunbeams

78. Which circumstances lead to the development of low stratus ("high fog")?

The advection of cold air in summer

A high pressure system during winter with an inversion close to the ground

A high pressure system during summer with overnight radiation

Coastal areas with offshore winds during all seasons

79. What factors may indicate a tendency to fog formation?

Low pressure, increasing temperature

Strong winds, decreasing temperature

Low spread, increasing temperature

Low spread, decreasing temperature

80. Which are the main types of fog?

River fog, sea fog, land fog, valley fog

Radiation fog, advection fog, mixing fog

Surface fog, high fog, mountain fog

Advection fog, frontal fog, low pressure fog

81. What condition may prevent the formation of "radiation fog"?

Clear night, no clouds

Overcast cloud cover

Calm wind

Low spread

82. Which is the most common kind of fog over Central Europe?

Steam fog

Radiation fog

Mixing fog

Advection fog

83. Which conditions support the disappearance of radiation fog?

Continuous radiation with increasing turbulences

Increasing wind speed and increasing temperature

Movement of air over a cooler surface while clearing off

Dew point change to reduce spread and cooling off

84. Which kind of fog may develop when warm and moist air moves over a cold surface?

Radiation fog

Evaporation fog

Advection fog

Mixing fog

85. Which answer describes the development of steam fog (evaporation fog)?

Evaporation of morning dew due to the sun

Movement of very cold air over warm and moist surfaces

Evaporation of wet snow due to overflowing warm air

Movement of warm air over cold ocean waters

86. Which type of fog does not depend on the ground temperature?

Advection fog

Evaporation fog (steam fog)

Mixing fog

Radiation fog

87. What process results in the formation of "orographic fog" ("hill fog")?

Cold, moist air mixes with warm, moist air

Prolonged radiation during nights clear of clouds

Warm, moist air is moved across a hill or a mountain range

Evaporation from warm, moist ground area into very cold air

88. What factors are required for the formation of precipitation in clouds?

Freezing temperatures, moderate to strong updrafts

High humidity and high temperatures

The presence of an inversion layer

Calm winds and intensive sunlight insolation

89. The formation of medium to large precipitation particles requires...

strong wind.

a high cloud base.

an inversion layer.

strong updrafts.

90. To form larger and solid elements of precipitation like hail or sleet, the elements of precipitation have to...

remain for a longer period of time within the liquid area of a cloud due to uplift.

remain for a longer period of time within the frosted area of a cloud due to uplift.

cross through the frosted area of a cloud due to several up- and down drafts.

reach the surface rapidly due to down draft zones.

91. What conditions may be expected when flying through Cumulonimbus clouds (Cb)?

Low precipitation, calm air, light turbulence

Medium precipitation, medium turbulence, icing

Visibility more than 1.5 km, no turbulence, no icing

Heavy rain, hail, heavy turbulence, heavy icing

92. What conditions may be expected when flying through stratiform clouds (St)?

Low precipitation, calm air, light turbulence

Medium precipitation, medium turbulence, icing

Visibility more than 1.5 km, no turbulence, no icing

Heavy rain, hail, heavy turbulence, heavy icing

93. A pilot is flying underneath a Cb cloud with good flight visibility and a sufficient ceiling. In any case he / she has to expect...

upcoming severe icing.

sudden heavy rain, hail, turbulences and lightning.

reduced visibility and the formation of fog.

the formation of a distinctive uplift inversion with low stratus.

94. How is an air mass described when moving to Central Europe via the Russian continent during winter?

Maritime polar air

Maritime tropical air

Continental polar air

Continental tropical air

95. How could unstable air masses be identified by their appearances?

Layering clouds, layers of haze and steady rain of fine water droplets

Cumulus clouds, low vertical airlift, rain of fine water droplets

Cumulus clouds, strong vertical airlift, rain showers with large water droplets

Layers of haze at the main inversion layer

96. What factors are responsible for the characterization of an air mass?

The attributes of the air masses that have mixed

The origin and the direction or route it has taken

The route that it has taken and original humidity

The original region and temperature

97. The term "maritime climate" is defined as a climate influenced...

mostly by Mediterranean air.

by air masses from Northern Russia.

by Atlantic-maritime air.

by moist unstable Sahara air masses.

98. The character of a continental air mass can change by moving across widespread...

snow-covered areas.

hot areas.

desert areas.

humid areas.

99 .The character of an air mass is given by what properties?

Temperatures at origin and present region

Region of origin and track during movement

Environmental lapse rate at origin

Wind speed and tropopause height

100. Processes of advection may take place...

at all heights.

in the vicinity of the earth's surface only.

in layers not effected by the ground friction.

at heights above 5000 ft only.

101 .Which answer describes the transformation of an air mass?

The formation of strong thunderstorms during the day

The nightly development of a ground inversion

The warming of an air mass when passing mountains

The alteration of an air mass along its movement

102. The term "front" is defined as...

an upper level trough with strong showers and thunderstorms.

an air mass boundary with specific weather phenomena.

a line of thunderstorms.

the backside of a high level low pressure area.

103. Which answer explains the development of a cold front?

The succeeding cold air moves below the preceding warm air thus lifting it

The backside cold air floats on top of the preceding warm air, then getting cooled by it

Inflowing polar air cools the ground below the freezing point

Air cools off rapidly at the forefront of strong showers

104. A gradual increase in cirrus may indicate the approach of...

a cold front.

a warm front.

an occlusion with warm front character.

a line of instability.

105 .An observer reports the first appearance of As and Cs clouds at the front of an approaching clouds coverage.

How far away is the corresponding warm front?

40 - 60 km

60 - 80 km

100 - 120 km

400 - 800 km

106. Which kind of dangers have to be expected when flying VFR through a warm front?

No explicit dangers

Low ceiling, poor visibility, rain

Thunderstorms

Strong gusts and showers

107. What visual flight conditions can be expected near a cold front?

Visibilty less than 1000 m, cloud-covered ground

Good visibility, some isolated high clouds

Moderate visibility, heavy showers and thunderstorms

Moderate to good visibility, scattered clouds

108. Which answer states a typical cloud for a cold front during summer?

Cumulonimbus

Stratus

Nimbostratus

Altostratus

109. How does the wind change during the passage of a cold front?

Direction unchanged, wind speed increases

Direction unchanged, wind speed decreases

Direction changes from SW to NW, wind speed reduces significantly

Direction changes from SW to NW, wind speed increases

110. Which of the following characteristic weather is associated with a cold front?

Broad nimbostratus clouds with long lasting precipitation, no noteworthy change in wind direction

Heavy cloud coverage with embedded Cb and strengthening showery precipitation (partially as thunderstorms), considerable change in wind direction to the right

After a compact formation of cirrus clouds, increasing cumulus coverage with mist, change in wind direction to the left

Considerable change in wind direction to the right, heavy medium-height cloud coverage, no precipitation

111. Which kind of weather has generally to be expected within a warm sector during the warmer season?

Low blanket of stratus clouds, mist, poor visibility

Medium to high stratus cloud coverage with steady rain and moderate visibility

High reaching cumulus clouds with rain showers and very good visibility

Medium to high fields of clouds with almost no precipitation and moderate visibility

112 .Gusty winds with changing cumulus clouds and occasional showers are typical weather phenomena...

behind a cold front.

ahead of a warm front.

within a high pressure area.

ahead of a cold front.

113. An occlusion line is formed by succeeding...

warm air and preceeding cold air.

cold air and preceeding cold air.

cold air and preceeding warm air.

warm air and preceeding warm air.

114. Which answer explains the conditions during a cold front occlusion?

Cold air solely remains at high altitudes

The air mass in front of the occlusion is warmer than its backside

The air mass in front of the occlusion is colder than its backside

Occlusions develop solely at cold fronts

115. A boundary between a cold polar air mass and a warm subtropical air mass showing no horizontal displacement is called...

cold front.

warm front.

stationary front.

occluded front.

116. Which is the direction of movement of frontal low-pressure areas in the northern hemisphere?

Along the warm sector isobars

North

East

West

117. What change of wind direction can be expected during the passage of a polar front low in Central Europe?

Backing wind during passage of the warm front, backing wind during passage of the cold front

Veering wind during passage of the warm front, veering wind during passage of the cold front

Backing wind during passage of the warm front, veering wind during passage of the cold front

Veering wind during passage of the warm front, backing wind during passage of the cold front

118. High pressure areas can be found predominantly...

in polar front areas at 60° N/S.

in tropical areas, close to the equator.

in subtropical areas at 30° N/S.

overhead large ocean areas.

119 .What cloud type can be observed across widespread high pressure areas during summer?
Overcast Ns clouds

Squall lines and thunderstorms

Overcast low stratus

Scattered Cu and Ac clouds

120. The term "ridge of high pressure" is defined as...

a warm air high pressure area between two stationary cyclones.

the warm sector in a fully developed cyclone.

the high barometric pressure on the windward side of a mountain.

high barometric pressure between low pressure areas.

121. What weather phenomena are typical for high pressure areas in winter?

Horizontal cloud expansion with steady rainfall

Poor visibility because of steady snowfall

Large vertical clouds with a low ceiling

Fog, high fog and occasional precipitation

122. Cold air inflow in high tropospheric layers may result in...

showers and thunderstorms.

stabilisation and calm weather.

frontal weather.

calm weather and cloud dissipation.

123. The term "upper level trough" is defined as an area...

of warm air in higher level, where the pressure levels are higher than that of its surroundings.

of cold air in higher level, where the pressure levels are lower than that of its surroundings.

with strong high-level winds with a high pressure bend at the isohypses.

where air will descend with height and clouds will dissipate.

124. What frontal line divides subtropical air from polar cold air, in particular across Central Europe?

Warm front

Polar front

Cold front

Occlusion

125. The term "climate" is defined as the average cycle of weather...

for about 5 years.

for at least 30 years.

for a couple of days.

at a specific moment.

126. What weather characteristic results from the "westerly" situation?

Calm weather and cloud dissipation, few high Cu

Calm winds and widespread high fog

Changing weather with passing of frontal lines

Clear skies and moderate winds

127. What weather conditions can be expected in high pressure areas during summer?

Calm weather and cloud dissipation, few high Cu

Calm winds and widespread areas with high fog

Changing weather with passing of frontal lines

Squall lines and thunderstorms

128. What wind conditions can be expected in areas with no prevailing pressure gradient?

Variable winds, formation of local wind systems

Formation of local wind systems with strong prevailing westerly winds

Strong prevailing westerly winds with rapid veering

Strong prevailing easterly winds with rapid backing

129. A small horizontal pressure gradient will cause...

moderate wind.

strong wind.

temperature inversions.

a light breeze.

130. What weather conditions can be expected during "Foehn" on the windward side of a mountain range?

Dissipating clouds with unusual warming, accompanied by strong, gusty winds

Calm wind and forming of high stratus clouds (high fog)

Scattered cumulus clouds with showers and thunderstorms

Layered clouds, mountains obscured, poor visibility, moderate or heavy rain

131. What is the name of the the cold, katabatic wind phenomena blowing from northeast into the Adriatic Sea?

Scirocco

Passat

Mistral

Bora

132. Which effects can generally be expected when moist air with a strong wind flows perpendicular to a mountain range?

Cloud formation on the windward side, good visibility on the leeward side

Clouds down the valleys on both sides of the mountain

Lifting of the cloud coverage at the ridge, poor visibility on the leeward side

Scattered cloud coverage on the windward side and clouds sinking down the valley on the leeward side

133. Which of the following conditions are most favourable for ice accretion?

Temperaturs below 0° C, strong wind, sky clear of clouds

Temperatures between +10° C and -30° C, presence of hail (clouds)

Temperatures between -20° C and -40° C, presence of ice crystals (Ci clouds)

Temperatures between 0° C and -12° C, presence of supercooled water droplets (clouds)

134. What temperatures are most dangerous with respect to aircraft icing?

0° to -12° C

+20° to -5° C

+5° to -10° C

-20° to -40° C

135. Which are the main factors and reasons for aircraft icing?

Air temperature, humidity and size of droplets

Components and materials of the aircraft

Vertical expansion of clouds

The amount of cooling caused by the wind on the structural parts of an Aircraft

136. Which type of ice forms by very small water droplets and ice crystals hitting the front surfaces of an aircraft?

Clear ice

Rime ice

Hoar frost

Mixed ice

137. Which are the primary types of icing?

Rime ice, supercooled precipitation, carburettor icing

Rime ice, hoarfrost, clear ice

Freezing wet snow, pitot tube icing, slush ice

Propeller or rotor icing, fuselage icing, cockpit window icing

138. Which answer explains the development of clear ice on an aircraft?

Through sublimation of water vapour to clear ice in cloud-free air

Splashing water freezes underneath an aircraft

Droplets from mist and drizzle freeze onto an aircraft

Supercooled large water droplets freeze, building transparent ice layers

139. How does rime ice form and how does it affect an airplane in flight?

Accumulation of snow flakes on the upper side of an airplane causing the loss of lift during snowfall

Freezing water drops on the airplane with an influence on the control surfaces

Rime ice on the air intake causing carburettor icing and engine failure

Accumulation of ice crystals on the leading edges of aerodynamically sensitive components leading to a loss of lift

140 .Does the accumulation of snow on the wing areas disrupt the take-off?

No, because the snow will be blown off by the wind during the take-off roll

Yes, because blowing snow in the take-off run can have an impact on visibility

Only for take-off on a short runway, because the stall speed will be slightly higher

Yes, because snow will severely deteriorate the aerodynamic characteristics of an aircraft

141. The term "vertical wind shear" is defined as...

a change of wind velocity and direction within a small vertical spacing.

a change of wind velocity and direction between thermal up- and downdrafts.

a change of wind velocity within a small horizontal spacing.

constant wind speed within a small height spacing.

142. What situation may result in the occurrence of severe wind shear?

Cross-country flying below Cu clouds with about 4 octas coverage

Flying ahead of a warm front with visible Ci clouds

When a shower is visible close to the airfield

During final approach, 30 min after a heavy shower has passed the airfield

143. Which hazardous weather phenomena can be caused by a thunderstorm?

Glare from solar radiation

Gusts and turbulences

Pathes of Fog

Temperature inversion

144. What conditions are favourable for the formation of thunderstorms?

Warm humid air, conditionally unstable environmental lapse rate

Warm and dry air, strong inversion layer

Calm winds and cold air, overcast cloud cover with St or As.

Clear night over land, cold air and patches of fog

145. What conditions are mandatory for the formation of thunderstorms?

Conditionally unstable atmosphere, low temperature and low humidity

Absolutely stable atmosphere, high temperature and high humidity

Absolutely stable atmosphere, high temperature and low humidity

Conditionally unstable atmosphere, high temperature and high humidity

146. A frontal thunderstorm develops...

at any time of the day when cold air flows and settles onto warm air.

in the afternoon during high pressure weather in summer.

at any time of the day when warm air is supplied over the North Sea in summer.

at any time of the day along the frontal line.

147. The expected vertical speed in a downdraft of a cumulonimbus is about...

1 m/s.

5 m/s.

10-15 m/s.

40 m/s.

148. With regard to thunderstorms, strong up- and downdrafts appear during the...

initial stage.

mature stage.

dissipating stage.

thunderstorm stage.

149 .A typical thunderstorm cell lasts about...

a quarter to half an hour.

1 - 2 hours.

3 - 4 hours.

4 - 6 hours.

150 .Which kind of weather phenomena occur in the dissipating stage of a thunderstorm cell?

Rain, no lightning

Hail, numerous lightnings

Heavy showers

Fog

151. Which effects can be expected when the aircraft is struck by lightning during flight?

None, since the airframe works just like a Faraday cage

The altimeter indications will be false

The electrical system as well as the navigational equipment may be damaged

Engine failure

152. Heavy downdrafts and strong wind shear close to the ground can be expected...

during cold, clear nights with the formation of radiation fog.

during warm summer days with high, flatted Cu clouds.

during approach to an airfield at the coast with a strong sea breeze.

near the rainfall areas of heavy showers or thunderstorms.

153 .What phenomenon is caused by cold air downdrafts with precipitation from a fully developed thunderstorm cloud?

Electrical discharge

Anvil-head top of Cb cloud

Gust front

Freezing Rain

154. The minimum distance for circumnavigating a thunderstorm to avoid any risks should be...

1 km.

3 km.

5 km.

20 km.

155. What has to be considered when taking off in a ground inversion?

During the climb, a sudden increase in speed and climb performance has to be expected

Due to low temperatures close to the ground, icing has to be expected

During climb, a sudden decrease in speed and climb performance has to be expected

Climb should be performed with the lowest possible speed and maximum power

156. When passing a mountain range, the weather activity of a front will...

soften on both sides of the mountain ridge.

strengthen in the lee and soften in the luv.

weaken in the lee and strengthen in the luv.

strengthen on both sides of the mountain ridge.

157. The evolution of lens-shaped clouds (lenticularis) occurs...

only at long distances behind the mountain range.

only in the vicinity and in the height of the ridge.

at the rotor of the Foehn side.

on the lee side of the mountain range above the ridge.

158. Which hazardous weather phenomena could occur in a "roll cloud"?

Lightning and hail

Radiation fog

Freezing rain

Heavy turbulence

159. The term "mist" is defined as...

the development of fog patches during sunrise.

a reduced visibility of more than 1 km but less than 8 km with a relative humidity of less than 80 %.

a reduced visibility of more than 1 km but less than 8 km with a relative humidity of at least 80 %.

a reduced visibility of more than 1 km but less than 2 km, relative humidity more than 50 %.

160. Which atmospheric condition is mainly beneficial for the development of haze?

Introduction of warm air masses

Unstable layering with the formation of cumulus clouds

Weather conditions with strong winds

Stable layering with a strongly developed inversion

161. Which weather chart shows the actual air pressure as in MSL along with pressure centers and fronts?

Surface weather chart

Prognostic chart

Hypsometric chart

Wind chart

162. Which type of visibility could be measured with the help of a transmissometer?

The flight visibility

The slant visibility

The runway visual range

The vertical visibility

163. What information can be obtained from satallite images?

Overview of cloud covers and front lines

Temperature and dew point of environmental air

Turbulence and icing

Flight visibility, ground visibility, and ground contact

164. Which weather information helps a pilot to determine if a thunderstorm can be circumnavigated prior departure of the flight?

Satellite images

Surface analysis chart

LLSWC

Weather radar images

165 .Which different kinds of visibilities can be determined from the flight deck?

IFR flight visibility and VFR flight visibility

Horizontal visibility, vertical visibility and slant visibility

Daytime flight visibility and night time flight visibility

Visibility with and without technical assistance

166. What information is NOT found on Low-Level Significant Weather Charts (LLSWC)?

Information about icing conditions

Radar echos of precipitation

Information about turbulence areas

Front lines and frontal displacements

167. With regard to the thunderstorm indication on a low level significant weather chart (LLSWC), the abbreviation "FRQ" means...

Occasional thunderstorms.

Frequent, clearly separated thunderstorms.

Frequent thunderstorm with little or no separation.

Embedded thunderstorms.

168. The Low-Level Significant Weather Charts are updated...

every hour.

every 3 hours.

every 6 hours.

every 12 hours.

169 .What information concerning clouds can be found in the Low-Level Significant Weather Chart?

Cloud coverage, cloud type, ceiling and icing / turbulence layers

Cloud coverage and ceiling

Coverage given in eighths, ceiling and tops

Cb-type clouds only, ceiling and tops

170. Measured pressure distribution in MSL and corresponding frontal systems are displayed by the...

Significant Weather Chart (SWC).

surface weather chart.

hypsometric chart.

prognostic chart.

171 .How could areas with a high pressure gradient be recognized on a surface weather chart?

Few isobars with a large distance to each other

Several isobars with a small distance to each other

Several isobars with a large distance to each other

Few isobars with a small distance to each other

172. In a METAR, "heavy rain" is designated by the identifier...

+SHRA.

SHRA.

+RA.

RA.

173. When haze (Hz) has to be mentioned in a METAR, the visibility is...

1000 to 5000 m.

1000 to 5000 ft.

500 to 3000 m.

below 1000m.

174. Which answer explains the meaning of the letter "M" in a GAFOR weather classification?

Ground visibility less than 5 km but at least 1.5 km and ceiling (4/8 or more) below 1000 ft but not below 500 ft above the reference height

Ground visibility less than 5 km but at least 1.5 km and ceiling (4/8 or more) below 1500 ft but not below 1000 ft above the reference height

Ground visibility less than 3 km but at least 1.5 km and ceiling (5/8 or more) below 1000 ft but not below 500 ft above the reference height

Ground visibility less than 1.5 km and ceiling (4/8 or more) below 1000 ft but not below 500 ft above the reference height

175. When the cloud base is predominantly at 2000 ft over the defined reference height and the visibility is 4000 m, the GAFOR-region is classified...

OSCAR.

DELTA.

MIKE.

X-RAY.

176 .The TREND message of a METAR covers...

half an hour.

1 hour.

2 hours.

9 hours.

177. The correct term used in a TREND message when no significant change is expected is...

NSW.

NOSIG.

BECMG.

TEMPO.

178. What is the meaning of the term "BECMG" that is used in a TAF?

A transition to another state of weather

A temporary change of the basic state of weather

A change with a very poor possibility

A frequent change of the basic state of weather

179. The TAF changing weather code "BECMG 1214" means...

a change in the basic weather situation at 1214 UTC.

a change in the basic weather situation which will start at 1200 UTC at the earliest and end at 1400 UTC at the latest.

a temporary change in the basic weather situation between 1200 UTC and 1400 UTC.

multiple changes in the basic weather situation starting at 1214 UTC.

180. The TAF changing weather code "FM1220" means...

a transition to a new weather situation between 1200 and 2000 UTC.

a temporary change of the basic weather situation between 1200 and 2000 UTC.

a new weather situation starting from 1220 UTC.

frequent changes in the weather situation from 1220 UTC.

181. The cloud bases in a METAR are indicated in...

feet above MSL.

feet AGL.

feet above reference height.

feet above QNH-altitude.

182. Which of the following answers is the correct translation in plain language of this METAR:

LEPA 240620Z 24012KT 5000 RA SCT005 BKN010 15/12 Q1015=

Wind 240° at 12 kt, visibility 5000 in, rain, 2-4/8 in 500 ft, 7/8 in 10000 ft, temperature 1,5 °C, dew point 1,2 °C,QNH 1015 hPa

Wind 240° at 12 km/h, visibility 500 m, moderate rain, 3-4/8 in 500 ft, 5-7/8 in 1000 ft, temperature 15°C, dew point 12°C, QNH 10,15 hPa

Wind 240° at 12 kt, visibility 5000 m, moderate rain, 3-4/8 in 500 ft, 5-7/8 in 1000 ft, temperature 15 °C, dew point 12 °C, QNH 1015 hPa

Wind 240° at 12 kt, visibility 5 km, rain, 2-4/8 in 500 ft, 5-6/8 in 1000 ft, temperature 1,5°C, dew point 1,2 °C, QNH 1015 hPa

183. Which answer explains the abbreviation "BKN"?

Cloud cover of 1/8 to 2/8

Cloud cover of 3/8 to 4/8

Cloud cover of 5/8 to 7/8

Cloud cover of 7/8 to 8/8

184. AIRMETs will be issued...

whenever SIGMETs expire and the weather phenomena for which it was issued still exist.

whenever weather phenomena occur that have not been warned for in a GAFOR.

whenever defined weather phenomena occur that have not been mentioned in SECN1 of the GAMET.

whenever significant weather phenomena, like severe icing or severe turbulence, occur.

185 .A GAMET is issued for...

6 hours, 4 times a day.

3 hours, 8 times a day.

3 hours, 5 times daily in summer and 4 times daily in winter.

4 hours, 6 times a day.

186. Weather and operational information about the destination aerodrome can be obtained during the flight by...

VOLMET.

PIREP.

SIGMET.

ATIS.

187. Which flights do not require a weather briefing to be obtained prior departure?

Flights in the traffic circuit

Cross country flights

Night flights

Search and rescue (SAR) flights to the scene of an accident

188. What message should be checked before each flight to be informed about flight hazards?

TAF

SIGMET

GAFOR

GAMET

189. SIGMET warnings are issued for...

airports.

FIRs / UIRs.

specific routings.

countries.

190. Which weather report includes warnings concerning thunderstorms at squall lines (SQL TS)?

GAFOR

AIRMET

SIGMET

TAF