

Exam simulation

BPL Hot Air - Balloon Pilot License - Principles of Flight (Balloon)



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STUDENT NAME:

DATE AND TIME:

01. 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

02. Electronic devices on board of an aeroplane have influence on the...

- a) Direct reading compass
- b) Artificial horizon
- c) Airspeed indicator
- d) Turn coordinator

03. Vienna (LOWW) is located at 016° 34'E, Salzburg (LOWS) at 013° 00'E. The latitude of both positions can be considered as equal. What is the difference of sunrise and sunset times, expressed in UTC, between Wien and Salzburg?

- a) In Vienna the sunrise and sunset are about 4 minutes later than in Salzburg
- b) In Vienna the sunrise and sunset are about 14 minutes earlier than in Salzburg
- c) In Vienna the sunrise is 4 minutes later and sunset is 4 minutes earlier than in Salzburg
- d) In Vienna the sunrise is 14 minutes earlier and sunset is 14 minutes later than in Salzburg

04. What statement is correct with regard to the density of a gas?

- a) The density increases with increasing temperature and constant volume
- b) The density decreases with decreasing volume and constant temperature
- c) The density decreases with increasing temperature and constant volume
- d) The density decreases with increasing temperature and constant pressure

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05. The rotational axis of the Earth runs through the...

- a) Geographic North Pole and on the geographic South Pole
- b) Magnetic north pole and on the magnetic south pole
- c) Geographic North Pole and on the magnetic south pole
- d) Magnetic north pole and on the geographic South Pole

06. The ratio between air pressures at different heights is referred to as:

- a) Pressure number
- b) Height value
- c) Height ratio
- d) Height number

07. 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

08. In case of a water landing, when should the life jackets be inflated?

- a) After landing, still in the basket, if leaving the basket has to be expected
- b) During cruise over water
- c) After leaving the basket
- d) Before touchdown on water surface

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

- a) By annotations from the text part of the chart
- b) By alignment of lines of warm- and cold fronts
- c) By alignment and distance of isobaric lines
- d) By alignment and distance of hypsometric lines

11. What is the correct course of action when experiencing a radio failure in class D airspace?

- a) The flight has to be continued above 5000 feet complying with VFR flight rules or the airspace has to be left by the shortest route
- b) The flight has to be continued according to the last clearance complying with VFR flight rules or the airspace has to be left using a standard routing
- c) The flight has to be continued according to the last clearance complying with VFR rules or the airspace has to be left by the shortest route
- d) The flight has to be continued above 5000 feet complying with VFR flight rules or the airspace has to be left using a standard routing

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

- a) Inhomogeneous
- b) Homogeneous
- c) Unstable
- d) Stable

13. 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

14. The final sinkrate of a hot-air balloon is achieved after descent over a vertical distance of:

- a) 1000 - 2000 m
- b) 50 - 100 m
- c) 250 - 450 m
- d) 500 - 1000 m

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15. Clouds are basically distinguished by what types?

- a) Cumulus and stratiform clouds
- b) Layered and lifted clouds
- c) Thunderstorm and shower clouds
- d) Stratiform and ice clouds

16. When using a GPS for tracking to the next waypoint, a deviation indication is shown by a vertical bar and dots to the left and to the right of the bar. What statement describes the correct interpretation of the display?

- a) The deviation of the bar from the center indicates the track error as absolute distance in NM; the scale for full deflection is ± 10 NM
- b) The deviation of the bar from the center indicates the track error as angular distance in degrees; the scale for full deflection depends on the operating mode of the GPS
- c) The deviation of the bar from the center indicates the track error as angular distance in degrees; the scale for full deflection is $\pm 10^\circ$
- d) The deviation of the bar from the center indicates the track error as absolute distance in NM; the scale for full deflection depends on the operating mode of the GPS

17. What is the relationship between pressure and volume of a dry gas at constant temperature?

- a) The volume increases proportional with pressure
- b) The volume increases by a factor of 4 with double pressure
- c) The ratio between pressure and volume is constant
- d) The volume is inversely proportional to pressure

18. 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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19. What is the purpose of the semi-circular rule?

- a) To avoid collisions by suspending turning manoeuvres
- b) To fly without a filed flight plan in prescribed zones published in the AIP
- c) To avoid collisions by reducing the probability of opposing traffic at the same altitude
- d) To allow safe climbing or descending in a holding pattern

20. What is the purpose of the signal square at an aerodrome?

- a) It is a specially marked area to pick up or drop towing objects
- b) It is an illuminated area on which search and rescue and fire fighting vehicles are placed
- c) It contains special symbols to indicate the conditions at the aerodrome visually to over-flying aircraft
- d) Aircraft taxi to this square to get light signals for taxi and take-off clearance

21. From which altitude on does the body usually react to the decreasing atmospheric pressure?

- a) 7000 feet
- b) 12000 feet
- c) 2000 feet
- d) 10000 feet

22. What is the meaning of the abbreviation "ARC"?

- a) Airspace Restriction Criteria
- b) Airworthiness Recurring Control
- c) Airworthiness Review Certificate
- d) Airspace Rulemaking Committee

23. Which wind system may be dangerous for balloon rides in the Alps?

- a) Bora
- b) Scirocco
- c) Mistral
- d) Foehn

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24. 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

25. What type of fog emerges if humid and almost saturated air, is forced to rise upslope of hills or shallow mountains by the prevailing wind?

- a) Orographic fog
- b) Radiation fog
- c) Steaming fog
- d) Advection fog

26. 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

27. What cause may result in a reduction of volume of a free balloon?

- a) Reduction in mass
- b) A gust
- c) Cooling of environment air
- d) Increase in hull temperature

28. What is the difference in latitude between A (12°53'30"N) and B (07°34'30"S)?

- a) 05°19'00"
- b) 20°28'00"
- c) 20.28°
- d) 05.19°

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29. How may passengers assist the balloon pilot during landing preparation?

- a) By activating the emergency opening
- b) By activating the vents
- c) By stowing of loose parts
- d) By activating the pull rope

30. The term 'civil twilight' is defined as...

- a) The period of time before sunrise or after sunset where the midpoint of the sun disk is 12 degrees or less below the true horizon
- b) The period of time before sunrise or after sunset where the midpoint of the sun disk is 6 degrees or less below the apparent horizon
- c) The period of time before sunrise or after sunset where the midpoint of the sun disk is 6 degrees or less below the true horizon
- d) The period of time before sunrise or after sunset where the midpoint of the sun disk is 12 degrees or less below the apparent horizon

31. What weather conditions can be expected in high pressure areas during winter?

- a) Squall lines and thunderstorms
- b) Changing weather with passing of frontal lines
- c) Calm winds and widespread areas with high fog
- d) Calm weather and cloud dissipation, few high Cu

32. The shortest distance between two points on Earth is represented by a part of...

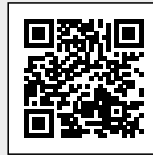
- a) A small circle
- b) A great circle
- c) A rhumb line
- d) A parallel of latitude

33. What is the percentage of oxygen in the atmosphere at 6000 ft?

- a) 78 %
- b) 21 %
- c) 12 %
- d) 18.9 %

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34. 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

35. What should be considered regarding a scheduled flight over water, when land cannot be reached in case of an emergency landing?

- a) Contact to the nearest ATC shall consist during the whole flight
- b) The flight plan has to contain the exact waypoints
- c) For all passengers there must be life jackets or lifeboats present
- d) Transponder code 7600 has to be set during the whole flight

36. In what different ways can a risk be handled appropriately?

- a) Avoid, reduce, delay, accept
- b) Detect, report, monitor, ignore
- c) Accept, continue, improvise, review
- d) Avoid, reduce, transfer, accept

37. 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

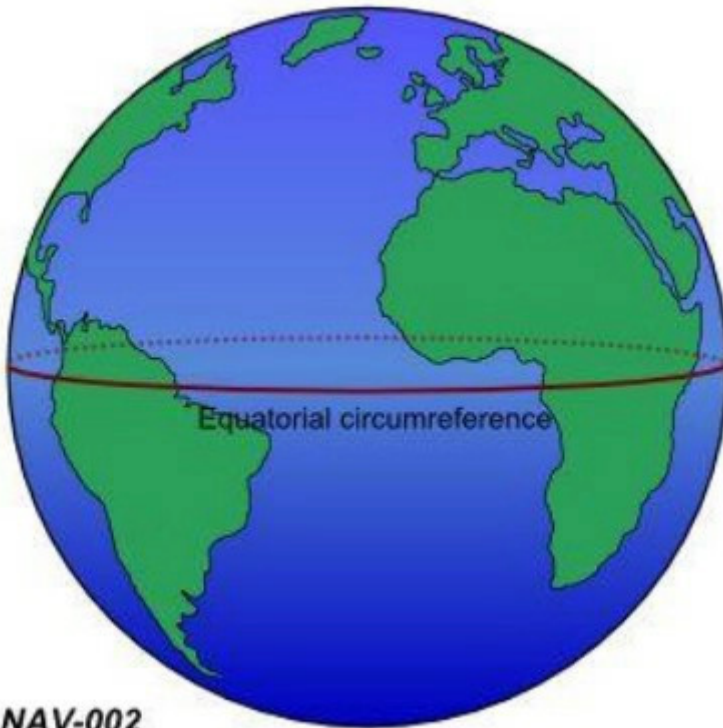
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38. The circumference of the Earth at the equator is approximately... See figure (NAV-002)



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

39. 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

40. What can be expected for the prevailing wind with isobars on a surface weather chart showing large distances?

- a) Low pressure gradients resulting in low prevailing wind
- b) Strong pressure gradients resulting in strong prevailing wind
- c) Strong pressure gradients resulting in low prevailing wind
- d) Low pressure gradients resulting in strong prevailing wind

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41. While overflying a waypoint, it is stated that a distance of 2 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) 12 min
- c) 180 min
- d) 90 min

42. On what frequency shall a blind transmission be made?

- a) On a tower frequency
- b) On a radar frequency of the lower airspace
- c) On the appropriate FIS frequency
- d) On the current frequency

43. The increase in load carrying capability by increasing the hull air temperature by the same temperature difference ...

- a) Increases with balloon mass
- b) Increases with altitude
- c) Decreases with sinking
- d) Decreases with altitude

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

- a) Freezing rain
- b) Gust front
- c) Electrical discharge
- d) Anvil-head top of Cb cloud

45. 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

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

- a) 36000 m
- b) 11000 ft
- c) 11000 m
- d) 18000 ft

47. 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

48. What visual flight conditions can be expected within the warm sector of a polar front low during summer time?

- a) Visibility less than 1000 m, cloud-covered ground
- b) Moderate to good visibility, scattered clouds
- c) Moderate visibility, heavy showers and thunderstorms
- d) Good visibility, some isolated high clouds

49. Which of the following options states a correct position report?

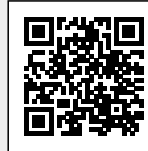
- a) DEABC over "N" in FL 2500 ft
- b) DEABC over "N" at 35
- c) DEABC, "N", 2500 ft
- d) DEABC reaching "N"

50. The stretch-out of the envelope of a hot-air balloon should be made:

- a) To the lee side of the basket
- b) To the windward side of the basket
- c) To the sunward side of the basket
- d) To the sun-averted side of the basket

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51. 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

52. 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

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

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

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

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

55. 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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56. What is the minimum flight visibility in airspace "C" below FL 100 for an aircraft operating under VFR?

- a) 5 km
- b) 1.5 km
- c) 10 km
- d) 8 km

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

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

58. What is the difference in time when the sun moves 10° of longitude?

- a) 0:04 h
- b) 0:40 h
- c) 0:30 h
- d) 1:00 h

59. 1000 ft equal...

- a) 3000 m
- b) 300 m
- c) 30 km
- d) 30 m

60. What may be the consequence, if gas containers of a hot-air balloon are refilled at temperatures below 0 °C by volume (80%)?

- a) Too low pressure at high temperatures
- b) Less burner power at high temperatures
- c) Smaller volume in the container at high temperatures
- d) Overfilling of the gas container

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61. Which dangerous attitudes are often combined?

- a) Impulsivity and carefulness
- b) Macho and invulnerability
- c) Self-abandonment and macho
- d) Invulnerability and self-abandonment

62. 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

63. What type of turbulence is typically found close to the ground on the lee side during Foehn conditions?

- a) Clear-air turbulence (CAT)
- b) Turbulence in rotors
- c) Inversion turbulence
- d) Thermal turbulence

64. 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

65. 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

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66. What pressure pattern may result from cold-air inflow in high tropospheric layers?

- a) Formation of a low in the upper troposphere
- b) Formation of a large ground low
- c) Alternating pressure
- d) Formation of a high in the upper troposphere

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

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

68. What is the distance between the parallels of latitude 48°N and 49°N along a meridian line?

- a) 10 NM
- b) 111 NM
- c) 60 NM
- d) 1 NM

69. 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

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

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

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Response Scheme

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

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

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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: _____
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65: _____	66: _____	67: _____	68: _____
69: _____	70: _____		