

Exam simulation

Quiz BPL Hot Air - Balloon Pilot License - Human Performance and limitations



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STUDENT NAME:

DATE AND TIME:

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

- a) Prolonged radiation during nights clear of clouds
- b) Warm, moist air is moved across a hill or a mountain range
- c) Evaporation from warm, moist ground area into very cold air
- d) Cold, moist air mixes with warm, moist air

02. During a flight, a flight plan can be filed at the...

- a) Search and Rescue Service (SAR).
- b) Next airport operator en-route.
- c) Flight Information Service (FIS).
- d) Aeronautical Information Service (AIS)

03. The Empty Mass of a gas balloon includes:

- a) Ballast packages, basket, hull, valve and towing rope.
- b) Basket, burner, ballast packages, hull, net and towing rope.
- c) Basket, basket ring, Valve, net, hull and towing rope.
- d) Burner, ballast packages, instruments, net and towing rope.

04. The vertical extend of air with pressure changing by 1% with 80 m difference in height is referred to as ...

- a) Inhomogene
- b) Homogene
- c) Unstable
- d) Stable

05. What has to be expected when diving into an inversion layer from above?

- a) Rate of descent increases
- b) Rate of descent decreases.
- c) Sudden drop onto the ground.
- d) Uncontrollable oscillation of the basket.

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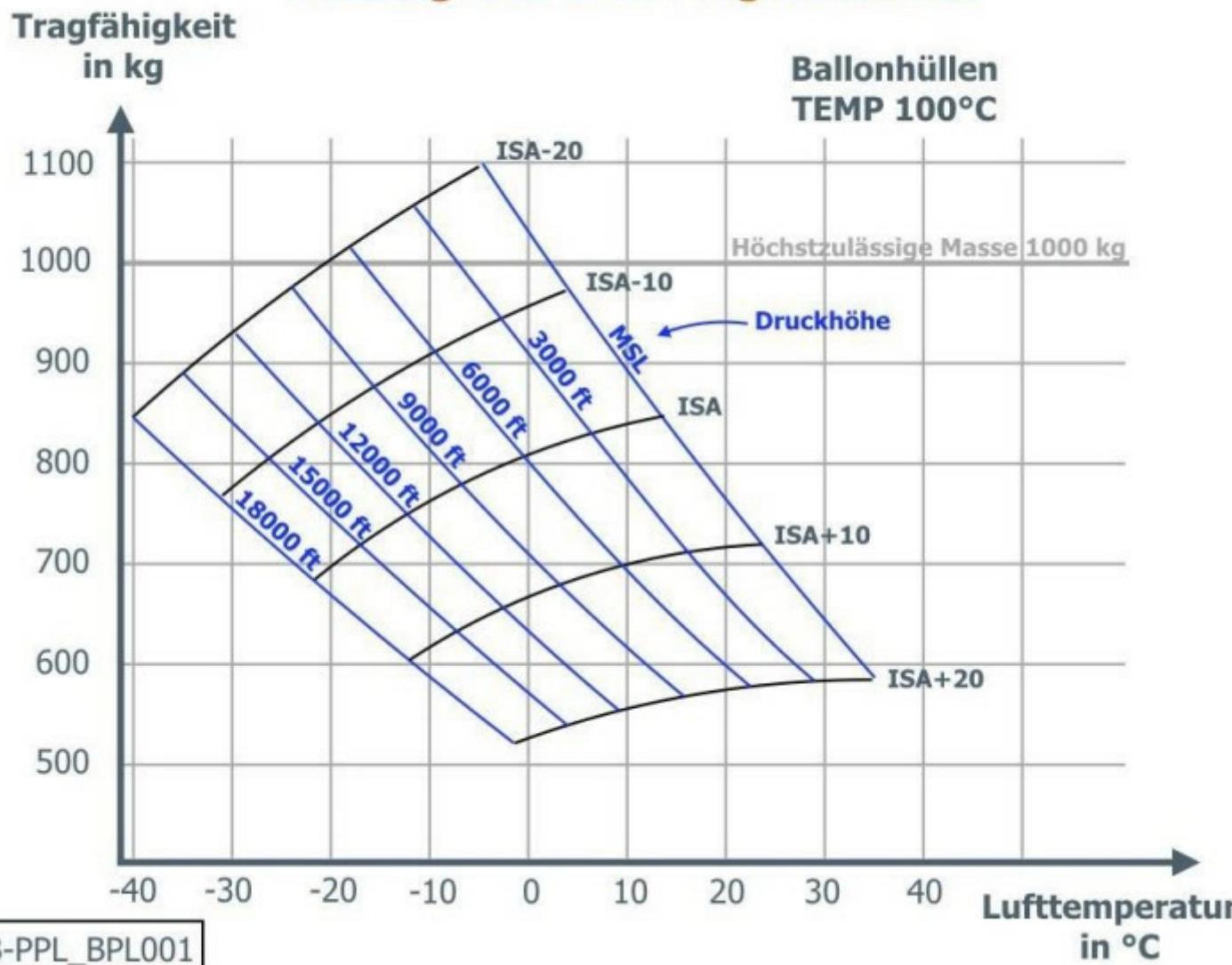
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06. Given the following masses: Empty mass 260 kg Instruments 20 kg per gas container (full): 30 kg per person: 80 kg Assuming ISA temperatures, how many persons may be carried in the basket at maximum, if the balloon with 4 gas containers has to climb up to pressure altitude 9.000 ft ? (use attachment ECQB-PPL_BPL001) Siehe Anlage 1

Auszug aus dem Flughandbuch



ECQB-PPL_BPL001

- a) 4
- b) 5
- c) 2
- d) 3

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07. Why should liquid gas bottles for hot-air balloons be transported upright?

- a) Because no other positions are approved.
- b) To prevent damage on the riser tube.
- c) To prevent exiting of residual gas.
- d) To keep the armature panel clean.

08. What does a readability of 1 indicate?

- a) The transmission is perfectly readable
- b) The transmission is readable now and then
- c) The transmission is readable but with difficulty
- d) The transmission is unreadable

09. What is the meaning of the abbreviation "VMC"?

- a) Variable meteorological conditions
- b) Visual meteorological conditions
- c) Instrument flight conditions
- d) Visual flight rules

10. Which are the official basic units for horizontal distances used in aeronautical navigation and their abbreviations?

- a) Feet (ft), inches (in)
- b) Yards (yd), meters (m)
- c) Nautical miles (NM), kilometers (km)
- d) Land miles (SM), sea miles (NM)

11. Which altitude is displayed on the altimeter when set to a specific QNH?

- a) Altitude in relation to the 1013.25 hPa datum
- b) Altitude in relation to the highest elevation within 10 km
- c) Altitude in relation to mean sea level
- d) Altitude in relation to the air pressure at the reference airfield

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12. Mountain side updrafts can be intensified by ...

- a) Solar irradiation on the lee side
- b) Thermal radiation of the windward side during the night
- c) Solar irradiation on the windward side
- d) By warming of upper atmospheric layers

13. Which approximate, geometrical form describes the shape of the Earth best for navigation systems?

- a) Sphere of ecliptical shape
- b) Ellipsoid
- c) Flat plate
- d) Perfect sphere

14. A flight is called a "visual flight", if the...

- a) Flight is conducted in visual meteorological conditions.
- b) Visibility in flight is more than 8 km
- c) Flight is conducted under visual flight rules.
- d) Visibility in flight is more than 5 km.

15. Which phrase is used by a pilot when he wants to fly through controlled airspace?

- a) Apply
- b) Want
- c) Request
- d) Would like

16. The distance between two airports is 220 NM. On an aeronautical navigation chart the pilot measures 40.7 cm for this distance. The chart scale is...

- a) 1 : 2000000.
- b) 1 : 1000000.
- c) 1 : 500000.
- d) 1 : 250000.

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17. The standard state of gases refers to which temperature?

- a) 0° C
- b) 15° C
- c) 25° C
- d) 5° C

18. Which transponder code indicates a loss of radio communication?

- a) 7700
- b) 7600
- c) 7000
- d) 2000

19. An aerodrome beacon (ABN) is a...

- a) Rotating beacon installed at an airport or aerodrome to indicate its location to aircraft pilots from the ground.
- b) Rotating beacon installed at the beginning of the final approach to indicate its location to aircraft pilots from the air.
- c) Fixed beacon installed at an airport or aerodrome to indicate its location to aircraft pilots from the air
- d) Rotating beacon installed at an airport or aerodrome to indicate its location to aircraft pilots from the air.

20. A pilot burner which is fed by the gas phase, works by which principle?

- a) Electrostatic principle.
- b) Bunsen principle
- c) Aerostatic principle.
- d) Aerodynamic principle

21. The barometric altimeter with QNH setting indicates...

- a) Height above the pressure level at airfield elevation.
- b) Height above standard pressure 1013.25 hPa.
- c) True altitude above MSL.
- d) Height above MSL.

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22. An ATIS is valid for...

- a) 45 minutes.
- b) 30 minutes.
- c) 60 minutes.
- d) 10 minutes.

23. According ISA, what is the density of air at MSL?

- a) 1.225 g/m³
- b) 1225 kg/m³
- c) 12.25 kg/m³
- d) 1.225 kg/m³

24. At temperature below 0 °C the pressure at the burner is at 0,2 MPa (2 bar). Is take-off permissible with the hot air balloon?

- a) No, pressure at burner is too low
- b) Only with double-burner system installed
- c) Yes, at low temperatures a low hull temperature is sufficient
- d) Yes, not a problem

25. A vertical speed indicator measures the difference between...

- a) Instantaneous static pressure and previous static pressure.
- b) Dynamic pressure and total pressure.
- c) Total pressure and static pressure.
- d) Instantaneous total pressure and previous total pressure.

26. What has to be considered at moderate wind speeds during a balloon ride across mountainous area with cloud-free sky?

- a) Decreasing burner power.
- b) Altimeter indication too low.
- c) Icing conditions.
- d) Lee waves and severe up- and downdrafts

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

- a) Significant Weather Chart (SWC)
- b) Prognostic chart
- c) Surface weather chart.
- d) Hypsometric chart.

**28. (For this question, please use annex PFP-063) According ICAO, what symbol indicates a general spot elevation?
Siehe Anlage 7**

- A **300**
- B **(300)**
- C **• 1737**
- D **• 1737**

PFP-063

- a) D
- b) B
- c) A
- d) C

29. A balloon pilot decides to use one or more separate gas containers for initial heating during buildup. To ensure a safe buildup ...

- a) To expedite take-off, the gas containers have to be stored outside.
- b) The gas containers have to be fixed safely inside the basket.
- c) No separate gas containers are allowed during buildup.
- d) Two gas containers (one inside, one outside) are to be used.

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

- a) Wind speed and tropopause height
- b) Environmental lapse rate at origin
- c) Temperatures at origin and present region
- d) Region of origin and track during movement

31. Which of the following statements is correct?

- a) The density of hull air is lower with decreasing environmental pressure
- b) The density of hull air is higher with increasing environmental pressure
- c) The density of hull air is lower than environmental air only if the hull temperature is lower than environmental temperature
- d) The density of hull air is lower than environmental air only if the hull temperature is higher than environmental temperature

32. What is the percentage of nitrogen in the atmosphere?

- a) 0.1 %
- b) 21 %
- c) 78 %
- d) 1 %

33. For what approximate time period can the short-time memory store information?

- a) 10 to 20 seconds
- b) 3 to 7 seconds
- c) 30 to 40 seconds
- d) 35 to 50 seconds

34. Under which circumstances is it more likely to accept higher risks?

- a) During check flights due to a high level of nervousness
- b) During flight planning when excellent weather is forecast
- c) Due to group-dynamic effects
- d) If there is not enough information available

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35. Which weather phenomenon is typically associated with wind shear?

- a) Inernal warm front
- b) Stable high pressure areas.
- c) Thunderstorms.
- d) Fog.

36. At equilibrium the inner overpressure of a free balloon is highest at:

- a) At the lower opening.
- b) The upper pole.
- c) At the center of the hull.
- d) At the equator.

37. Which are the different parts of the Aeronautical Information Publication (AIP)?

- a) GEN ENR AD
- b) GEN MET RAC
- c) GEN COM MET
- d) GEN AGA COM

38. A distance of 7.5 cm on an aeronautical chart represents a distance of 60.745 NM in reality. What is the chart scale?

- a) 1 : 500000
- b) 1 : 1500000
- c) 1 : 1 000000
- d) 1 : 150000

39. Carbon monoxide poisoning can be caused by...

- a) Unhealthy food
- b) Alcohol.
- c) Smoking.
- d) Little sleep.

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40. Before buildup, the buildup team has to be informed about correct behaviour at sudden critical situations how?

- a) Only at gusty winds
- b) At least two days before
- c) By the balloon pilot
- d) Twice

41. Which are the properties of a Mercator chart?

- a) The scale increases with latitude, great circles are depicted as curved lines, rhumb lines are depicted as straight lines
- b) The scale is constant, great circles are depicted as curved lines, rhumb lines are depicted as straight lines
- c) The scale increases with latitude, great circles are depicted as straight lines, rhumb lines are depicted as curved lines
- d) The scale is constant, great circles are depicted as straight lines, rhumb lines are depicted as curved lines

42. What is the purpose of the sounding pipe valve?

- a) It allows pressure equalization during cruise at high altitude
- b) To indicate the volumetric filling limit.
- c) It prevents air from entering the burner system
- d) For venting the liquid gas container bottle.

43. The altimeter is switched from local QNH to 1013.25 hPa...

- a) When climbing above the transition altitude.
- b) At 4000 ft.
- c) At the decision height.
- d) When descending below FL 100.

44. The term "ceiling" is defined as the...

- a) Height of the base of the highest layer of clouds covering more than half of the sky below 20000 ft.
- b) Height of the base of the lowest layer of clouds covering more than half of the sky below 10000 ft.
- c) Altitude of the base of the lowest layer of clouds covering more than half of the sky below 20000 ft
- d) Height of the base of the lowest layer of clouds covering more than half of the sky below 20000 ft

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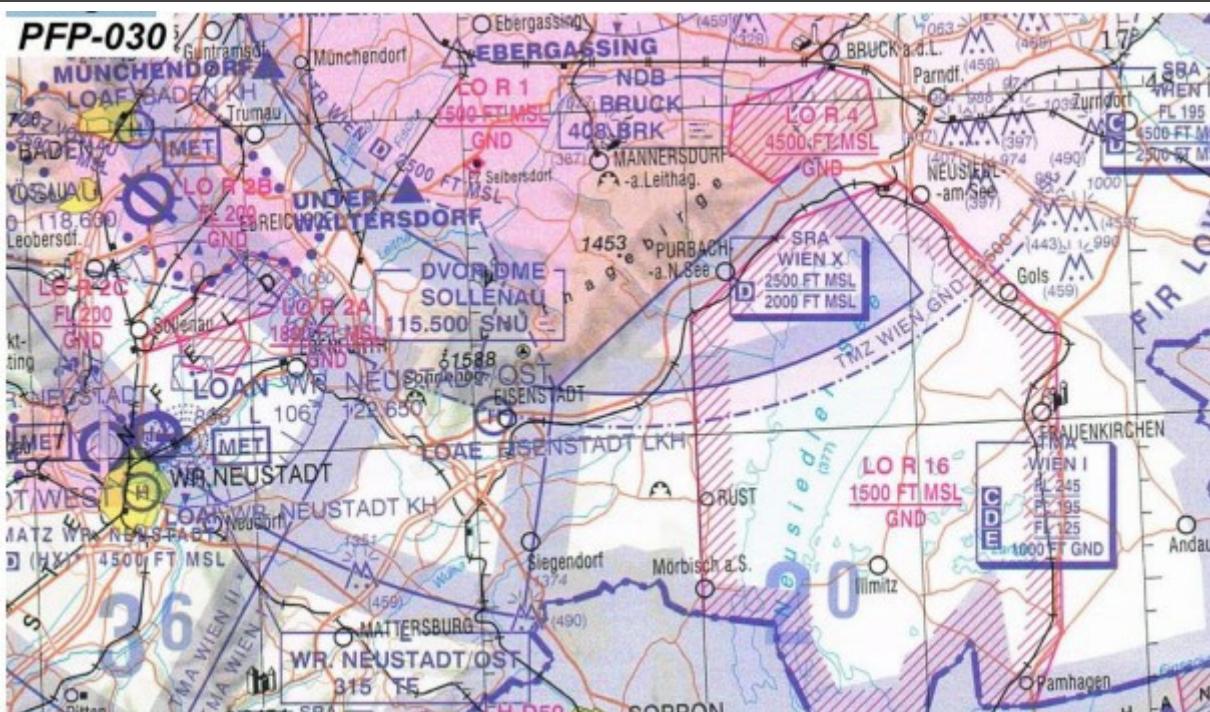


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45. Given: TC: 183°; WCA: +011°; MH: 198°; CH: 200° What are TH and VAR? (2,00 P.)

- a) TH: 172°. VAR: 004° E
- b) TH: 194°. VAR: 004° E
- c) TH: 172°. VAR: 004° W
- d) TH: 194°. VAR: 004° W

46. The upper limit of LO R 4 equals... See annex (PFP-030) Siehe Anlage 3



- a) 1.500 ft MSL.
- b) 1.500 ft AGL.
- c) 4.500 ft MSL.
- d) 4.500 ft AGL.

47. What is the best combination of traits with respect to the individual attitude and behaviour for a pilot?

- a) Extroverted - stable
- b) Introverted - unstable
- c) Introverted - stable
- d) Extroverted - unstable

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48. A wind shear is...

- a) A meteorological downslope wind phenomenon in the alps.
- b) A wind speed change of more than 15 kt.
- c) A vertical or horizontal change of wind speed and wind direction.
- d) A slow increase of the wind speed in altitudes above 13000 ft.

49. If heating is stopped and the parachute vent is not activated, a hot air-balloon reaches a final sinkrate of approximately:

- a) 6 m/s
- b) 2 m/s
- c) 10 m/s
- d) 20 m/s

50. The circumference of the Earth at the equator is approximately... See figure (NAV-002) Siehe Anlage 1



- a) 40000 NM.
- b) 12800 km.
- c) 10800 km.
- d) 21600 NM.

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51. A pilot license issued in accordance with ICAO Annex 1 is valid in...

- a) The country where the license was acquired.
- b) All ICAO countries.
- c) The country where the license was issued.
- d) Those countries that have accepted this license on application.

52. What has to be done in case the balloon shows a strong tendency to climb while crossing thermals?

- a) It must be heated continuously to maintain hull temperature.
- b) It must be heated stronger than usual.
- c) The burner has to be cut off immediately.
- d) The pull-rope has to be actuated immediately.

53. Air consists of oxygen, nitrogen and other gases. What is the approximate percentage of other gases?

- a) 1 %
- b) 21 %
- c) 0.1 %
- d) 78 %

54. After take-off with a balloon, obstacles at a distance of 600 m erect in expected flight path up to 40 m height. Rate of climb is expected with 1.5 m/s. What maximum actual wind speed can be accepted to maintain a clearance of 50 m above obstacles, assuming double the actual wind speed for calculation?

- a) 1 m/s
- b) 3 m/s
- c) 5 m/s
- d) 10 m/s

55. The vertical speed indicator measures the difference of pressure between...

- a) The present dynamic pressure and the static pressure of a previous moment.
- b) The present total pressure and the total pressure of a previous moment.
- c) The present dynamic pressure and the dynamic pressure of a previous moment.
- d) The present static pressure and the static pressure of a previous moment.

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56. Wake turbulence is caused by...

- a) Wind shear at the wingtip of an aerofoil.
- b) Pressure compensation at the wingtip of an aerofoil.
- c) Jet blast behind a turbine engine
- d) Turbulence at the downwind side of a mountain range.

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

- a) Stabilisation and calm weather
- b) Showers and thunderstorms.
- c) Calm weather and cloud dissipation.
- d) Frontal weather.

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

- a) Subsidence.
- b) Convergence.
- c) Divergence.
- d) Soncordence.

59. A pilot can contact FIS (flight information service)...

- a) Via internet.
- b) Via radio communication.
- c) By a personal visit.
- d) Via telephone.

60. After take-off with a balloon, obstacles at a distance of 300 m erect in expected flight path up to 40 m height. Rate of climb is expected with 1.5 m/s. What maximum actual wind speed can be accepted to maintain a clearance of 50 m above obstacles, assuming double the actual wind speed for calculation?

- a) 8 m/s
- b) 2.5 m/s
- c) 10 m/s
- d) 1 m/s

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61. How does a gas react when released from a pressurized container?

- a) The gas cools adiabatically due to expansion
- b) The gas cools due to thermal contact with environmental air.
- c) The gas heats adiabatically due to expansion.
- d) The gas condenses inside the envelope.

62. What wind is reportet as 225/15 ?

- a) North-east wind with 15 km/h
- b) South-west wind with 15 km/h
- c) South-west wind with 15 kt
- d) North-east wind with 15 kt

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

- a) Ground cooling during the night.
- b) Large-scale lifting of air.
- c) Thickening of clouds in medium layers
- d) Intensifying and gusting winds.

64. Which of the following qualities are influenced by stress? 1. Attention 2. Concentration 3. Responsiveness 4. Memory

- a) 2, 4
- b) 1
- c) 1, 2, 3, 4
- d) .1, 2, 3

65. The "swiss cheese model" can be used to explain the...

- a) Optimal problem solution
- b) State of readiness of a pilot
- c) Procedure for an emergency landing
- d) Error chain.

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66. What is the minimum flight visibility in airspace "C" for an aircraft operating under VFR at FL125?

- a) 5000 m
- b) 3000 m
- c) 8000 m
- d) 1500 m

67. The hull fabric of a hot-air balloon undergoes the most continuous thermal stress in which area?

- a) In the apron area.
- b) In the lower third.
- c) At the equator.
- d) At the top area.

68. What information is broadcasted on a VOLMET frequency?

- a) Meteorological information
- b) NOTAMS
- c) Navigational information
- d) Current information

69. Aerostatic lift, amongst other factors, depends on...

- a) Shape of the envelope.
- b) On the speed.
- c) Balloon mass.
- d) Air density.

70. What is the minimum flight visibility in airspace "C" for an aircraft operating under VFR at FL110?

- a) 1500 m
- b) 3000 m
- c) 8000 m
- d) 5000 m

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Response Scheme

Compare your answers with the following diagram and mark your score!

01: **B**

02: **C**

03: **C**

04: **B**

05: **B**

06: **A**

07: **B**

08: **D**

09: **B**

10: **C**

11: **C**

12: **C**

13: **B**

14: **C**

15: **C**

16: **B**

17: **C**

18: **B**

19: **D**

20: **B**

21: **D**

22: **B**

23: **D**

24: **A**

25: **A**

26: **D**

27: **C**

28: **D**

29: **B**

30: **D**

31: **D**

32: **C**

33: **A**

34: **C**

35: **C**

36: **B**

37: **A**

38: **B**

39: **C**

40: **C**

41: **A**

42: **B**

43: **A**

44: **D**

45: **D**

46: **C**

47: **A**

48: **C**

49: **A**

50: **D**

51: **B**

52: **A**

53: **A**

54: **C**

55: **D**

56: **B**

57: **B**

58: **B**

59: **B**

60: **B**

61: **A**

62: **C**

63: **A**

64: **C**

65: **C**

66: **C**

67: **D**

68: **A**

69: **D**

70: **C**

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Response form

Use this form to mark your answers

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