



DEPARTAMENTO SEGURIDAD OPERACIONAL  
SUBDEPARTAMENTO LICENCIAS

**Test on Chilean Regulations for Applicants for obtain or  
Validation a Balloons Licence**

**Matter** : Operational Procedures Ultramagic Ballons, all groups and types

**Number of Questions** : 20

- 1.- **What should the pilot do if a fire occurs in the basket during flight?**
- A.- Try to extinguish the fire and eject a cylinder from the basket.
  - B.- Land at once, briefing passengers for a heavy landing.
  - C.- Turn off the propane valve at the cylinder, use the fire extinguisher on the source of the flame
  - D.- Use the fire extinguisher, then isolate the fuel source.
- 2.- **When flying an Ultramagic balloon on flights where it is intended to climb higher than 300 meters (1000 ft)**
- A.- No particular requirements are specified by the Flight Manual
  - B.- An ambient temperature thermometer and a load chart provided by the manufacturer must be carried.
  - C.- The rate of ascent should be limited to 400 ft per minute
  - D.- The passenger briefing needs to be amended.

- 3.- To maintain straight and level flight the best way is to:**
- A.- Use the Altimeter
  - B.- Count down the time interval between burns
  - C.- Use the Variometer
  - D.- Use the parallax or horizons method
- 4.- Damage to the fabric in the lower third of the envelope of an UltraMagic Balloon must be limited to an area affecting no more than how many panels?**
- A.- 3 panels
  - B.- 5 panels
  - C.- 6 panels
  - D.- 8 panels
- 5.- Part of the minimum safety equipment required in an Ultramagic Balloon is:**
- A.- One fire extinguisher of 2kg (or two of 1kg) conform to EN3 which use dry powder or with an approved equivalent level of safety.
  - B.- One fire extinguisher of 1 kg which conforms to EN3 which use dry powder or with an approved equivalent level of safety.
  - C.- Two dry powder fire extinguishers with a minimum volume of 2 kgs each.
  - D.- One 1kg fire extinguisher filled with either dry powder or foam.
- 6.- In an Ultramagic Balloon what is the maximum height permitted for the use of the FDS:**
- A.- 15 metres.
  - B.- 10 metres
  - C.- 5 metres
  - D.- 3 metres

- 7.- With reference to the UltraMagic Balloons Flight Manual listed Meteorological Limitations -what is the maximum surface wind speed identified in the "Limitations Of Use" section?**
- A.- a surface wind speed not exceeding 10 knots
  - B.- a surface wind speed not exceeding 12 knots
  - C.- a surface wind speed not exceeding 10 knots for balloons with an envelope volume exceeding 300,000 cubic feet. and not exceeding 15 knots for smaller balloons.
  - D.- a surface wind speed not exceeding 7.5 m/s, 27 km/h or 15 knots.
- 8.- With reference to the UltraMagic Balloons Flight Manual , what is the minimum dynamic pressure accepted for use with the burner:**
- A.- 4 bar
  - B.- 3 bar
  - C.- 5 bar for balloons with an envelope size greater than 300,000 cubic ft by volume and 4 bar for smaller balloon envelope sizes
  - D.- 5 bar for balloons with an envelope size greater than 300,000 cubic ft by volume and 2 bar for smaller balloon envelope sizes
- 9.- At any one time,in flight use of the parachute vent system in an UltraMagic Balloon should be no longer than :**
- A.- 5 seconds
  - B.- 10 seconds
  - C.- 3 seconds
  - D.- 8 seconds

- 10.- In order to execute the task in the safest possible manner-the first action when changing fuel cylinders in flight when not using a fuel manifold should be:**
- A.- Shut off the empty cylinder at the cylinder valve
  - B.- Disconnect the fuel hose from the empty cylinder and reconnect to a full cylinder
  - C.- Check the function of an alternative burner or fuel supply
  - D.- Turn off the burner you are using.
- 11.- In an Ultramagic balloon envelope the internal temperature adjacent to the fabric must never exceed:**
- A.- 120 degrees Centigrade
  - B.- 130 degrees Centigrade
  - C.- 110 degrees Centigrade
  - D.- 125 degrees Centigrade
- 12.- When preparing an Ultramagic balloon for flight it is necessary to check the FDS lines are free of tangles and operating correctly:**
- A.- only if you have had a problem with the system on the most recent and previous flight.
  - B.- only if this is part of your normal preflight routine
  - C.- always, as long as in doing so you would not risk deflating the balloon before you launched.
  - D.- prior to every launch.
- 13.- What is the effect of a knot tied in a tether-line?**
- A.- It decreases the strength by 50%
  - B.- It invalidates the Certificate of Airworthiness.
  - C.- It Decreases the strength of the rope by 30%
  - D.- The strength of the line is not affected.

- 14.- Why is it considered good operational procedure to vent fuel lines after use?**
- A.- If the temperature rises a vapour lock might occur the next time when the burner is in use.
  - B.- The burner coils need to be cooled after landing.
  - C.- The fuel may expand and rupture the fuel lines.
  - D.- If the ambient temperature decreases the fuel may cause freeze-damage to the fuel lines.
- 15.- The Minimum Landing Mass regulations stated in the Ultramagic Balloons Flight Manual apply to a threshold in size of balloon envelope which starts at**
- A.- all balloons with an envelope volume greater than 60,000 cubic feet
  - B.- all balloons with an envelope volume greater than 90,000 cubic feet
  - C.- all balloons with an envelope volume greater than 105,000 cubic feet.
  - D.- There is no start in threshold.
- 16.- The surface wind speed limitations for tethered flying specified in Ultramagic Balloons Flight Manual Supplement 1 for balloons with an envelope volume up to 120,000 cubic feet are**
- A.- 15 knots
  - B.- 15 knots( 10 knots with passengers)
  - C.- 9 knots
  - D.- Calm

**17.- The Ultramagic Balloons Flight Manual Supplement 1 (relating to tethering procedures), specifies that**

A.- The balloon should be attached by two ropes forming a V on the upwind side and two more ropes on the downwind side

B.- The balloon should be attached by two ropes forming a V on the upwind side and one more rope on the downwind side.

C.- The balloon should be attached by two ropes forming a V on the upwind side- with no mention of a rope on the downwind side.

D.- The balloon should be attached by at least one rope on the upwind side and one rope on the downwind side-if at all possible.

**18.- The Ultramagic Balloons Flight Manual Supplement 15- Mk 21 Burner, Butane Fuel states that when the burner is configured for use with Butane fuel**

A.- Propane fuel can also be used

B.- Propane fuel must not be used

C.- Propane fuel can be used if it is mixed no more than 50% with Butane

D.- There is no mention in the text of using Propane fuel with this burner when it is configured for use with Butane fuel.

**19.- If during flight you notice icing around a burner valve- what is likely to be the cause?**

A.- Over pressurisation of the fuel cylinders.

B.- Under pressurisation of the fuel cylinders.

C.- A restricted fuel flow

D.- A very low ambient temperature at height

**20.- If no thermometer is being carried, the maximum rate of ascent stated in the Ultramagic Balloons Flight manual is**

- A.- 800 ft per minute
- B.- 600 ft per minute
- C.- 1000 ft per minute
- D.- 500 ft per minute

**Matter** : NAVIGATION

**Number of Questions** : 20

- 1.- An altimeter set to QNH will read-**

  - A.- Height above the highest terrain in the altimeter setting region
  - B.- Height above mean sea level
  - C.- Height above the nearest aerodrome
  - D.- Flight level.
  
- 2.- An accurate conversion of 55 km to nautical miles would be-**

  - A.- 15 nm
  - B.- 30 nm
  - C.- 22 nm
  - D.- 39 nm
  
- 3.- Two minutes of latitude is the equivalent of-**

  - A.- 1 kilometre
  - B.- 90 degrees of latitude
  - C.- Two nautical miles
  - D.- Three statute miles
  
- 4.- A line joining places of equal magnetic variation is called:**

  - A.- isogonal
  - B.- isobaric
  - C.- isometric
  - D.- isosonded

- 5.- Longitude is expressed as:**
- A.- degrees North or South of the Equator
  - B.- degrees East or West of the Greenwich Meridian
  - C.- nautical distances South of the Equator
  - D.- nautical distances North of the Equator
- 6.- You release a small Helium balloon and you measure the track with your compass at 270 degrees M. and estimate that the wind up to 1000 ft is about 6 knots. If the variation is 3 degrees West, what projected track will you draw on the map?**
- A.- 267 degrees
  - B.- 270 degrees
  - C.- 273 degrees
  - D.- 93 degrees
- 7.- The Equator is at:**
- A.- latitude zero
  - B.- 180 degrees latitude
  - C.- 90 degrees latitude
  - D.- 280 degrees latitude
- 8.- One Nautical mile is equal in distance to**
- A.- 1.85 kilometers
  - B.- 2.15 Kilometers
  - C.- 1 statute mile
  - D.- 1.5 statute miles

- 9.- **What is Altitude**
- A.- The vertical distance above the surface
  - B.- The vertical distance above mean sea level
  - C.- The height above the highest fixed point in the area
  - D.- The altimeter reading when above 3,500 ft
- 10.- **If the QNH is not adjusted and you use the altimeter as a reference to ensure level flight as you fly towards an area of lower pressure-**
- A.- you will gradually descend
  - B.- you will gradually ascend
  - C.- will continue to fly level.
  - D.- the situation will vary depending on whether you are flying in a slightly humid air mass.
- 11.- **An area around certain aerodromes from ground level to a specific altitude within which an Air Traffic Control service is provided to all flights is known as:**
- A.- a Control Zone
  - B.- a Stub
  - C.- an Aerodrome Traffic Region
  - D.- a Terminal Control Area
- 12.- **A portion of airspace in which Air Traffic Control is provided, and which extends upward from a specified base altitude or Flight Level to an upper limit expressed as a Flight Level is known as:**
- A.- a Control Area
  - B.- TMA
  - C.- ATC
  - D.- Control Region

**13.- After flying level at 7,000 ft amsl for 20 minutes you have travelled 6 miles , if conditions remain the same- how much further might you expect to fly at the same altitude in ten more minutes?**

A.- 3 miles

B.- 9 miles

C.- 2 miles

D.- 8 miles

**14.- The wind at 3000 ft above the surface is forecast to be 20 knots, if you fly at that height for half an hour and conditions are as they have been forecasted to be - how far will you expect to travel?**

A.- ten statute miles

B.- fourteen kilometres

C.- sixteen kilometres

D.- eleven and a half statute miles

**15.- Two-way radio communication must be established with the ATC facility having jurisdiction over the area prior to entering which class airspace over the area ?**

A.- Class E.

B.- Class C.

C.- Class G.

D.- Class 10

**16.- A balloon flight through a restricted area**

A.- might be permitted at certain times, but only with prior permission by the appropriate authorities and under certain clearly specified conditions.

B.- permitted at any time, but caution should be exercised due to the possibility of high-speed military aircraft being active within the area.

C.- cannot ever be permitted

D.- are permitted during national holidays if weather conditions are above the normal operating minima.

**17.- With a Mode C equipped transponder**

A.- the controller has information on the aircraft's altitude as well as position.

B.- the controller has only information on the aircraft's position but not altitude.

C.- The ground crew will automatically be able to identify the whereabouts of the aircraft.

D.- the controller can only identify the aircraft's position within 500 metres.

**18.- Class G airspace**

A.- is airspace within which Air Traffic Control (ATC) has neither the authority or responsibility to exercise control over air traffic.

B.- extends upward from the surface to approximately 1,000 ft AGL

C.- is classified as all airspace between 14,500 to 17,500 ft.

D.- is controlled airspace surrounding designated airports within which ATC provides radar vectoring and sequencing for all IFR and VFR aircraft.

**19.- You are using a small helium filled balloon (pibal), to assess the wind speeds and directions at varying heights prior to launching, if the pibal rises at an average rate of 300 foot per minute (fpm), approximately how high might it be after being released for two and a half minutes-**

- A.- 450 ft agl
- B.- 950 ft agl
- C.- 750 ft agl
- D.- 1250 ft agl

**20.- When flying in the vicinity of a towered airport facility and having failed to establish radio communication you see a flashing red light-**

- A.- you should land immediately within the perimeter fence of the airfield.
- B.- you should understand that the airport is unsafe and that you should not land there.
- C.- the airport is closed and you can land at your discretion.
- D.- the light is a navigational aid for aeroplanes and has no significance or meaning to a balloon flight.

**Matter** : Aerodinamyc

**Number of Questions** : 20

- 1.- **Unintentional descents when taking off from shelter can be caused by**
  - A.- light winds
  - B.- a humid atmosphere
  - C.- an effect caused by the airflow over the curved top of the balloon
  - D.- an underload
  
- 2.- **When a 77,000 cubic foot balloon whose displacement is 2.6 tons is accelerated, it will behave as if it had an inertia of**
  - A.- 5.2 tons
  - B.- 2.6 tons
  - C.- 1.3 tons
  - D.- 2.6 kgs.
  
- 3.- **Generally, the balloon will require a longer sequence of burns to arrest a descent when**
  - A.- the fuel pressure is high
  - B.- the ambient temperature is low
  - C.- the fuel pressure is near the permitted minimum
  - D.- there is a surface inversion

**4.- When descending onto a surface inversion with fuel pressure near the permitted maximum with the intention of making a final landing -**

A.- you should consider turning off your fuel supplies earlier than normal.

B.- be careful not to overburn

C.- burn more frequently

D.- not use the parachute valve

**5.- If, while in a normal descent in an early morning flight, you come to a gentle stop- and then start to fly level with very little use of the burner, what might be the cause?**

A.- the temperature of the airmass nearer the surface is cooler than the ambient temperature of the air above it.

B.- the temperature of the airmass nearer the surface is warmer than the ambient temperature of the air above it.

C.- There has been a significant drop in fuel pressure

D.- there has been a significant increase in air pressure

**6.- During flight three hours after sunrise your speed and direction become increasingly erratic, this might be caused by**

A.- False Lift

B.- a Sea Breeze

C.- unstable air caused by ongoing ground-heating

D.- a Katabatic Flow

- 7.- **When flying late in the morning you find the balloon starts ascending fast from level flight even though the burner has not been in use for some time- what might be the cause?**
- A.- High burner pressure
  - B.- You have been caught in a Thermal updraft
  - C.- You are flying on the leading edge of a Warm Front
  - D.- You are flying in the centre of a Col.
- 8.- **At 300 ft above the surface during a moderate descent on a cool early morning you feel a breeze on your face, what is likely to happen next?**
- A.- You will ascend without using the burner to about 1,300 ft.
  - B.- You are likely to find a change in wind speed and direction if you continue to descend.
  - C.- The visibility will improve dramatically.
  - D.- No significant change.
- 9.- **A lightly loaded envelope is more likely to be**
- A.- affected by turbulence
  - B.- affected by humidity
  - C.- affected by rain
  - D.- degraded and become porous
- 10.- **A surface wind flow of four knots over a small wooded area is likely to-**
- A.- produce a rotational flow
  - B.- create turbulence in the lee
  - C.- have little effect on the stability of the balloon in flight.
  - D.- produce aerodynamic lift above the center of the wooded area

- 11.- The risk of structural envelope damage is increased by-**
- A.- flying the balloon at the upper permitted loading limit
  - B.- High altitude wind shear
  - C.- landing in wind speeds of six knots
  - D.- landing in calm winds.
- 12.- The vertical axis of the balloon can be displaced in the extreme, perhaps by as much as 30 degrees during free flight-**
- A.- never
  - B.- in normal surface inversion conditions
  - C.- in the twenty-four hours before the approach of a warm-front
  - D.- in the wind shear associated with severe turbulence
- 13.- Significant structural damage caused to the envelope in flight:**
- A.- would include that which does not exceed small amounts of burn-damage to the scoop
  - B.- would include a small amount of fabric damage to one panel above the Nomex
  - C.- would include damage to two or more load-tapes
  - D.- would include all of the above.
- 14.- When considering landing in a field immediately after a series of two and three story, flat roofed industrial buildings in a surface wind speed of twelve knots you might expect**
- A.- calm conditions on touch-down
  - B.- to need to fully employ your deflation system while overflying the final roof-tops and before you cross the threshold of the perimeter of the field
  - C.- to experience some curl over in the intended landing area
  - D.- the surface wind speed to be halved in the landing area.

- 15.- When flying in air flows over smoothly rising ground this can lead to**
- A.- the streamlines widening and the balloon slowing down
  - B.- the streamlines becoming compressed and the balloon slowing down
  - C.- the surface directional flow to change
  - D.- the streamlines to be compressed and the speed of the surface flow to become faster.
- 16.- The presence of Lee waves can sometimes be identified by the formation of-**
- A.- Cumulus clouds
  - B.- Lenticular clouds
  - C.- a surface inversion
  - D.- Cirrus clouds
- 17.- The presence of a "Rotor" could be indicated by the formation of-**
- A.- Cumulus clouds
  - B.- Lenticular clouds
  - C.- a surface inversion
  - D.- Cirrus clouds

**18.- Balloon envelope distortion associated with turbulence is likely to occur when-**

- A.- tethering a balloon in calm conditions an hour or so after dawn.
- B.- flying at the base of a deep and well established surface inversion an hour or so after dawn
- C.- passing through the laminar flow immediately above the top of a strong surface inversion when the gradient wind speed is 25 knots
- D.- descending from 1,000 ft above ground level at 400 foot per minute on an evening flight when the 2, 000 ft wind is 10 knots and no surface inversion has formed.

**19.- Lee waves:**

- A.- can set up a ripple in the atmosphere which - in certain conditions can extend to great heights and many wavelengths downwind, the disturbance in the atmosphere caused by this phenomenon- which can cause severe turbulence is always signalled by the presence of an indicating and specific cloud formation.
- B.- can set up a ripple in the atmosphere which - in certain conditions can extend to great heights and many wavelengths downwind, the disturbance in the atmosphere caused by this phenomenon- which can cause severe turbulence is not always signalled by the presence of an indicating and specific cloud formation.
- C.- can set up a ripple in the atmosphere which - in certain conditions can extend to great heights and many wavelengths downwind, the disturbance in the atmosphere caused by this phenomenon- which does not cause severe turbulence is always signalled by the presence of an indicating and specific cloud formation.
- D.- cannot set up a ripple in the atmosphere which - in certain conditions can extend to great heights and many wavelengths downwind.

**20.- The phenomenon which will cause a suction force to any rounded surface held in a fluid flow is known to balloonists for creating -**

- A.- Thermals
- B.- poor landing conditions
- C.- False Lift
- D.- a gusty inflation

**Matter** : Human Factor

**Number of Questions** : 20

**1.- The average time required to eliminate one unit of alcohol from the blood is-**

A.- Three hours

B.- Five hours

C.- One hour

D.- Eight hours

**2.- Lack of Oxygen can lead to-**

A.- focused and informed judgement

B.- hyper alertness

C.- improved vision

D.- a feeling of euphoria and a lack of judgement

**3.- Hyperventilation can be remedied by-**

A.- breathing faster

B.- consciously slowing down the breathing rate

**4.- A smoker will normally show symptoms of Oxygen deprivation-**

A.- sooner than a nonsmoker

B.- later than a nonsmoker

- 5.- As a general rule, if you scuba dive using compressed air deeper than about 30 feet, you should not fly at all within how many hours?**
- A.- 10 hours
  - B.- 24 hours
  - C.- 36 hours
  - D.- 4 hours
- 6.- Is visual acuity diminished by fatigue or alcohol?**
- A.- Yes
  - B.- No
  - C.- Only in bright sunlight.
  - D.- Only at dawn or dusk.
- 7.- If you require spectacles for flying how many pairs should you have with you in the basket?**
- A.- Three
  - B.- One
  - C.- Two
  - D.- There is no general suggestion or rule.
- 8.- The Eustachian tubes are located in which part of the body?**
- A.- The heart.
  - B.- The thigh.
  - C.- The outer ear.
  - D.- The middle ear.

- 9.- **When describing stress, "chronic" means-**
- A.- Short term.
  - B.- Long term.
  - C.- A brief but intense period
  - D.- One short period quickly followed by another.
- 10.- **Please choose the most accurate description of this remark-"Stress is accumulative in the sense that a number of small stressors can result in a larger total stress level."**
- A.- Likely
  - B.- True
  - C.- False
- 11.- **Please select the most accurate ending to the following sentence- "Being well prepared for a flight....."**
- A.- increases stress during the flight."
  - B.- does not affect stress during the flight"
  - C.- reduces stress during the flight."
- 12.- **Which is correct?**
- A.- Alertness and performance capability vary with internal body temperature.
  - B.- Alertness and performance capability do not vary with internal body temperature.

- 13.- Who has final authority over the operation of an aircraft?**
- A.- The company owners.
  - B.- The company operators.
  - C.- The DGAC.
  - D.- The Pilot in Command.
- 14.- What is considered the greatest stress causing event?**
- A.- Examinations
  - B.- Death of a spouse
  - C.- Moving house
  - D.- Divorce
- 15.- At 11,500ft. A balloon passenger becomes giddy, cannot answer questions quickly -and their lips appear blue. What is likely to be their ailment?**
- A.- Hyperactivity
  - B.- Hypertension
  - C.- Hypoxia
  - D.- Hyperventilation
- 16.- How high would you have climbed if the atmospheric pressure had dropped by 1 mb. ?**
- A.- 100 ft.
  - B.- 30 ft.
  - C.- 250 ft.
  - D.- 600 ft.

- 17.- What gas is breathed out during respiration?**
- A.- Hydrogen
  - B.- Carbon Monoxide
  - C.- Carbon Dioxide
  - D.- Nitrous Oxide
- 18.- The two limiting factors for information processing by a pilot are:**
- A.- the limit to the number of items the working memory can hold and the rate at which information can be processed.
  - B.- whether the information is presented orally or visually.
  - C.- The age and I.Q. of the pilot.
  - D.- The hormonal balance and blood-sugar level of the pilot.
- 19.- The best method of maintaining situational awareness is to:**
- A.- rely on previous experiences
  - B.- gather and consider all possible data whilst updating your situation and planning ahead
  - C.- rely only on such instruments as GPS, variometer and altimeter.
  - D.- interpret any data to confirm the accuracy of the preflight predicted path.
- 20.- The controls that operate the different systems in the balloon- such as "Main" and "Whisper" burners and rotation and deflation -system lines should ideally be designed to:**
- A.- look the same but feel different
  - B.- both look and feel different
  - C.- be almost the same and easy to use
  - D.- look and feel identical

**Matter** : Flight Planing

**Number of Questions** : 20

**1.- When calculating the permissible loading during pre-flight planning what is the most important reason for the calculation?**

- A.- To determine how many passengers can be carried.
- B.- To ensure that the safe envelope operating temperature is not exceeded.
- C.- To determine what burner pressure will be appropriate
- D.- To verify the safe maximum altitude for the flight.

**2.- The standard load chart is based on a static lift with an internal temperature of-**

- A.- 130 degrees Centigrade
- B.- 100 degrees Centigrade
- C.- 110 degrees Centigrade
- D.- 120 degrees Centigrade

**3.- When planning a flight, guidance on the maximum basket occupancy should be decided by:**

- A.- consulting the balloon flight manual.
- B.- consulting the balloon and company insurance policy
- C.- reference to a load calculation
- D.- all of the above and consideration of other factors.

**4.- For normal operation, of Cameron and Ultramagic hot air balloons the actual weight at the time of landing of all balloons with an envelope volume of greater than 105,000 cubic feet must never be-**

A.- more than two thirds of the calculated maximum takeoff mass at launch

B.- more than three quarters of the maximum takeoff mass at launch

C.- less than that specified in the table supplied by the manufacturer.

D.- less than three quarters of the Maximum Takeoff Mass identified in the preflight load calculations.

**5.- An aircraft log book contains details of every flight the balloon makes, and records duration and dates. What other information must be recorded?**

A.- Take off and landing locations

B.- Details of passenger weights

C.- Times of takeoff and landing

D.- Details of any repairs.

**6.- What phenomenon are you likely to encounter when launching from behind an area of tall trees giving shelter to your launch site when the prevailing surface wind speed is expected to be 12 knots?**

A.- Difficulties with the deflation system remaining sealed during cold inflation

B.- Erratic and violent movement to the vehicle to which you have tied off the balloon prior to launching

C.- The balloon to rotate during inflation

D.- False Lift - caused by the flow of the wind over the top of the balloon envelope

**7.- What is the minimum number of straps of an approved design to be fitted to each fuel cylinder-**

A.- One

B.- None

C.- Two

D.- There is no required minimum, however the cylinder should be secured in such a way that it will not move during the landing.

**8.- What Is the minimum requirement for basket hand-holds for each passenger in both Cameron and Ultramagic Balloons supplied baskets-**

A.- There is no established minimum

B.- Both Manuals differ

C.- Two hand-holds per passenger

D.- One hand-hold per passenger

**9.- On cool early mornings what further consideration should be made whilst making the load calculation-**

A.- The possibility that the surface air mass at the launch site might have a lower ambient temperature than that prevailing at higher levels above the launch site.

B.- The possibility that the fuel pressure may be higher than normal and make control of altitude difficult.

C.- The possibility that fuel hoses are more likely to display signs of freezing.

D.- The possibility that passengers might need to be reminded to wear warm-clothing.

**10.- International Standard Atmosphere is based on -**

A.- The temperature of the atmosphere falling at a rate of 1 degree Centigrade per 1,000 ft until the tropopause is reached at about 36,000 ft above mean sea level.

B.- The temperature of the atmosphere falling at a rate of 2 degrees Centigrade per 1,000 ft until the tropopause is reached at about 36,000 ft above mean sea level.

C.- The temperature of the atmosphere falling at a rate of 3 degrees Centigrade per 1,000 ft until the tropopause is reached at about 36,000 ft above mean sea level.

D.- The temperature of the atmosphere falling at a rate of 1.5 degrees Centigrade per 1,000 ft until the tropopause is reached at about 26,000 ft above mean sea level.

**11.- An additional factor to consider when planning a morning launch within five miles of the sea coast might be-**

A.- The high risk of a sea-breeze forming immediately after dawn

B.- Pockets of unstable rising air.

C.- The risk of sea fog drifting in land after dawn.

D.- A Foehn wind.

**12.- You should plan to carry an Oxygen supply for yourself and your passengers if you are intending to fly -**

A.- at an altitude above 7,500 ft

B.- more than 10,000 ft above mean sea level

C.- a height above 6,000 ft agl

D.- for short periods at or slightly above 9,000 above mean sea level

**13.- If you are planning to fly a long distance over a large expanse of cold water you should**

A.- consider carrying life jackets and "immersion-suits", as your life expectancy when immersed in water of minus 5 degrees Centigrade and wearing only normal clothing is likely to be less than one hour.

B.- consider carrying floatation aids and warm, extreme-climate protection clothing.

C.- consider carrying life jackets and "immersion-suits", as your life expectancy when immersed in water of minus 5 degrees Centigrade and wearing only normal clothing is likely to be about two and a half hours.

D.- consider carrying life jackets and "immersion-suits", as your life expectancy when immersed in water of minus 5 degrees Centigrade and wearing only normal clothing is likely to be about one hour and three-quarters.

**14.- Balloon Launch wind-speeds**

A.- are largely determined by the pilot's experience and comfort-level.

B.- are largely determined by nationally recommended guidelines and the pilot's experience

C.- are determined by nationally established limitations.

D.- are determined by, national regulation, pilot experience and personal limitations -and those limitations recorded in the manufacturer's flight manual .

**15.- Best operational practice would suggest that-**

A.- all flight -fuel cylinders are tested as full prior to departure and the rigging of the balloon.

B.- the flight cylinders are at least not registering movement on the contents gauge.

C.- each flight-fuel cylinder should contain a minimum of 30 per cent Propane.

D.- Each fuel cylinder connected to each burner should contain at least 50 percent of the maximum permitted contents.

**16.- If your fuel pressure is at the minimum permitted by the manufacturer's Flight Manual when you make a preflight burner check prior to launch -**

A.- you should not be too concerned as the pressure will increase as the flight progresses

B.- this is not a concern as -provided the pressure is within the legal minimum at launch the burner will always be adequately powerful throughout the duration of the flight.

C.- reduce your passenger payload

D.- proceed with caution and consider the weather conditions, the terrain, the loading, the intended duration and the purpose of the flight.

**17.- For public transport flights it is-**

A.- a requirement to carry a minimum of fuel commensurate with that of the intended flight-time.

B.- a requirement to carry a minimum of fuel commensurate with that of the intended flight-time-plus fifteen minutes.

C.- considered good operational practice to carry a reserve of at least one half of an hour's flying time equivalent in fuel in addition to any carried for the intended duration of the flight.

D.- a legal requirement to carry a fuel load which is the equivalent to that of double which is estimated as needed for the intended duration of the flight.

**18.- When intending to make a flight near an airport where heavy aircraft are operating, one should be particularly alert to the hazards of wingtip vortices because this turbulence tends to-**

A.- rise into the traffic pattern area surrounding the airport.

B.- sink into the flightpath of aircraft operating below the aircraft generating the turbulence.

C.- rise from a runway

D.- rise ahead of the aircraft.

**19.- When planning an evening commercial passenger balloon flight**

A.- you should always plan to make a landing at least one hour before sunset.

B.- you should always plan to make a landing before dark if you are not carrying the required lights.

C.- you should plan to land at dusk

D.- it is considered good operational practice that you should always plan to complete the flight before sunset.

**20.- When planning a morning commercial passenger balloon flight-**

A.- you do not need to brief the passengers until a convenient time about half-way through the intended duration of the flight.

B.- you do not need to brief the passengers at any specific time, however they should be adequately instructed prior to landing.

C.- It is best if you brief the passengers as soon as it is convenient to do so after launch.

D.- you should always allow sufficient time to ensure you can fully and adequately brief the passengers before launch.

**Matter** : Meteorology

**Number of Questions** : 20

- 1.- **Which cloud type is associated with thunderstorm activity?**
  - A.- Altocumulus
  - B.- Stratocumulus
  - C.- Cumulonimbus
  - D.- Cirrus
  
- 2.- **A line on a map joining places of equal sea level pressures is called:**
  - A.- an Isogonal
  - B.- an isobar
  - C.- an Isotach
  - D.- the pressure gradient
  
- 3.- **The conditions needed for the formation of a thunderstorm are a lifting action and:**
  - A.- conditionally stable air with a low dew-point
  - B.- moist stable air above the friction layer
  - C.- moist unstable air throughout a deep layer
  - D.- moist stable air close to the surface

- 4.- High level Cirrus cloud indicates the approach of :**
- A.- a Cold Front
  - B.- a Warm Front
  - C.- an Imminent Thunderstorm
  - D.- rain in 15 minutes.
- 5.- Under which of the following conditions are sea breezes likely to form?**
- A.- Clear skies, a strong pressure gradient, a small difference between land and sea temperatures.
  - B.- Clear skies, a weak pressure gradient, a large difference between land and sea temperatures.
  - C.- Clear skies, weak pressure gradient, a small difference between land and sea temperatures.
  - D.- Clear skies, strong pressure gradient, a large difference between land and sea temperatures.
- 6.- It is a cool and cloudless night with a light wind of between 5 and 7 knots. The very moist air in contact with the surface has cooled to its dewpoint of +6 degrees Centigrade. Which of the following is most likely to form?**
- A.- An inversion and fog
  - B.- An inversion with dew
  - C.- An inversion with frost
  - D.- A thunderstorm

- 7.- **As the temperature of a parcel of air increases, the relative humidity:**
- A.- decreased
  - B.- increases
  - C.- is directly proportional to the temperature increase
  - D.- remains constant
- 8.- **"Fog" is defined as "a reduction in surface visibility due to water droplets held in suspension in the air close to the surface" if the visibility is reduced to what distance:**
- A.- 1,000 metres
  - B.- 1,000 yards
  - C.- 500 metres
  - D.- 100 metres.
- 9.- **You are low flying in a valley, in a mountainous area, it is close to sunset, the balloon stops and reverses direction- a likely cause is**
- A.- a Foehn Wind
  - B.- the normal Diurnal Flow
  - C.- the start of an Anabatic Flow
  - D.- the start of a Katabatic Flow
- 10.- **Thermals are most likely to form where there is**
- A.- an unstable atmosphere over the land
  - B.- an unstable atmosphere over the sea
  - C.- a stable atmosphere over the land
  - D.- a stable atmosphere over the flat-land plains at dawn

- 11.- Which of the following conditions are required for the formation of radiation fog?**
- A.- Cloudless night, dry air, light winds.
  - B.- Light winds, moist air cloudless night
  - C.- Moist air, low pressure, light winds
  - D.- Low pressure, dry air, light winds
- 12.- During a flight, the wind-speed increases and the balloon's flight -path will be over a steep-sided ridge, where in the continued flight-path would you expect a very high probability of experiencing turbulence?**
- A.- Downwind in the lee of the ridge
  - B.- Upwind of the ridge
  - C.- Above the ridge
  - D.- Immediately below the ridge
- 13.- With increasing altitude , the density of the air:**
- A.- decreased
  - B.- increases
  - C.- remains the same
  - D.- remains the same if the temperature decreases
- 14.- Which cloud type is most likely to indicate the presence of thermal activity?**
- A.- low-level layer cloud
  - B.- High-level Cirrus cloud
  - C.- Stratus
  - D.- Cumulus

- 15.- You have just taken off and are climbing steadily. You notice a rapid rise in envelope temperature is necessary to maintain the rate of climb, what is the likely cause?**
- A.- High wind shear
  - B.- An inversion
  - C.- Turbulence
  - D.- Thermals
- 16.- A TAF is:**
- A.- A weather report from an altimeter setting region
  - B.- A weather forecast from an altimeter setting region
  - C.- A weather report from an aerodrome
  - D.- A weather forecast for an aerodrome
- 17.- Pressure at sea level in ISA is:**
- A.- 1003.10 mb (hpa)
  - B.- 1013.2 mb (hpa)
  - C.- 1011.3 mb (hpa)
  - D.- 1031.2 mb (hpa)
- 18.- The wind that flows around curved isobars is called the:**
- A.- Isobaric wind
  - B.- Geostrophic wind
  - C.- Gradient wind
  - D.- Corolius wind

**19.- " How many metres above ground level is Surface Wind" is normally measured at?**

A.- 10 metres

B.- 3 metres

C.- 20 metres

D.- 1 metre

**20.- A good indication that mountain waves are present is the formation of:**

A.- Cumulus clouds

B.- Fog

C.- Lenticular clouds

D.- Stratus clouds

**Matter** :Operational Procedures Cameron Ballons, all groups and types

**Number of Question** : 20

- 1.- What should the pilot do immediately if a fire occurs in the basket during flight?**

  - A.- Try to extinguish the fire and eject a cylinder from the basket.
  - B.- Land at once, briefing passengers for a heavy landing.
  - C.- Isolate fuel source,vent the hoses through the burner, extinguish fire, relight the burner if it is safe to do so and land as immediately as is safe to do so.
  - D.- Use the fire extinguisher, then isolate the fuel source.
  
- 2.- An aircraft log book contains details of every flight the balloon makes, and records duration and dates. What other information must be recorded?**

  - A.- Take off and landing locations
  - B.- Details of passenger weights
  - C.- Times of take off and landing
  - D.- Details of any repairs.
  
- 3.- What extra precaution would you take when landing a balloon with a velco rip panel than you would with a parachute system?**

  - A.- Rip out before crossing the threshold of your intended landing field.
  - B.- Rip out closer to the ground
  - C.- Approach the landing field at a steeper angle.
  - D.- Test the rip-line by slightly opening the deflation panel prior to starting the approach.

- 4.- To maintain straight and level flight the best way is to:**
- A.- Use the Altimeter
  - B.- Count down the time interval between burns
  - C.- Use the Variometer
  - D.- Use the paralax or horizons method.
- 5.- With reference to Cameron Balloons Flight Manual issue 10, a balloon with an envelope size of less than 500,00 cubic feet must not be flown free, if the surface wind at the time and place of take-off is greater than:**
- A.- 15 knots
  - B.- 10 knots
  - C.- 12 knots
  - D.- 8 knots
- 6.- With a Cameron Balloons Burner the fuel pressure must never exceed the safe working pressure of :**
- A.- 15 bar ( 218psi)
  - B.- 12 bar
  - C.- 20 bar
  - D.- 18 bar
- 7.- On a Cameron balloon, Damage to the fabric below the first horizontal load tape above the Nomex is limited to:**
- A.- 4 panels
  - B.- holes or tears smaller than 1.5m (60") in any direction
  - C.- 6 panels and holes and tears less than 1 metre in any direction.
  - D.- 3 panels and holes and tears less than .5 metres in any direction.

**8.- Cameron Balloons Flight Manual issue 10 specifies in the Safety Equipment (Minimum Equipment) the requirement for a fire extinguisher to be:**

A.- A Halon 1211 or powder fire extinguisher of minimum size 1kg and conforming to EN3

B.- wo Halon 1211 or powder fire extinguishers of minimum size 1kg and conforming to EN3

C.- A powder fire extinguisher of of at least 2kgs in size.

D.- A powder fire extinguisher of at least 1 kg in size for balloons with an envelope size of 120,000 cubic feet and smaller and a powder fire extinguisher of a minimumof 2kgs in size or two of 1kg in size for balloons with an envelope larger than 120,000 cubic feet.

**9.- In a Cameron Balloon the envelope temperature must not exceed:**

A.- 125 degrees Centigrade

B.- 120 degrees Centigrade

C.- 130 degrees Centigrade

D.- 115 degrees Centigrade

**10.- The maximum rate of climb for Cameron balloons with an envelope volume of between 340,000 and 750,000 cubic feet is:**

A.- 800 ft/min (4m/sec)

B.- 700 ft per minute

C.- 1,000 ft per minute

D.- 600 ft per minute.

- 11.- For an emergency landing in a Cameron balloon Flight Manual issue 10 mentions the Rapid Deflation System or Velcro rip panel can be partially opened at heights less than or equal to:**
- A.- 17 metres
  - B.- 19 metres
  - C.- 15 metres
  - D.- 25 metres
- 12.- It is essential to check the functionality of the Rapid Deflation System:**
- A.- before every launch
  - B.- before every launch, unless it is too windy to do so without risking a premature deflation of the balloon.
  - C.- if this is part of your normal preflight check routine
  - D.- only if you have previously encountered a problem with it.
- 13.- The first action when changing fuel cylinders in flight when not using a fuel manifold should be:**
- A.- Shut off the empty cylinder at the cylinder valve
  - B.- Disconnect the fuel hose from the empty cylinder and reconnect to a full cylinder
  - C.- Check the function of an alternative burner or fuel supply
  - D.- Turn off the burner you are using.
- 14.- When using a fuel manifold system on a Cameron burner:**
- A.- Only one cylinder at a time should be open to each burner.
  - B.- Only two cylinders at a time should be open to each burner.
  - C.- A maximum of three cylinders at a time should be open to each burner.
  - D.- there is no limit to the number of cylinders which can be used to supply any one burner simultaneously.

- 15.- At what height above the ground should recovery from a cold descent in a Cameron balloon be initiated:**
- A.- 1000 ft
  - B.- 1200 ft.
  - C.- at least 2000ft
  - D.- 500 ft.
- 16.- If fuel cylinders for a Cameron balloon are pressurised with Nitogen the maximum fuel pressure should not exceed:**
- A.- 10 bar (145psi)
  - B.- 12 bar
  - C.- 15 bar
  - D.- 20 bar
- 17.- If fuel cylinders supplied by Cameron balloons are to be stored in a pressuised state the maximum cylinder pressure must not exceed :**
- A.- 10 bar (145psi)
  - B.- 7 bar (100psi)
  - C.- 6 bar
  - D.- 14 bar
- 18.- What is the effect of a not tied in a tether-line?**
- A.- It decreases the strength by 50%
  - B.- It invalidates the Certificate of Airworthiness.
  - C.- It Decreases the strenght of the rope by 30%
  - D.- The strength of the line is not affected.

**19.- Why is it good considered good operational procedure to vent fuel lines after use?**

A.- If the temperature rises a vapour lock might occur the next time when the burner is in use.

B.- The burner coils need to be cooled after landing.

C.- The fuel may expand and rupture the fuel lines.

D.- If the ambient temperature decreases the fuel may cause freeze-damage to the fuel lines.

**20.- What is the minimum strength required for ropes used for tethering a Cameron hot air balloon?**

A.- 4,000kg (8800lbs)

B.- 2,000kg (4400lbs)

C.- 8,000kg (17,600lbs)

D.- 1,000 (2,200lbs)