Exam simulation

BPL Hot-Air Balloon Pilot Licence - Aircraft General Knowledge

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STUDENT NAME:	DATE AND TIME:

01. Which validity does the "Certificate of Airworthiness" have?

a) 12 years
b) 12 months
c) Unlimited
d) 6 months

02. 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

03. During a flight at FL 80, the altimeter setting has to be...

a) Local QFE
b) 1013.25 hPa
c) 1030.25 hPa
d) Local QNH

04. What is the approximate speed of electromagnetic wave propagation?

a) 300000 m/s
b) 123000 m/s
c) 300000 km/s
d) 123000 km/s

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

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

06. 5500 m equal...

a) 7500 ft

b) 18000 ft

c) 10000 ft

d) 30000 ft

07. 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

08. 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)

09. 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

10. What weather conditions can be expected during "Foehn" on the windward side of a mountain range?

a) Layered clouds, mountains obscured, poor visibility, moderate or heavy rain

b) Scattered cumulus clouds with showers and thunderstorms

c) Calm wind and forming of high stratus clouds (high fog)

d) Dissipating clouds with unusual warming, accompanied by strong, gusty winds

11. 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

12. 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

13. 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

14. With pressure and temperature given, any gas being heavier or lighter than air depends on what?

a) On the mean kinetic energy of the molecules
b) On the molecule mass of the gas
c) On the content of water vapour in the gas
d) On the number of gas molecules

15. What is the gas composition of "air"?

a) Oxygen 78 % Water vapour 21 % Nitrogen 1 %
b) Oxygen 21 % Water vapour 78 % Noble gases / carbon dioxide 1 %
c) Nitrogen 21 % Oxygen 78 % Noble gases / carbon dioxide 1 %
d) Oxygen 21 % Nitrogen 78 % Noble gases / carbon dioxide 1 %

16. What does a readability of 3 indicate?

a) The transmission is readable now and then

b) The transmission is unreadable

c) The transmission is readable but with difficulty

d) The transmission is perfectly readable

17. 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

18. What radio procedure is required for entering and operating in an RMZ, unless prescribed alternative provisions apply?

a) Listen only after entering; an initial call is optional

b) A transponder set to 7000 replaces the radio requirements

c) Make the required initial call before entry, maintain a continuous listening watch and establish two-way communication as necessary

d) Contact the local aviation authority after landing instead of making the initial call

19. 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

20. A cross-country flight is made using the ICAO 1 : 500.000 aeronautical chart. An overflight crosscheck shows that a distance of 4 cm in the chart has been passed within 12 minutes. After how many more minutes, the overflight of another waypoint at a chart distance of additional 6 cm can be expected?

a) 9 min

b) 6 min

c) 12 min

d) 18 min

21. 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

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

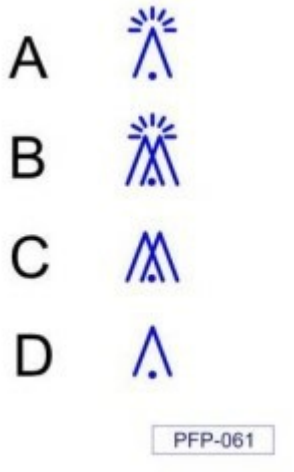
a) Electrostatic principle

b) Bunsen principle

c) Aerostatic principle

d) Aerodynamic principle

23. (For this question, please use annex PFP-061) According ICAO, what symbol indicates a group of unlighted obstacles?



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

24. 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

25. 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

26. 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

27. 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)

28. Under BOP.BAS.050(b), which of these balloon documents may be carried on the flight or stowed in the retrieve vehicle, as originals or copies, subject to any additional requirements of the States concerned?

a) The certificate of registration, certificate of airworthiness, AFM or equivalent, third-party liability insurance certificate and balloon logbook or equivalent
b) Only an EASA Form 1 and the crew members' passports
c) Only an aeroplane technical log, even when the aircraft is a balloon
d) Only a passenger list; no aircraft documentation is required

29. What is a latent error?

a) An error which has an immediate effect on the controls
b) An error which is made by the pilot actively and consciously
c) An error which remains undetected in the system for a long time
d) An error which only has consequences after landing

30. Given: TC: 179°; WCA: -12°; VAR: 004° E; DEV: +002° What are MH and MC?

a) MH: 167°. MC: 175°
b) MH: 167°. MC: 161°
c) MH: 163°. MC: 175°
d) MH: 163°. MC: 161°

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

a) ICAO chart 1:500000

b) NOTAM

c) AIC

d) AIP

32. 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

33. 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

34. What process results in the formation of "advection fog"?

a) Warm, moist air is moved across cold ground areas

b) Cold, moist air is being moved across warm ground areas

c) Prolonged radiation during nights clear of clouds

d) Cold, moist air mixes with warm, moist air

35. What pressure pattern can be observed during the passage of a polar front low?

a) Falling pressure in front of the warm front, constant pressure within the warm sector, falling pressure behind the cold front

b) Falling pressure in front of the warm front, constant pressure within the warm sector, rising pressure behind the cold front

c) Rising pressure in front of the warm front, constant pressure within the warm sector, rising pressure behind the cold front

d) Rising pressure in front of the warm front, rising pressure within the warm sector, falling pressure behind the cold front

36. 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

37. The vapour pressure of propane gas in a bottle depends in particular on:

a) The rigidity of the bottle
b) The size of the bottle
c) The temperature
d) The gas amount

38. What does a readability of 5 indicate?

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

39. The correct transponder code for emergencies is...

a) 7500
b) 7600
c) 7000
d) 7700

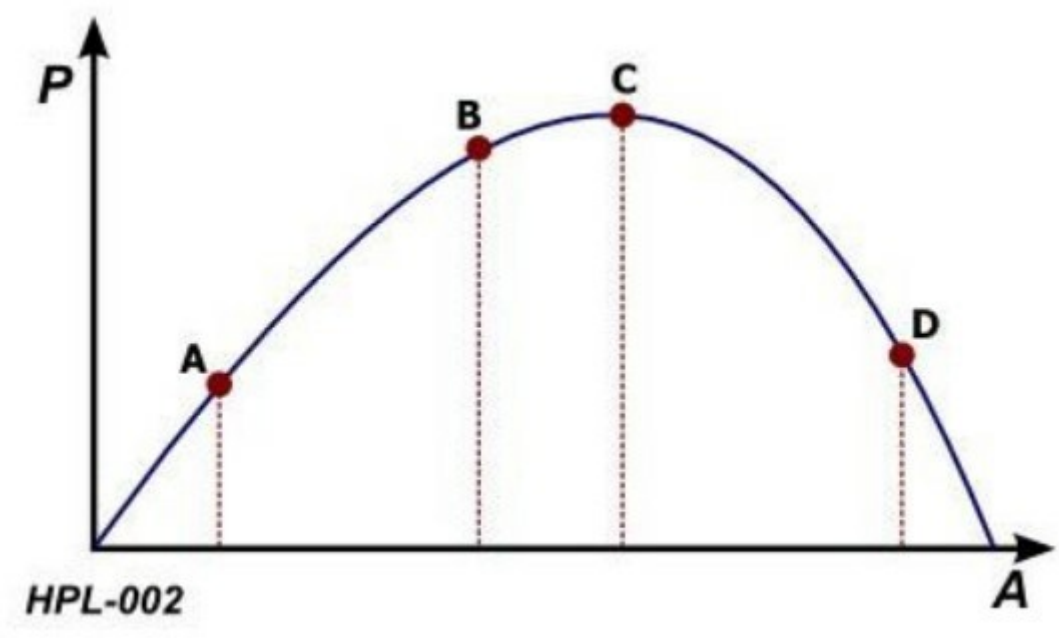
40. Which direction corresponds to 'compass north' (CN)?

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

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

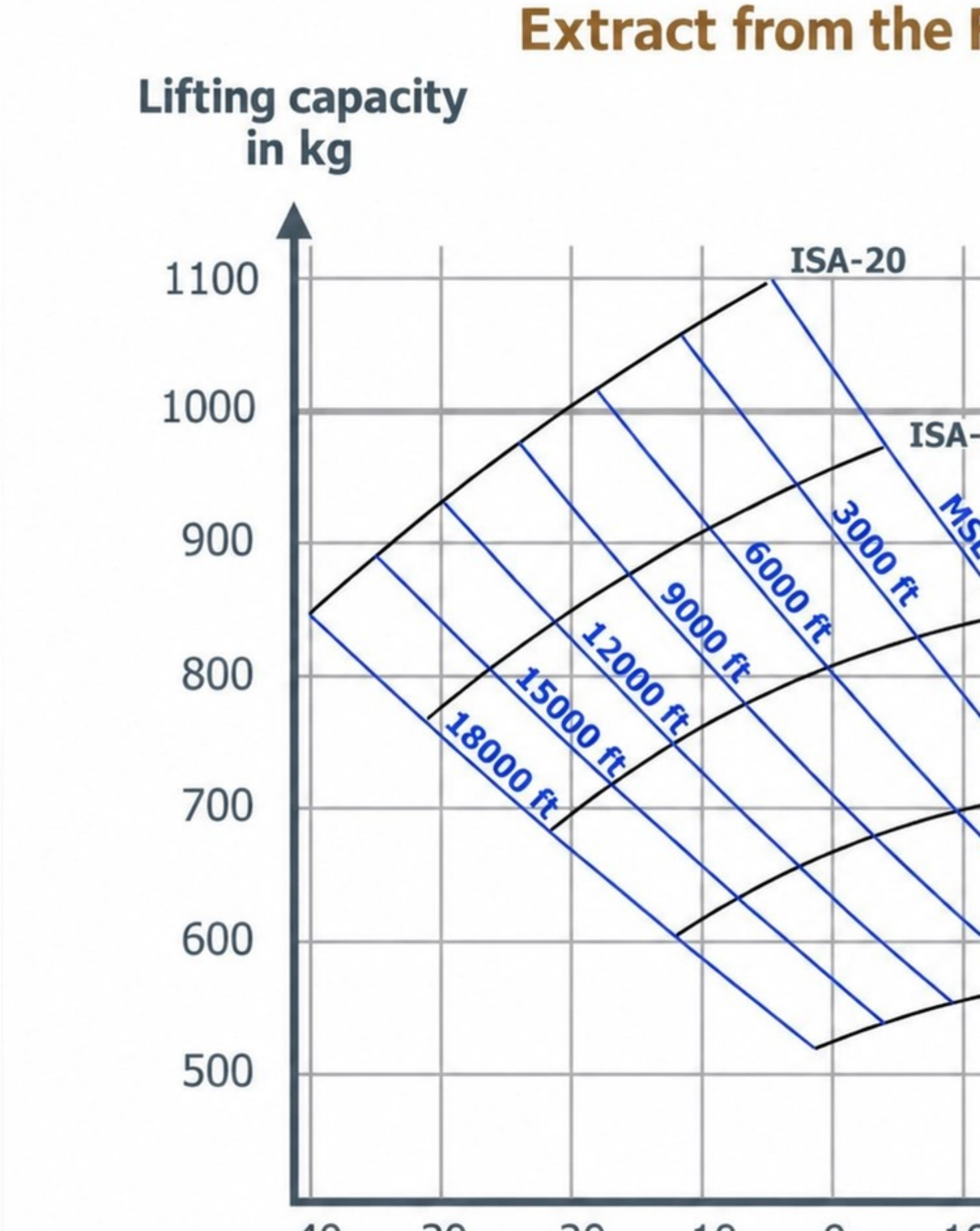
a) TH: 172°. VAR: 004° E
b) TH: 194°. VAR: 004° E
c) TH: 172°. VAR: 004° W
d) TH: 194°. VAR: 004° W

42. Which labelled point represents the highest performance and the ideal level of arousal in the diagram? See figure (HPL-002). P = Performance; A = Arousal / Stress.



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

43. 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

44. What has to be expected by the balloon pilot during descent in deeply cooled layers close to the ground?

a) Balloon starts to climb

b) Sudden change in airspeed

c) Increasing descent while entering to ground layers

d) Floating on top of the cold air layer

45. 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

46. Under Article 33 of the Chicago Convention, on what basis are pilot licences recognised by other Contracting States for international navigation?

a) Every ICAO-compliant licence automatically permits flying any aircraft registered in any country

b) They are issued or rendered valid by the State of aircraft registry, and the requirements meet or exceed the applicable ICAO minimum standards

c) Recognition is independent of the State of aircraft registry and the issuing standards

d) A licence issued by one Contracting State can never be recognised by another

47. If there is any doubt about ambiguity, a time of 1620 is to be transmitted as...

a) One six two zero

b) Sixteen twenty

c) One thousand six hundred two zero

d) Two zero

48. What is the correct designation of the frequency band from 118.000 to 136.975 MHz used for voice communication?

a) VHF

b) MF

c) LF

d) HF

49. How does air temperature change in ISA from MSL to approx. 10000 m height?

a) From +30° to -40°C

b) From -15° to 50°C

c) From +15° to -50°C

d) From +20° to -40°C

50. For a hot-air balloon at the same ambient pressure, envelope volume and internal air temperature, what happens to its lifting capacity when the outside air temperature decreases?

a) The lifting capacity decreases because the surrounding air becomes less dense

b) The lifting capacity increases because the surrounding air becomes denser

c) The lifting capacity remains unchanged because ambient temperature has no effect

d) The lifting capacity decreases because the heated air inside becomes heavier despite its unchanged temperature

51. 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

52. 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

53. 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

54. 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

55. 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

56. How should the cold-air inflation fan be positioned for efficient inflation of a hot-air balloon envelope?

a) With as small distance to the balloon opening as possible

b) By evenly swiveling for better air spreading

c) So that its airflow fills the balloon mouth effectively

d) By placing the blower inside the hull

57. 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

58. What factors are required for the formation of precipitation in clouds?

a) High humidity and high temperatures
b) The presence of an inversion layer
c) Calm winds and intensive sunlight insolation
d) Moderate to strong updrafts

59. Which factor can lead to human error?

a) Double check of relevant actions
b) To be doubtful if something looks unclear or ambiguous
c) The bias to see what we expect to see
d) Proper use of checklists

60. 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

61. 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

62. 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

63. 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

64. Where does the inclination reach its lowest value?

a) At the geographic equator
b) At the magnetic poles
c) At the magnetic equator
d) At the geographic poles

65. 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

66. 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

67. What is the usual direction of movement of a polar front low?

a) To the northeast during winter, to the southeast during summer
b) Parallel to the warm-sector isobars
c) To the northwest during winter, to the southwest during summer
d) Parallel to the warm front line to the south

68. In a METAR, "heavy rain" is designated by the identifier...

a) RA

b) +SHRA

c) +RA

d) SHRA

69. Under SERA.14083(c), what should a VFR pilot do after unsuccessful attempts to restore radio communication in a control zone?

a) Continue the flight under the last clearance and land only if danger becomes imminent

b) Select 7500 and maintain the current altitude until fuel runs out

c) Select 7600 if equipped, continue in VMC, land at the nearest suitable aerodrome and report arrival to ATS; watch for visual signals when part of controlled aerodrome traffic

d) Ignore the failure because VMC removes the need to follow the radio-failure procedure

70. The boiling point of propane gas at atmospheric conditions is:

a) + 5 °C

b) - 42 °C

c) - 23 °C

d) 0 °C

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Response Scheme

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

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