

Exam simulation

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



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STUDENT NAME:

DATE AND TIME:

01. A risk factor for decompression sickness is...

- a) Scuba diving prior to flight
- b) 100 % oxygen after decompression
- c) Sports
- d) Smoking

02. 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

03. What is the purpose of the vaporizer coils of the burner system?

- a) To induce a rotation movement in the liquid gas to get a better mixture
- b) For cooling of the liquid gas after exiting the burner nozzles
- c) To heat the liquid gas, so it will vaporize immediately after exiting the burner nozzle
- d) To vaporize the liquid gas, so it will be emitted from the burner nozzle in gaseous form

04. In case of radio communication failure within a CTR (control zone), the pilot has to ...

- a) Squawk transponder code A 7500
- b) This has no consequences while in VMC
- c) Continue the ride according to last clearance; in case of imminent danger land immediately
- d) Maintain current altitude until leaving the control zone

05. The angle between compass north and magnetic north is called...

- a) Inclination
- b) WCA
- c) Deviation
- d) Variation

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06. During buildup of a hot-air balloon, who has to be equipped with tight, flame resistant gloves and clothing covering all body parts?

- a) Only the balloon pilot
- b) Balloon pilot, buildup team and spectators
- c) Only the buildup team
- d) The balloon pilot and the buildup team

07. What wind conditions should be expected in the vicinity of showers or thunderstorms?

- a) Steady wind from direction of shower
- b) Steady wind into direction of shower
- c) Strong gust from variable directions
- d) Calm winds during passage of a shower

08. In what case is the pilot allowed to abbreviate the call sign of his aircraft?

- a) After the ground station has used the abbreviation
- b) Within controlled airspace
- c) If there is little traffic in the traffic circuit
- d) After passing the first reporting point

09. What is the correct frequency for an initial distress message?

- a) FIS frequency
- b) Radar frequency
- c) Current frequency
- d) Emergency frequency

10. Liquefaction of propane gas results in a reduction in volume to what fraction of the gas volume?

- a) 1/160
- b) 1/260
- c) 1/360
- d) 1/60

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11. Under which conditions "back side weather" ("Rückseitenwetter") can be expected?

- a) During Foehn at the lee side
- b) Before passing of an occlusion
- c) After passing of a warm front
- d) After passing of a cold front

12. What is the call sign of the surface movement control?

- a) Earth
- b) Ground
- c) Tower
- d) Control

13. How many satellites are necessary for a precise and verified three-dimensional determination of the position?

- a) Four
- b) Five
- c) Two
- d) Three

14. Which statement is correct with regard to the short-term memory?

- a) It can store 5 (± 2) items for 1 to 2 minutes
- b) It can store 3 (± 1) items for 5 to 10 seconds
- c) It can store 7 (± 2) items for 10 to 20 seconds
- d) It can store 10 (± 5) items for 30 to 60 seconds

15. What is the difference in time when the sun moves 20° of longitude?

- a) 1:00 h
- b) 1:20 h
- c) 0:20 h
- d) 0:40 h

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16. The term "static pressure" is defined as pressure...

- a) Of undisturbed airflow
- b) Sensed by the pitot tube
- c) Inside the airplane cabin
- d) Resulting from orderly flow of air particles

17. What is the consequence if the pressure at the burner valve is lower than 0.28 MPa (lower than 2.8 bar)?

- a) Take-off is prohibited
- b) The gas container should be heated by the flame
- c) The heating system may be damaged
- d) The pressure in the gas container may be increased by use of acetylene

18. What is the distance between the two parallels of longitude 150°E and 151°E along the equator?

- a) 60 NM
- b) 60 km
- c) 1 NM
- d) 111 NM

19. Under what conditions may class D airspace be entered with a radio failure?

- a) It is the destination aerodrome
- b) Approval has been granted before
- c) It is the aerodrome of departure
- d) There are other aircraft in the aerodrome circuit

20. When do you expect wind shear?

- a) When passing a warm front
- b) During a summer day with calm winds
- c) During an inversion
- d) In calm wind in cold weather

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21. 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

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

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

23. The main burner is fed by which phase?

- a) By the low-pressure phase
- b) By the gas phase
- c) By the plasma phase
- d) By the liquid phase

24. 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

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

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26. Where can the type of restriction for a restricted airspace be found?

- a) ICAO chart 1:500000
- b) NOTAM
- c) AIC
- d) AIP

27. Which of the following statements is correct?

- a) At higher altitude, sink rate in case of cooling is increased due to less drag by less density
- b) At higher altitude, sink rate by cooling is not increased because due to low density the mass inside the hull is also less
- c) Higher drag at higher altitude prevents increased sink rate in case of cooling
- d) Maximum sink rate must be equal at all altitudes as prescribed by design regulations

28. A true altitude is...

- a) An altitude above mean sea level corrected for non-standard temperature
- b) A height above ground level corrected for non-standard pressure
- c) A height above ground level corrected for non-standard temperature
- d) A pressure altitude corrected for non-standard temperature

29. 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

30. 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

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31. 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

32. What is the status of the rules and procedures created by the EASA? (e.g. Part-SFCL, Part-MED)

- a) They have the same status as ICAO Annexes
- b) They are not legally binding, they only serve as a guide
- c) They are part of the EU regulation and legally binding to all EU member states
- d) Only after a ratification by individual EU member states they are legally binding

33. What weather is likely to be experienced during "Foehn" in the Bavarian area close to the Alps?

- a) High pressure area overhead Biscay and low pressure area in Eastern Europe
- b) Nimbostratus cloud in the southern Alps, rotor clouds at the lee side, warm and dry wind
- c) Cold, humid downhill wind on the lee side of the Alps, flat pressure pattern
- d) Nimbostratus cloud in the northern Alps, rotor clouds at the windward side, warm and dry wind

34. The measurement of altitude is based on the change of the...

- a) Static pressure
- b) Dynamic pressure
- c) Differential pressure
- d) Total pressure

35. Which characteristic is important when choosing sunglasses used by pilots?

- a) Curved sidepiece
- b) Unbreakable
- c) No UV filter
- d) Non-polarised

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36. What is the meaning of the abbreviation "SERA"?

- a) Selective Radar Altimeter
- b) Standard European Routes of the Air
- c) Specialized Radar Approach
- d) Standardized European Rules of the Air

37. What is the correct way of acknowledging "You are now entering airspace Delta"?

- a) Entering
- b) Airspace Delta
- c) Wilco
- d) Roger

38. What is the call sign of the aerodrome control?

- a) Ground
- b) Tower
- c) Airfield
- d) Control

39. What must be considered for cross-border flights?

- a) Transmission of hazard reports
- b) Approved exceptions
- c) Regular location messages
- d) Requires flight plans

40. At time of take-off, ground wind speed is 3 m/s. Along take-off flight path, at a distance of 360 m obstacles erect up to 40 m. What is the minimum rate of climb to keep a clearance of 50 m above the obstacles? (Consider double the ground wind speed for the flight path)

- a) 1 m/s
- b) 2 m/s
- c) 0.5 m/s
- d) 1.5 m/s

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41. About the lower end of the pull rope of a hot-air balloon it can be said:

- a) It has an especially smooth surface
- b) It is fixed to the lower basket area
- c) It has to be lubricated before every take-off
- d) It is particularly heat resistant

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

- a) Increases by 2° C / 1000 ft
- b) Decreases by 2° C / 100 m
- c) Decreases by 2° C / 1000 ft
- d) Increases by 2° C / 100 m

43. What phrase is used by a pilot if a transmission is to be answered with "yes"?

- a) Affirmative
- b) Affirm
- c) Roger
- d) Yes

44. What does a cloud coverage of "FEW" mean in a METAR weather report?

- a) 8 eighths
- b) 5 to 7 eighths
- c) 3 to 4 eighths
- d) 1 to 2 eighths

45. Which of the following symptoms may indicate hypoxia?

- a) Blue marks all over the body
- b) Blue discolouration of lips and fingernails
- c) Muscle cramps in the upper body area
- d) Joint pain in knees and feet

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46. Which altitude marks the lower limit where the body is unable to completely compensate the effects of the low atmospheric pressure?

- a) 12000 feet
- b) 7000 feet
- c) 22000 feet
- d) 5000 feet

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

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

48. What is the meaning of a steady green light signal at a controlled aerodrome directed to an aircraft in flight?

- a) Airport unsafe, do not land
- b) Return for landing, followed by steady green at the appropriate time
- c) Cleared to land
- d) Give way to other aircraft and continue circling

49. A cross-country flight is made using the ICAO 1 : 500.000 aeronautical chart. An overflight crosscheck shows that a distance of 6 cm in the chart has been passed within 9 minutes. After how many more minutes, the overflight of another waypoint at a chart distance of additional 4 cm can be expected?

- a) 18 min
- b) 6 min
- c) 12 min
- d) 9 min

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50. The ongoing process to monitor the current flight situation is called...

- a) Anticipatory check procedure
- b) Situational thinking
- c) Constant flight check
- d) Situational awareness

51. 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

52. What does a cloud coverage of "BKN" mean in a METAR weather report?

- a) 5 to 7 eighths
- b) 1 to 2 eighths
- c) 8 eighths
- d) 3 to 4 eighths

53. Distress messages are messages...

- a) Sent by a pilot or an aircraft operating agency which have an imminent meaning for aircraft in flight
- b) Concerning aircraft and their passengers which face a grave and imminent threat and require immediate assistance
- c) Concerning the safety of an aircraft, a watercraft or some other vehicle or person in sight
- d) Concerning the operation or maintenance of facilities which are important for the safety and regularity of flight operations

54. What is the minimum flight visibility in airspace "E" for an aircraft operating under VFR at FL75?

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

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55. Doubling the pressure of a dry gas at constant temperature results in a change of the volume to:

- a) Double the previous value
- b) Half the previous value
- c) Four times the previous value
- d) A quarter of the previous value

56. Wake turbulence is particularly strong...

- a) When flying at high speeds
- b) When flying at low altitudes
- c) When flying at low speeds
- d) When flying at high altitudes

57. 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

58. What is the correct phrase to begin a blind transmission?

- a) Transmitting blind
- b) No reception
- c) Listen
- d) Blind

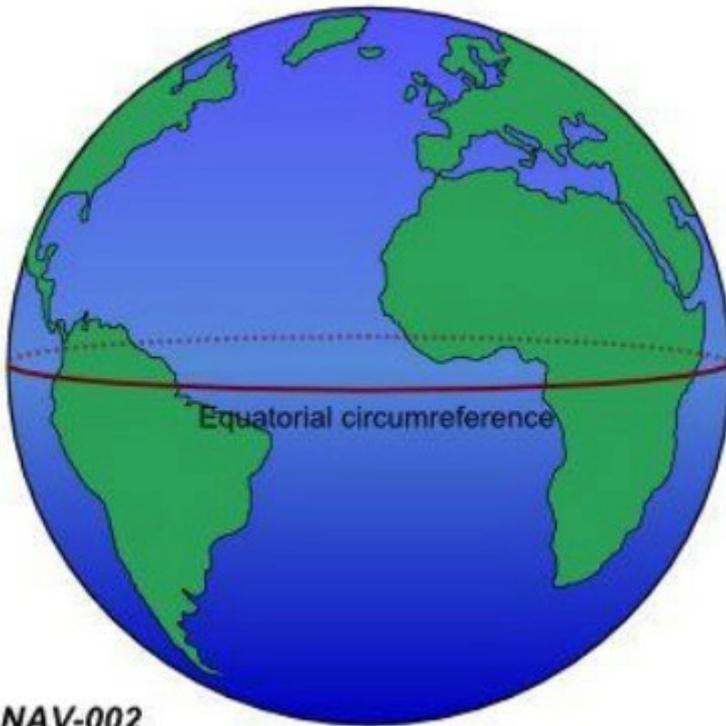
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59. The circumference of the Earth at the equator is approximately... See figure (NAV-002)



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

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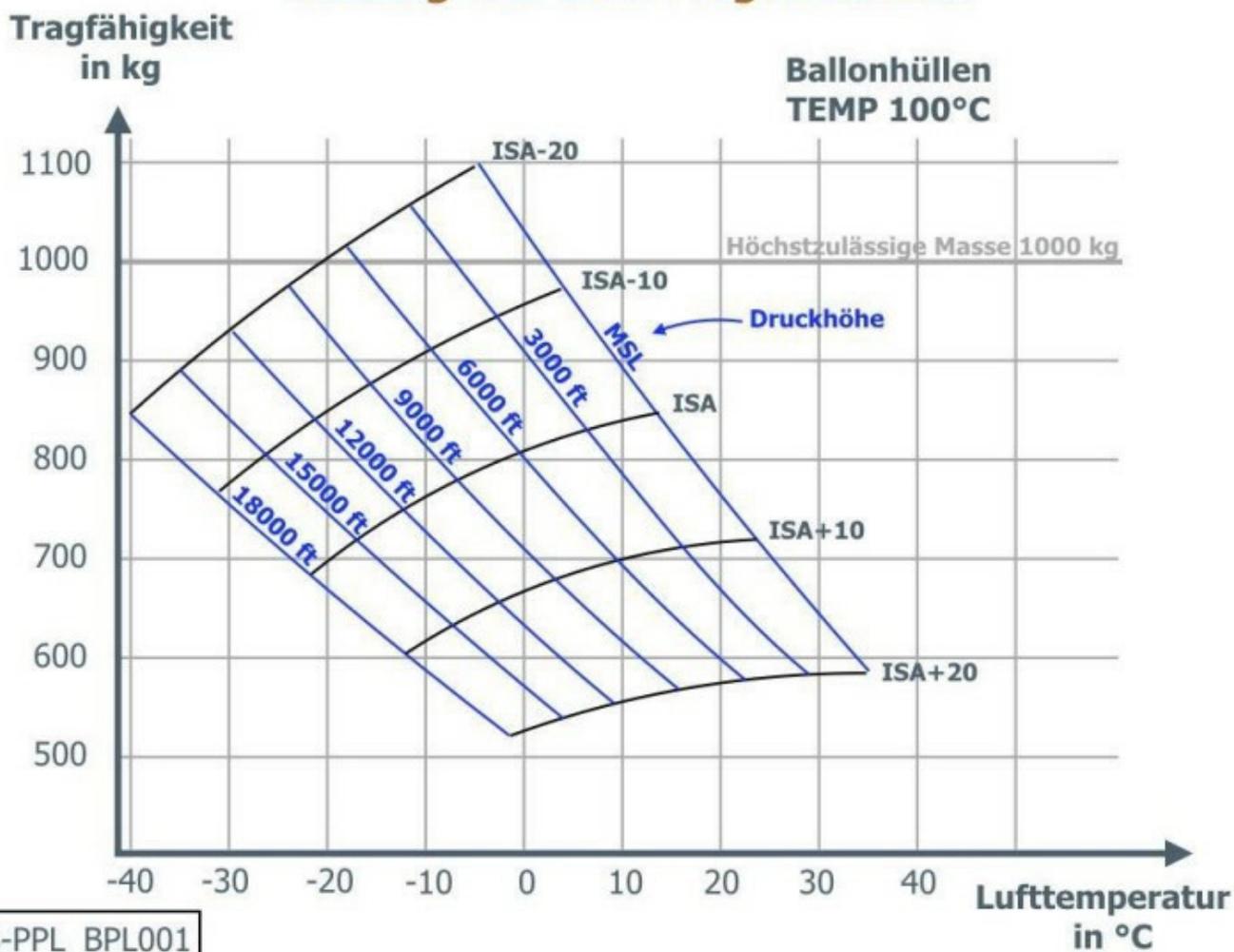
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60. Given the following masses: Empty mass 260 kg Instruments 20 kg per gas container (full): 30 kg per person: 80 kg Assuming temperature ISA+10, how many persons may be carried in the basket at maximum, if the balloon with 4 gas containers has to climb up to pressure altitude 12000 ft ? (use attachment ECQB-PPL_BPL001)

Auszug aus dem Flughandbuch



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

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61. The movement of air flowing apart is called...

- a) Divergence
- b) Concordance
- c) Convergence
- d) Subsidence

62. At high altitude, the complete heating system of a hot-air balloon fails. What maximum rate of descent has to be expected upon reaching ground?

- a) Approximately 2.5 m/s
- b) Approximately 4.5 m/s
- c) Approximately 6.5 m/s
- d) Approximately 8.5 m/s

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

- a) Degrees Centigrade ($^{\circ}$ C)
- b) Degrees Fahrenheit
- c) Gpdam
- d) Kelvin

64. What action has to be considered by the pilot of a hot-air balloon with a double-burner installation, in case one burner valve fails?

- a) An emergency call should be made
- b) Both burner valves have to be shut down immediately
- c) The ride has to be stopped immediately
- d) The ride can be continued by use of the remaining burner

65. What is the difference in latitude between A ($12^{\circ}53'30''$ N) and B ($07^{\circ}34'30''$ S)?

- a) $05^{\circ}19'00''$
- b) $20^{\circ}28'00''$
- c) 20.28°
- d) 05.19°

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66. 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

67. What does the abbreviation "H24" stand for?

- a) 24 h service
- b) No specific opening times
- c) Sunrise to sunset
- d) Sunset to sunrise

68. What weather conditions in Central Europe are typically found in high pressure areas during summer?

- a) Small isobar spacing with strong prevailing northerly winds
- b) Large isobar spacing with calm winds, formation of local wind systems
- c) Large isobar spacing with strong prevailing westerly winds
- d) Small isobar spacing with calm winds, formation of local wind systems

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

- a) An inversion layer
- b) A high cloud base
- c) Strong wind
- d) Strong updrafts

70. Changing the shape of the envelope of a free balloon, e.g. by a gust, results in:

- a) Increase in lift
- b) Decrease in volume
- c) Increase of displaced air
- d) Decrease in weight

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Response Scheme

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

01: A	02: B	03: C	04: C
05: C	06: D	07: C	08: A
09: C	10: B	11: D	12: B
13: A	14: C	15: B	16: A
17: A	18: A	19: B	20: C
21: C	22: B	23: D	24: D
25: A	26: D	27: A	28: A
29: C	30: C	31: A	32: C
33: B	34: A	35: D	36: D
37: D	38: B	39: D	40: D
41: D	42: C	43: B	44: D
45: B	46: A	47: C	48: C
49: B	50: D	51: C	52: A
53: B	54: D	55: B	56: C
57: C	58: A	59: D	60: A
61: A	62: C	63: A	64: D
65: B	66: D	67: A	68: B
69: D	70: B		

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Response form

Use this form to mark your answers

01: _____	02: _____	03: _____	04: _____
05: _____	06: _____	07: _____	08: _____
09: _____	10: _____	11: _____	12: _____
13: _____	14: _____	15: _____	16: _____
17: _____	18: _____	19: _____	20: _____
21: _____	22: _____	23: _____	24: _____
25: _____	26: _____	27: _____	28: _____
29: _____	30: _____	31: _____	32: _____
33: _____	34: _____	35: _____	36: _____
37: _____	38: _____	39: _____	40: _____
41: _____	42: _____	43: _____	44: _____
45: _____	46: _____	47: _____	48: _____
49: _____	50: _____	51: _____	52: _____
53: _____	54: _____	55: _____	56: _____
57: _____	58: _____	59: _____	60: _____
61: _____	62: _____	63: _____	64: _____
65: _____	66: _____	67: _____	68: _____
69: _____	70: _____		