

Exam simulation

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



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STUDENT NAME:

DATE AND TIME:

01. The electronic remote hull thermometer of a hot-air balloon is operating by which principle?

- a) Venturi principle
- b) Boyle principle
- c) Resistance- / Semiconductor principle
- d) Bernoulli principle

02. An aircraft travels 100 km in 56 minutes. The ground speed (GS) equals...

- a) 93 kt
- b) 198 kt
- c) 107 km/h
- d) 58 km/h

03. 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

04. 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

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

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

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06. In which situations should a pilot use blind transmissions?

- a) When a transmission containing important navigational or technical information is to be sent to several stations at the same time
- b) When a pilot has flown into cloud or fog unintentionally and therefore would like to request navigational assistance from a ground unit
- c) When no radio communication can be established with the appropriate aeronautical station, but when evidence exists that transmissions are received at that ground unit
- d) When the traffic situation at an airport allows the transmission of information which does not need to be acknowledged by the ground station

07. 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

08. 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

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

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

10. What has to be considered before touchdown of a hot-air balloon during landing?

- a) Inform the followers
- b) Note the time
- c) Cut off gas feed to the ignition flames
- d) Turn off the radio

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11. 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

12. What effect has the elevation above MSL of an airfield on the carrying force and maximum take-off mass of a balloon?

- a) The lower the elevation, the lower the maximum take-off mass
- b) The lower the elevation, the greater the carrying force
- c) The lower the elevation, the higher the maximum take-off mass
- d) The higher the elevation, the greater the carrying force

13. Which phrase is to be used when a pilot wants the tower to know that he is ready for take-off?

- a) Ready for start-up
- b) Ready for departure
- c) Ready
- d) Request take-off

14. During setup of a hot-air balloon, the hull is damaged with a hole with a size of 1.50 m x 1.00 m. Is Take-Off permitted?

- a) Yes, if all passengers agree
- b) Yes, if permitted by the operating handbook
- c) No, the hull has to be repaired first
- d) Yes, if loading is reduced

15. Regularity messages are messages...

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

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16. The burning gas is pushed from the liquid gas phase through the riser tube to which component?

- a) To the evaporator
- b) To the pressure relief device
- c) To the fill level indicator
- d) To the controller

17. 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

18. What action has to be taken by the pilot of a hot-air balloon in case of fire on the ground? First action is to ...

- a) Make an emergency call via radio
- b) Leave from the area surrounding the burner
- c) Close the valves of the gas containers
- d) Engage the fire extinguishers

19. A flight level is a...

- a) True altitude
- b) Density altitude
- c) Pressure altitude
- d) Altitude above ground

20. 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

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21. The altimeter's reference scale is set to airfield pressure (QFE). What indication is shown during the flight?

- a) Pressure altitude
- b) Altitude above MSL
- c) Airfield elevation
- d) Height above airfield

22. What is the purpose of "interception lines" in visual navigation?

- a) They are used as easily recognizable guidance upon a possible loss of orientation
- b) To visualize the range limitation from the departure aerodrome
- c) They help to continue the flight when flight visibility drops below VFR minima
- d) To mark the next available en-route airport during the flight

23. The term 'magnetic course' (MC) is defined as...

- a) The angle between true north and the course line
- b) The direction from an arbitrary point on Earth to the magnetic north pole
- c) The direction from an arbitrary point on Earth to the geographic North Pole
- d) The angle between magnetic north and the course line

24. Lower-than-standard temperature may lead to...

- a) An altitude indication which is too high
- b) An altitude indication which is too low
- c) A correct altitude indication as long as the altimeter subscale is set to correct for non-standard temperature
- d) A blockage of the Pitot tube by ice, freezing the altimeter indication to its present value

25. 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

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26. While overflying a waypoint, it is stated that a distance of 3 NM has been taken 10 min. What will be the expected time of endurance for the complete distance of 18 NM?

- a) 60 min
- b) 90 min
- c) 12 min
- d) 180 min

27. What is indicated by a red line on the hull thermometer with an analog scale?

- a) The minimum permissible value
- b) The take-off temperature
- c) The maximum permissible value
- d) The recommended operating value

28. Which direction corresponds to 'compass north' (CN)?

- a) The most northerly part of the magnetic compass in the aircraft, where the reading takes place
- b) The direction from an arbitrary point on Earth to the geographical North Pole
- c) The angle between the aircraft heading and magnetic north
- d) The direction to which the direct reading compass aligns due to earth's and aircraft's magnetic fields

29. 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

30. Which of the human senses is most influenced by hypoxia?

- a) The tactile perception (sense of touch)
- b) The olfactory perception (smell)
- c) The visual perception (vision)
- d) The auditory perception (hearing)

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

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

32. A frequency of 119.500 MHz is correctly transmitted as...

- a) One one niner decimal five
- b) One one niner decimal five zero
- c) One one niner thousand decimal five zero
- d) One one niner decimal five zero zero

33. 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

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

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

35. Who provides search and rescue service?

- a) Only military organisations
- b) Both military and civil organisations
- c) Only civil organisations
- d) International approved organisations

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36. In which situation is it NOT possible to achieve a pressure compensation between the middle ear and the environment?

- a) During a light and slow climb
- b) Breathing takes place using the mouth only
- c) The Eustachian tube is blocked
- d) All windows are completely closed

37. 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

38. What amount of ignitable mixture can be made from 1 L (0.001 m³) liquid propane gas?

- a) 0.38 m³
- b) 0.26 m³
- c) 12 m³
- d) 1.2 m³

39. What has to be considered before a balloon ride across water surfaces?

- a) Continuous radio communication has to be established with air traffic control
- b) A transponder has to be installed and carried aboard
- c) A flight plan with detailed routing has to be filed
- d) For all people inside the basket life jackets have to be carried aboard

40. 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

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41. In what situation is it appropriate to set the transponder code 7600?

- a) Hijacking
- b) Loss of radio
- c) Flight into clouds
- d) Emergency

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

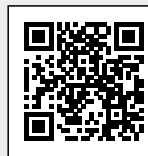
- a) It has an especially smooth surface
- b) It is fixed to the lower basket area
- c) It has to be lubricated before every take-off
- d) It is particularly heat resistant

43. 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

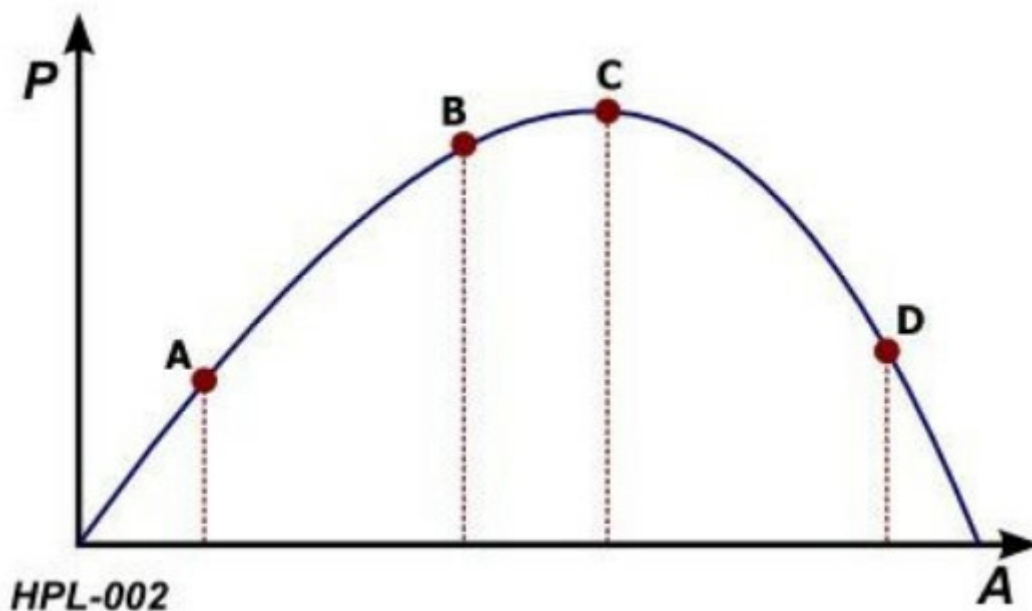
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44. At which point in the diagram will a pilot find himself to be overstrained? See figure (HPL-002) P = Performance A = Arousal / Stress



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

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

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

46. 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

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

- a) Ascending air and cloud formation
- b) Ascending air and cloud dissipation
- c) Descending air and cloud formation
- d) Descending air and cloud dissipation

48. On summer days with calm winds, the balloon pilot has to expect:

- a) With a cold air pool on the ground
- b) With wind shear
- c) With strongly heated surface layers
- d) With a pronounced ground inversion

49. Which air traffic services can be expected within an FIR (flight information region)?

- a) FIS (flight information service) ALR (alerting service)
- b) ATC (air traffic control) FIS (flight information service)
- c) AIS (aeronautical information service) SAR (search and rescue)
- d) ATC (air traffic control) AIS (aeronautical information service)

50. What is the correct way to transmit the call sign HB-YKM?

- a) Hotel Bravo Yuliett Kilo Mikro
- b) Home Bravo Yuliett Kilo Mike
- c) Home Bravo Yankee Kilo Mikro
- d) Hotel Bravo Yankee Kilo Mike

51. Which of the following options are possible SSR-Transponder modes?

- a) B, R, S
- b) A, C, S
- c) A, C, R
- d) B, C, V

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52. 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 %

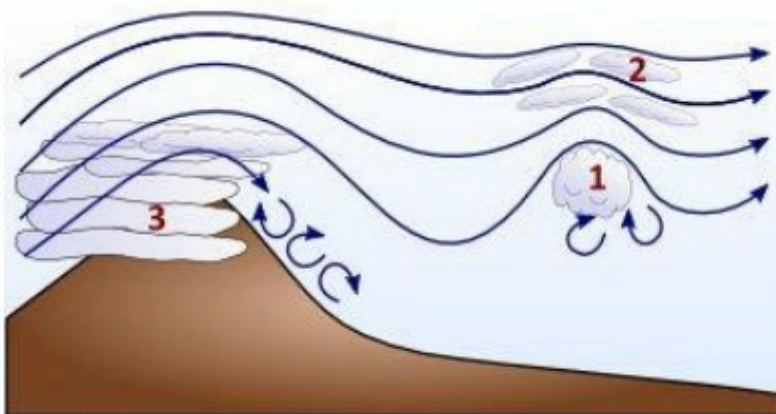
53. What pressure pattern can be observed when a cold front is passing?

- a) Continually decreasing pressure
- b) Shortly decreasing, thereafter increasing pressure
- c) Constant pressure pattern
- d) Continually increasing pressure

54. The main blast valve is located where?

- a) At the main cylinder
- b) At the burner
- c) At the hull equator
- d) At the upper hull part

55. What weather phenomenon designated by "2" has to be expected on the lee side during "Foehn" conditions? See figure (MET-001).



- a) Cumulonimbus
- b) Altocumulus Castellanus
- c) Nimbostratus
- d) Altocumulus lenticularis

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56. Where are the two polar circles?

- a) 23.5° north and south of the poles
- b) 23.5° north and south of the equator
- c) At a latitude of 20.5°S and 20.5°N
- d) 20.5° south of the poles

57. 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

58. QFE is the...

- a) Magnetic bearing to a station
- b) Barometric pressure at a reference datum, typically the runway threshold of an airfield
- c) Barometric pressure adjusted to sea level, using the international standard atmosphere (ISA)
- d) Altitude above the reference pressure level 1013.25 hPa

59. What phrase is used by a pilot to inform the tower about a go-around?

- a) Approach canceled
- b) Going around
- c) No landing
- d) Pulling up

60. What difference will be experienced during take-off in presence of a strong surface inversion, compared to a take-off with decreasing temperature with height?

- a) During climb through an inversion, less ballast must be released and/or less heating is required
- b) During climb through an inversion, less ballast must be released and/or more heating is required
- c) During climb through an inversion, more ballast must be released and/or more heating is required
- d) During climb through an inversion, more ballast must be released and/or less heating is required

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61. 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

62. What does the abbreviation "HX" stand for?

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

63. What is the meaning of the phrase "Approved"?

- a) An error has been made in this transmission. The correct version is...
- b) Permission for proposed action is granted
- c) I have received all of your last transmission
- d) I understand your message and will comply with it

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

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

65. With Central European Time (CET) given as UTC+1, what UTC time corresponds to 1700 CET?

- a) 1600 UTC
- b) 1800 UTC
- c) 1500 UTC
- d) 1700 UTC

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66. 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

67. 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

68. Regarding the type of cloud, precipitation is classified as...

- a) Light and heavy precipitation
- b) Rain and showers of rain
- c) Showers of snow and rain
- d) Prolonged rain and continuous rain

69. What is the function of the red blood cells (erythrocytes)?

- a) Oxygen transport
- b) Immune defense
- c) Blood sugar regulation
- d) Blood coagulation

70. 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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Response Scheme

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

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

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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: _____		