Exam simulation

BPL Hot-Air Balloon Pilot Licence - Flight Performance and Planning

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STUDENT NAME:	DATE AND TIME:

01. At time of take-off, ground wind speed is 2 m/s. Along take-off flight path, at a distance of 320 m obstacles erect up to 30 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) 1.5 m/s
c) 2 m/s
d) 0.5 m/s

02. At which altitude is the atmospheric pressure approximately half the MSL value (1013 hPa)?

a) 5000 ft
b) 18000 ft
c) 22000 ft
d) 10000 ft

03. The term 'isogonal' or 'isogonic line' is defined as a line on an aeronautical chart, connecting all points with the same value of...

a) Variation
b) Inclination
c) Heading
d) Deviation

04. 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

05. 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

06. What is the meaning of the phrase "Roger"?

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

07. How do volume, density and temperature change when a gas is being compressed?

a) Volume decreases, density decreases, temperature decreases
b) Volume decreases, density increases, temperature increases
c) Volume decreases, density increases, temperature decreases
d) Volume increases, density decreases, temperature decreases

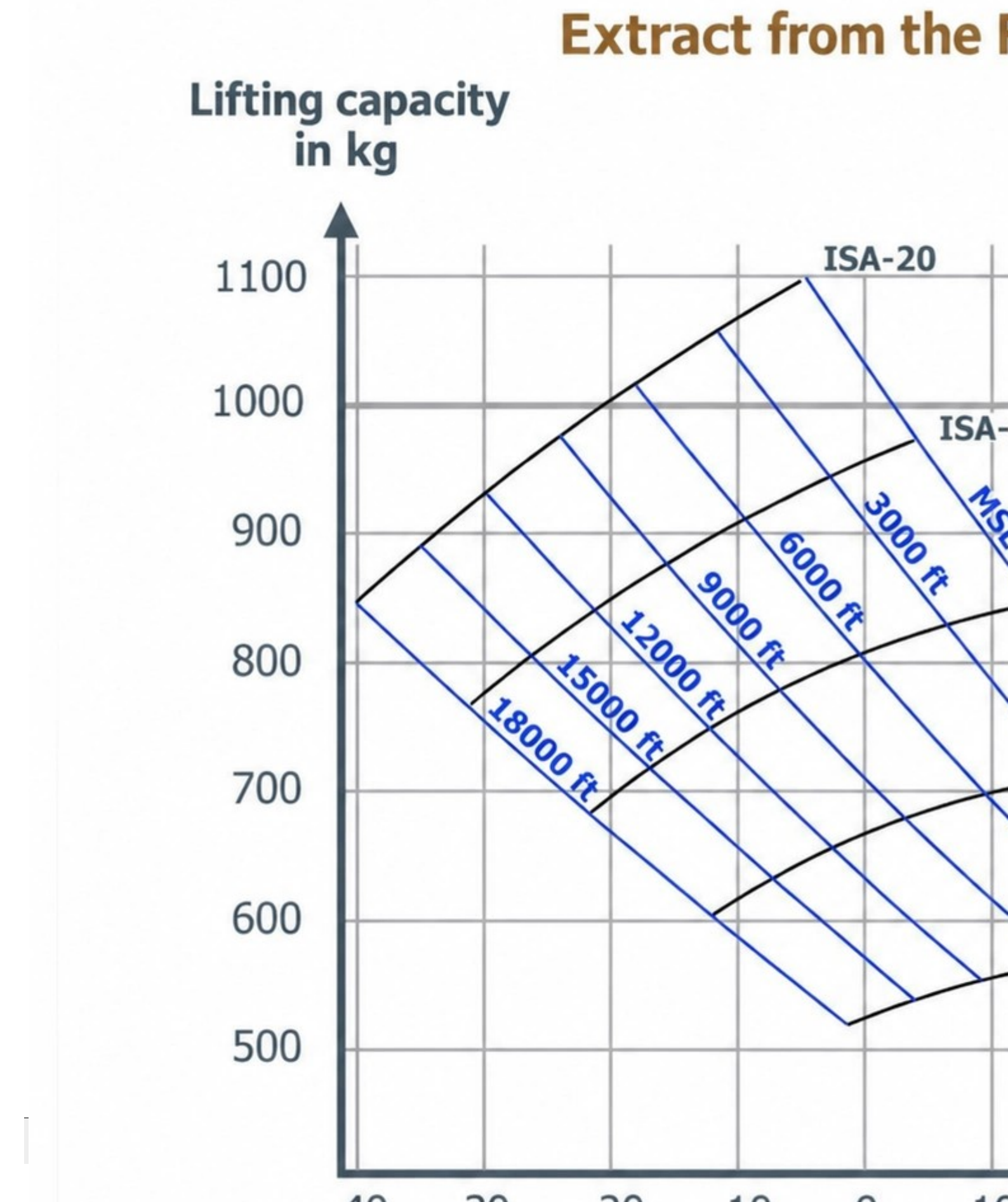
08. Air consists of oxygen, nitrogen and other gases. What is the approximate percentage of other gases?

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

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

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

10. Given the following masses: Empty mass 240 kg Instruments 20 kg per gas container (full): 30 kg per person: 80 kg Up to which pressure altitude can the hot-air balloon climb with 5 persons and 4 gas containers in the basket, assuming temperatures 10° below ISA? (use attachment ECQB-PPL_BPL001)


Extract from the
Lifting capacity in kg
1100
1000
900
800
700
600
500
ISA-20
ISA-
3000 ft
6000 ft
9000 ft
12000 ft
15000 ft
18000 ft

a) 3000 ft
b) 17000 ft
c) 13000 ft
d) 7000 ft

11. The maximum number of passengers can be found ...

a) In the certificate of registration
b) In the operating handbook
c) In the Flight Log book
d) In the airworthiness certificate

12. 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

13. What is the minimum flight visibility in airspace "C" at and above FL 100 for an aircraft operating under VFR?

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

14. UTC is...

a) A local time in Central Europe
b) A zonal time
c) Local mean time at a specific point on Earth
d) An obligatory time used in aviation

15. Urgency messages are defined as...

a) Messages concerning aircraft and their passengers which face a grave and imminent threat and require immediate assistance

b) Messages concerning urgent spare parts which are needed for a continuation of flight and which need to be ordered in advance

c) Messages concerning the safety of an aircraft, a watercraft or some other vehicle or person in sight

d) Information concerning the apron personnel and which imply an imminent danger to landing aircraft

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

a) Static pressure

b) Dynamic pressure

c) Differential pressure

d) Total pressure

17. Which transponder code should be set during a radio failure without any request?

a) 7000

b) 7500

c) 7700

d) 7600

18. 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

19. The average decrease of blood alcohol level for an adult in one hour is approximately...

a) 0.3 percent

b) 0.03 percent

c) 0.01 percent

d) 0.1 percent

20. The term 'agonic line' is defined as a line on Earth or an aeronautical chart, connecting all points with the...

a) Deviation of 0°
b) Inclination of 0°
c) Heading of 0°
d) Variation of 0°

21. 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

22. 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

23. London (EGLL) is located at 000° 10'W, Cardiff (EGFF) at 003° 44'W. The latitude of both positions can be considered as equal. What is the difference of sunrise and sunset times, expressed in UTC, between London and Cardiff?

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

24. 1000 ft equal...

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

25. 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"

26. The parapet height of a hot-air balloon basket is at least:

a) 100 cm, in commercial operation 110 cm

b) 80 cm, in commercial operation 100 cm

c) 120 cm, in commercial operation 130 cm

d) 110 cm, in commercial operation 110 cm

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

a) 1/160

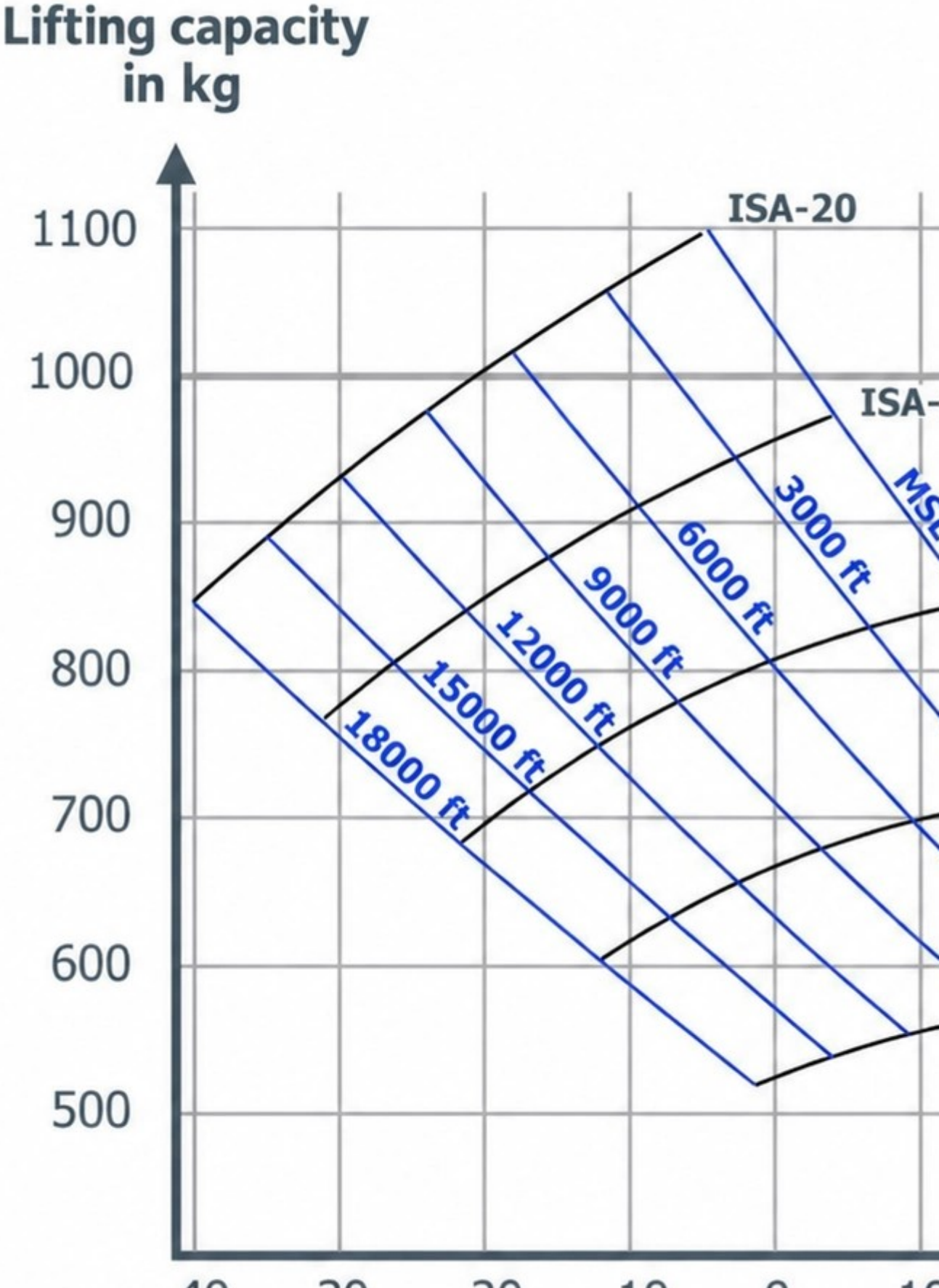
b) 1/260

c) 1/360

d) 1/60

28. 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 hot-air balloon with 4 gas containers has to climb up to pressure altitude 12000 ft ? (use attachment ECQB-PPL_BPL001)

Extract from the



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

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. Given: TC: 183°; WCA: +011°; MH: 198°; CH: 200° What are the TH and the DEV?

a) TH: 194°. DEV: +002°
b) TH: 172°. DEV: +002°
c) TH: 172°. DEV: -002°
d) TH: 194°. DEV: -002°

31. 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

32. Which conditions are likely for the formation of advection fog?

a) Cold, humid air moves over a warm ocean
b) Humidity evaporates from warm, humid ground into cold air
c) Warm, humid air cools during a cloudy night
d) Warm, humid air moves over a cold surface

33. At time of take-off, ground wind speed is 3 m/s. Along take-off flight path, at a distance of 270 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) 1.5 m/s
d) 0.5 m/s

34. Assume two arbitrary points A and B on the same parallel of latitude, but not on the equator. Point A is located on 010°E and point B on 020°E. The rhumb line distance between A and B is always...

a) More than 300 NM
b) Less than 300 NM
c) Less than 600 NM
d) More than 600 NM

35. 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

36. 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

37. 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

38. 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

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

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

40. Given: TC: 183°; WCA: +011°; MH: 198°; CH: 200° What are the VAR and the DEV?

a) VAR: 004° E. DEV: -002°
b) VAR: 004° W. DEV: +002°
c) VAR: 004° E. DEV: +002°
d) VAR: 004° W. DEV: -002°

41. What conditions are mandatory for the formation of thermal thunderstorms?

a) Absolutely stable atmosphere, high temperature and high humidity
b) Absolutely stable atmosphere, high temperature and low humidity
c) Conditionally unstable atmosphere, high temperature and high humidity
d) Conditionally unstable atmosphere, low temperature and low humidity

42. The dynamic lift created by airflow across the top of the envelope of a balloon on the ground is referred to as?

a) Lower lift
b) Upper lift
c) False lift
d) Anti-ballast

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

a) 1.0° C / 100 m
b) 0.6° C / 100 m
c) 0.65° C / 100 m
d) 2° / 1000 ft

44. 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

45. The aerostatic lift corresponds to which force?

a) The weight of the balloon less ballast

b) The dynamic force due to airstream across the top of the hull

c) The weight of the displaced air

d) The drag due to airstream around the balloon envelope

46. Which is the purpose of the altimeter subscale?

a) To reference the altimeter reading to a predetermined level such as mean sea level, aerodrome level or pressure level 1013.25 hPa

b) To correct the altimeter reading for system errors

c) To set the reference level for the altitude decoder of the transponder

d) To adjust the altimeter reading for non-standard temperature

47. 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?

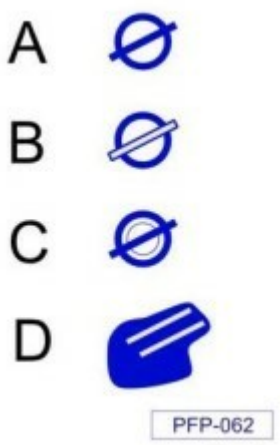
a) Orographic fog

b) Radiation fog

c) Steaming fog

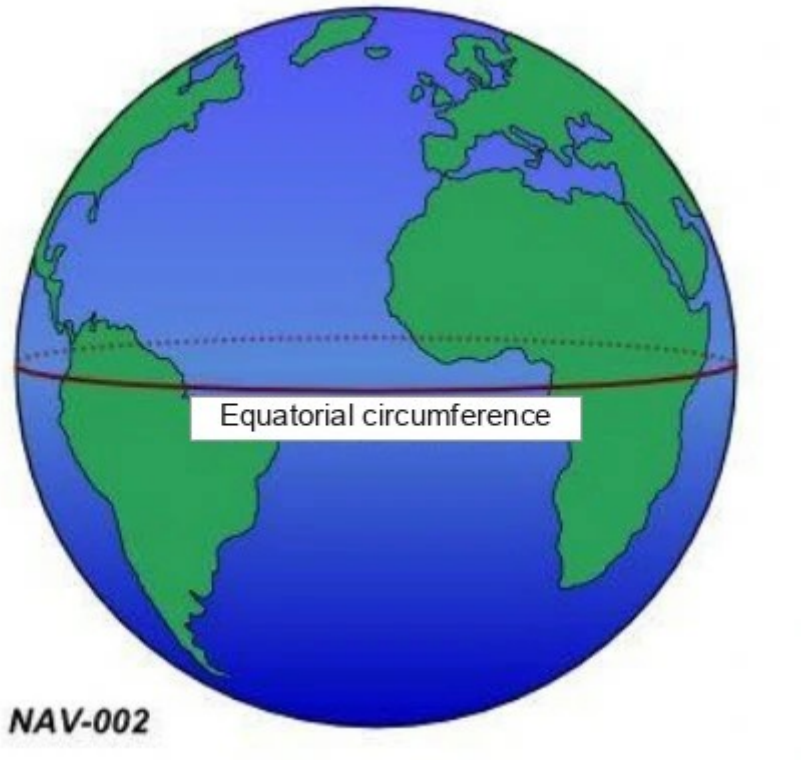
d) Advection fog

48. (For this question, please use annex PFP-062) According ICAO, what symbol indicates a civil airport (not international airport) with paved runway?



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

49. 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

50. What is the correct way of using the aircraft call sign at first contact?

a) Using the last two characters only
b) Using all characters
c) Using the first two characters only
d) Using the first three characters only

51. 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

52. Which process may result in an inversion layer at about 5000 ft (1500 m) height?

a) Intensive sunlight insolation during a warm summer day
b) Ground cooling by radiation during the night
c) Advection of cool air in the upper troposphere
d) Widespread descending air within a high pressure area

53. 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

54. Which of the stated surfaces will reduce the wind speed most due to ground friction?

a) Flat land, lots of vegetation cover
b) Oceanic areas
c) Mountainous areas, vegetation cover
d) Flat land, deserted land, no vegetation

55. Visual illusions are mostly caused by...

a) Misinterpretation of the brain
b) Binocular vision
c) Rapid eye movements
d) Colour blindness

56. Which of the following options states the working principle of a vertical speed indicator?

a) Total air pressure is measured and compared to static pressure
b) Static air pressure is measured and compared against a vacuum
c) Measuring the present static air pressure and comparing it to the static air pressure inside a reservoir
d) Measuring the vertical acceleration through the displacement of a gimbal-mounted mass

57. The force resulting from the (positive) difference from load-bearing capacity and weight force, is referred to as:

a) Upper force
b) Lift force
c) Load force
d) Climb force

58. 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

59. 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

60. The majority of aviation accidents are caused by...

a) Human failure
b) Technical failure
c) Geographical influences
d) Meteorological influences

61. Which abbreviation is used for the term "abeam"?

a) ABB
b) ABA
c) ABM
d) ABE

62. 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

63. 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

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

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

65. A balloon travels 3 NM in 10 minutes. At the same constant ground speed, how long will it take to cover a remaining distance of 18 NM?

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

66. The term "tropopause" is defined as...

a) The layer above the troposphere showing an increasing temperature
b) The height above which the temperature starts to decrease
c) The boundary area between the mesosphere and the stratosphere
d) The boundary area between the troposphere and the stratosphere

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

a) Subsidence
b) Convergence
c) Divergence
d) Confluence

68. 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

69. 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

70. 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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Response Scheme

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

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