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Part-FCL question bank

SPL

(Excerpt)

Published sample questions

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1 What clouds and weather may result from an humid and instable air mass, that is pushed against a chain of mountains by the predominant wind and forced to rise?

☐A) Overcast low stratus (high fog) with no precipitation.
☑B) Embedded CB with thunderstorms and showers of hail and/or rain.
☐C) Thin Altostratus and Cirrostratus clouds with light and steady precipitation.
☐D) Smooth, unstructured NS cloud with light drizzle or snow (during winter).

2 What situation is referred to as "shielding"?

☐A) Anvil-like structure at the upper levels of a thunderstorm cloud

☐B) Coverage of Cumulus clouds, stated as part of eights of the sky
☐C) Ns clouds, covering the windward side of a mountain range
☑D) High or mid-level cloud layers, impairing thermal activity

3 What is the gas composition of "air"?

☐A) Nitrogen 21 %
Oxygen 78 %
Noble gases / carbon dioxide 1 %
☐B) Oxygen 21 %
Water vapour 78 %
Noble gases / carbon dioxide 1 %
☐C) Oxygen 78 %
Water vapour 21 %
Nitrogen 1 %
☑D) Oxygen 21 %
Nitrogen 78 %
Noble gases / carbon dioxide 1 %

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

☑A) Troposphere
☐B) Tropopause
☐C) Thermosphere
☐D) Stratosphere

5 What is the mass of a "cube of air" with the edges 1 m long, at MSL according ISA?

☐A) 0.1225 kg
☐B) 12.25 kg
☐C) 0.01225 kg
☑D) 1.225 kg

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

☐A) Decreases by 2° C / 100 m
☑B) Decreases by 2° C / 1000 ft
☐C) Increases by 2° C / 1000 ft
☐D) Increases by 2° C / 100 m

7 What is the mean height of the tropopause according to ISA (ICAO Standard Atmosphere)?

☐A) 36,000 m
☑B) 11,000 m
☐C) 18,000 ft
☐D) 11,000 ft

8 What is meant by "inversion layer"?

☑A) An atmospheric layer where temperature increases with increasing height
☐B) An atmospheric layer where temperature decreases with increasing height
☐C) An atmospheric layer with constant temperature with increasing height
☐D) A boundary area between two other layers within the atmosphere

9 The temperature lapse rate with increasing height within the troposphere according ISA is...

☐A) 3° C / 100 m.
☐B) 1° C / 100 m.
☑C) 0.65° C / 100 m.
☐D) 0.6° C / 100 m.

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

☑A) 500 hPa
☐B) 250 hPa
☐C) 300 hPa
☐D) 1013.25 hPa

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

☐A) 113.25 hPa.
☐B) 1123 hPa.
☑C) 1013.25 hPa.
☐D) 15 hPa.

12 The height of the tropopause of the International Standard Atmosphere (ISA) is at...

☑A) 36,000 ft.
☐B) 5,500 ft.
☐C) 11,000 ft.
☐D) 48,000 ft.

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

☐A) QFE and comparing the indication with the airfield elevation.
☑B) QNH and comparing the indication with the airfield elevation.
☐C) QFF and comparing the indication with the airfield elevation.
☐D) QNE and checking that the indication shows zero on the ground.

14 The barometric altimeter with QFE setting indicates...

☑A) height above the pressure level at airfield elevation.
☐B) true altitude above MSL.
☐C) height above MSL.
☐D) height above standard pressure 1013.25 hPa.

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

☑A) By alignment and distance of isobaric lines
☐B) By annotations from the text part of the chart
☐C) By alignment and distance of hypsometric lines
☐D) By alignment of lines of warm- and cold fronts.

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

☐A) at an angle of 30° to the isobars towards low pressure.
☐B) perpendicular to the isohypses.
☑C) parallel to the isobars.
☐D) perpendicular to the isobars.

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

☐A) divergence.
☐B) soncordence.
☐C) subsidence.
☑D) convergence.

18 When air masses meet each other head on, how is this referred to and what air movements will follow?

☐A) Divergence resulting in air being lifted
☐B) Convergence resulting in sinking air
☐C) Divergence resulting in sinking air
☑D) Convergence resulting in air being lifted

19 What are the air masses that Central Europe is mainly influenced by?

☐A) Arctic and polar cold air
☐B) Tropical and arctic cold air
☑C) Polar cold air and tropical warm air
☐D) Equatorial and tropical warm air

20 With regard to global circulation within the atmosphere, where does polar cold air meets subtropical warm air?

☐A) At the subtropical high pressure belt
☑B) At the polar front
☐C) At the geographic poles
☐D) At the equator

21 "Foehn" conditions usually develop with...

☐A) instability, high pressure area with calm wind.
☐B) instability, widespread air blown against a mountain ridge.
☑C) stability, widespread air blown against a mountain ridge.
☐D) stability, high pressure area with calm wind.

22 Light turbulence always has to be expected...

☐A) when entering inversions.
☐B) below stratiform clouds in medium layers.
☐C) above cumulus clouds due to thermal convection.
☑D) below cumulus clouds due to thermal convection.

23 Which answer contains every state of water found in the atmosphere?

☐A) Liquid and solid
☐B) Liquid
☐C) Gaseous and liquid
☑D) Liquid, solid, and gaseous

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

☐A) Dew point increases, relative humidity decreases
☐B) Dew point decreases, relative humidity increases
☑C) Dew point remains constant, relative humidity increases
☐D) Dew point remains constant, relative humidity decreases

25 How do spread and relative humidity change with increasing temperature?

☑A) Spread increases, relative humidity decreases
☐B) Spread remains constant, relative humidity decreases
☐C) Spread remains constant, relative humidity increases
☐D) Spread increases, relative humidity increases

26 The "spread" is defined as...

☐A) maximum amount of water vapour that can be contained in air.
☑B) difference between actual temperature and dew point.
☐C) difference between dew point and condensation point.
☐D) relation of actual to maximum possible humidity of air.

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

☐A) Descending air across widespread areas
☐B) Stabilisation of inflowing air masses
☐C) Evaporation over widespread water areas
☑D) Cloud forming due to condensation

28 The saturated adiabatic lapse rate is...

☐A) proportional to the dry adiabatic lapse rate.
☐B) equal to the dry adiabatic lapse rate.
☑C) lower than the dry adiabatic lapse rate.
☐D) higher than the dry adiabatic lapse rate.

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

☐A) 2° / 1000 ft.
☐B) 0.65° C / 100 m.
☐C) 0.6° C / 100 m.
☑D) 1.0° C / 100 m.

30 Which conditions are likely for the formation of advection fog?

☐A) Cold, humid air moves over a warm ocean
☐B) Warm, humid air cools during a cloudy night
☑C) Warm, humid air moves over a cold surface
☐D) Humidity evaporates from warm, humid ground into cold air

31 Clouds are basically distinguished by what types?

☐A) Thunderstorm and shower clouds
☐B) Layered and lifted clouds
☐C) Stratiform and ice clouds
☑D) Cumulus and stratiform clouds

32 What cloud type does the picture show?

See figure (MET-002).

Please pay attention to annex 1

☐A) Stratus
☐B) Cirrus
☐C) Altus
☑D) Cumulus

33 What cloud type does the picture show?

See figure (MET-004).

Please pay attention to annex 2

☑A) Cirrus
☐B) Altocumulus
☐C) Stratus
☐D) Cumulus

34 What factor may affect the top of cumulus clouds?

☐A) Relative humidity
☐B) The absolute humidity
☐C) The spread
☑D) The presence of an inversion layer

35 What condition may prevent the formation of "radiation fog"?

☐A) Calm wind
☐B) Low spread
☑C) Overcast cloud cover
☐D) Clear night, no clouds

36 What process results in the formation of "advection fog"?

☐A) Cold, moist air mixes with warm, moist air
☑B) Warm, moist air is moved across cold ground areas
☐C) Cold, moist air is being moved across warm ground areas
☐D) Prolonged radiation during nights clear of clouds

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

☐A) Calm winds and intensive sunlight insolation
☐B) The presence of an inversion layer
☑C) Moderate to strong updrafts
☐D) High humidity and high temperatures

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

☑A) Continental polar air
☐B) Maritime tropical air
☐C) Maritime polar air
☐D) Continental tropical air

39 The symbol labeled (1) as shown in the picture is a / an...

See figure (MET-005)

Please pay attention to annex 3

☐A) front aloft.
☐B) warm front.
☐C) occlusion.
☑D) cold front.

40 The symbol labeled (2) as shown in the picture is a / an...

See figure (MET-005)

Please pay attention to annex 3

☐A) cold front.
☐B) front aloft.
☐C) occlusion.
☑D) warm front.

41 What cloud sequence can typically be observed during the passage of a warm front?

☑A) Cirrus, thickening altostratus and altocumulus clouds, lowering cloud base with rain, nimbostratus
☐B) Wind becoming calm, dissipation of clouds and warming during summer; formation of extended high fog layers during winter
☐C) Squall line with showers of rain and thunderstorms (Cb), gusting wind followed by cumulus clouds with isolated showers of rain
☐D) In coastal areas during daytime wind from the coast and forming of cumulus clouds, dissipation of clouds during evening and night

42 What visual flight conditions can be expected after the passage of a cold front?

☑A) Good visiblity, formation of cumulus clouds with showers of rain or snow
☐B) Poor visibility, formation of overcast or ground-covering stratus clouds, snow
☐C) Medium visibility with lowering cloud bases, onset of prolonged precipitation
☐D) Scattered cloud layers, visbility more than 5 km, formation of shallow cumulus clouds

43 What is the usual direction of movement of a polar front low?

☐A) Parallel to the warm front line to the south
☐B) To the northwest during winter, to the southwest during summer
☑C) Parallel to the the warm-sector isobars
☐D) To the northeast during winter, to the southeast during summer

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

☐A) Backing wind during passage of the warm front, backing wind during passage of the cold front
☐B) Veering wind during passage of the warm front, backing wind during passage of the cold front
☑C) Veering wind during passage of the warm front, veering wind during passage of the cold front
☐D) Backing wind during passage of the warm front, veering wind during passage of the cold front

45 Extensive high pressure areas can be found throughout the year ...

☐A) in tropical areas, close to the equator.
☑B) over oceanic areas at latitues around 30°N/S.
☐C) in areeas showing extensive lifting processes.
☐D) in mid latitudes along the polar front

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

☐A) frontal weather.
☑B) showers and thunderstorms.
☐C) stabilisation and calm weather.
☐D) calm weather and cloud dissipation.

47 What weather phenomena have to be expected around an upper-level trough?

☐A) Calm weather, formation of lifted fog layers
☑B) Development of showers and thunderstorms (Cb)
☐C) Calm wind, forming of shallow cumulus clouds
☐D) Formation of high stratus clouds, ground-covering cloud bases

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

☑A) Calm weather and cloud dissipation, few high Cu
☐B) Squall lines and thunderstorms
☐C) Changing weather with passing of frontal lines
☐D) Calm winds and widespread areas with high fog

49 What wind conditions can be expected in areas showing large distances between isobars?

☐A) Formation of local wind systems with strong prevailing westerly winds
☐B) Strong prevailing westerly winds with rapid veering
☑C) Variable winds, formation of local wind systems
☐D) Strong prevailing easterly winds with rapid backing

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

☐A) Temperaturs below 0° C, strong wind, sky clear of clouds
☑B) Temperatures between 0° C and -12° C, presence of supercooled water droplets (clouds)
☐C) Temperatures between +10° C and -30° C, presence of hail (clouds)
☐D) Temperatures between -20° C and -40° C, presence of ice crystals (Ci clouds)

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

☐A) Mixed ice
☐B) Hoar frost
☑C) Rime ice
☐D) Clear ice

52 What conditions are favourable for the formation of thunderstorms?

☑A) Warm humid air, conditionally unstable environmental lapse rate
☐B) Clear night over land, cold air and patches of fog
☐C) Calm winds and cold air, overcast cloud cover with St or As.
☐D) Warm and dry air, strong inversion layer

53 What conditions are mandatory for the formation of thermal thunderstorms?

☐A) Conditionally unstable atmosphere, low temperature and low humidity
☐B) Absolutely stable atmosphere, high temperature and high humidity
☑C) Conditionally unstable atmosphere, high temperature and high humidity
☐D) Absolutely stable atmosphere, high temperature and low humidity

54 Which stage of a thunderstorm is dominated by updrafts?

☐A) Mature stage
☐B) Upwind stage
☐C) Dissipating stage
☑D) Cumulus stage

55 What danger is most immenent when an aircraft is hit by lightning?

☐A) Explosion of electrical equipment in the cockpit
☐B) Rapid cabin depressurization and smoke in the cabin
☐C) Disturbed radio communication, static noise signals
☑D) Surface overheat and damage to exposed aircraft parts

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

☐A) Anvil-head top of Cb cloud
☐B) Electrical discharge
☑C) Gust front
☐D) Freezing Rain

57 What kind of reduction in visibility is not very sensitive to changes in temperature?

☑A) Haze (HZ)
☐B) Patches of fog (BCFG)
☐C) Mist (BR)
☐D) Radiation fog (FG)

58 What information can be obtained from satallite images?

☐A) Turbulence and icing
☐B) Flight visibility, ground visibility, and ground contact
☐C) Temperature and dew point of environmental air
☑D) Overview of cloud covers and front lines

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

☐A) +SHRA.
☑B) +RA.
☐C) RA.
☐D) SHRA.

60 In a METAR, "(moderate) showers of rain" are designated by the identifier...

☐A) +RA.
☑B) SHRA.
☐C) TS.
☐D) +TSRA.

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

☐A) VOLMET.
☑B) ATIS.
☐C) SIGMET.
☐D) PIREP.

62 An inversion is a layer ...

☐A) with increasing pressure with increasing height.
☐B) with constant temperature with increasing height.
☑C) with increasing temperature with increasing height.
☐D) with decreasing temperature with increasing height.

63 What wind is reported as 225/15 ?

☐A) north-east wind with 15 km/h
☐B) south-west wind with 15 km/h
☐C) north-east wind with 15 kt
☑D) south-west wind with 15 kt

Annex 1

Annex 2

Annex 3