

Pilot Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date Exam written: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Instructor name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Instructor Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date Marked: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**MARKS:**

**…… + ……. + …… + …… + …… + …… + …… + …… + …… =……….. =...…...%**

**32 28 26 21 24 19 37 30 23** **240**

**Pass mark =85%= 204**

TANDEM RATING THEORY TEST

To answer this paper the applicant should have undergone a theory training class as many of the answers required come from training with a certified TFI B grade instructor.

Please answer digitally and include the question with points allocated in you answer.

NOTE: This is an open book research examination. Please answer concisely. The test answers must be your own effort and should not be copied from others!

**SECTION A:** GENERAL

1. Why is tandem flying different from solo flying? (6)

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1. Why is a tandem glider not twice the size of a solo glider? (2)

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1. Why is the weight range of a tandem glider much wider than that of a solo glider? (2)

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1. How does the wing loading influence the performance and handling of a tandem glider compared to a solo? (2)

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1. How does the brake range of a tandem glider differ from a solo glider and what is the

primary reason for this? (2)

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1. If a LTF /DHV certified wing is rated 160 – 220kg, does that include the weight of the

canopy? (1)

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1. Calculate the wing loading of your glider when you take a PAX weighing in at 50kg, 93kg

and 125kg (in shoes and clothes). Use the specs of your wing and equipment with your weight. Show data used to reach answers. Show your tandem wings weight range along

side as well as the wing loading results. (6)

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1. List the symptoms of flying a tandem wing under weight or solo? (5)

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1. List the symptoms of flying over the maximum weight rating of your tandem glider? (4)

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1. List the largest dangers of flying over the maximum weight rating of your tandem glider? (2)

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Section Total = [32]

**SECTION B:** LEGAL

1. List the SAHPA MOP documented requirements one must meet to obtain a tandem

license in South Africa. (8)

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1. It is legal to take a passenger on a tandem flight for financial reward in South Africa? (1)

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1. If you receive dinner, drinks, a lift to the site or sexual reward as payment for a tandem flight from your PAX or friend of your PAX or company that uses your services, is it still considered a commercial flight and is it ethical? (2)

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1. What paperwork is required (legally) to be completed for an instructional tandem flight where the pilot receives financial remuneration and where can they obtain this. (2)

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1. List four important points to tell a prospective PAX before he/she signs any paperwork. (4)

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1. What is the minimum legal age for a PAX? (1)

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| --- | --- |
| a) 8 |  |
| b) 2 |  |
| c) 12 |  |
| d) No Limit |  |

7. Under what age is it required to have a waiver form signed by a legal guardian/parent. (1)

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| --- | --- |
| a) 18 |  |
| b) 16 |  |
| c) 12 |  |
| d) 21 |  |

18. Is a reserve compulsory on all tandem flights? (1)

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| --- | --- |
| a) Yes |  |
| b) No |  |
| c) Not if you stay below 30m AGL |  |
| d) Not if you flying a under the minimum weight of the tandem |  |

1. Is it legal to take a deaf, blind, paralyzed or otherwise disabled person as a PAX? (1)

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| --- | --- |
| a) Yes |  |
| b) No |  |

1. Is it legal to drop a Skydiver from Tandem? (1)

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| a) Yes |  |
| b) No |  |
| c) Only at Air shows |  |
| d) Only with prior permission obtained from CAA |  |

1. Does your PAX harness have to have back protection? (1)

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| --- | --- |
| a) Yes |  |
| b) No |  |

1. Does your PAX helmet have to be a full-face helmet? (1)

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| --- | --- |
| a) Yes |  |
| b) No |  |

1. What Certification does your tandem glider, harness, reserve and spreader bars need to adhere to legally fly in South Africa? (Consult the MOP) And how often should your wing

be tested at an authorized test facility to carry pax in South Africa and what tests should

be carried out? (4)

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Section Total = [28]

**SECTION C:** PRE-FLIGHT

1. List in order the 10-point pre-flight check for instructional tandem or normal tandem

flying. (10)

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1. List the minimum of 10 important points to tell your PAX in the pre-flight briefing. (10)

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1. Describe a suitable technique to practically explain to your PAX how he or she will need to run during a low wind launch. (2)

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1. List four methods during the PAX briefing and before launch that a pilot can use to keep your passenger calm and focused? (4)

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Section Total = [26]

**SECTION D:** LAUNCH

1. Describe how you would perform an **un-assisted nil** wind mountain launch with a

tandem. (4)

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1. Describe how to do an un-assisted strong wind launch with a tandem. (4)

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1. List and describe the duties of an assistant and what they should do in a strong wind launch to assist the pilot. (4)

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1. Describe any of the preferred techniques to avoid mixing of feet during the launch run. (3)

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1. Describe a good way to keep a hesitant PAX running in a light wind launch. (2)

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1. When launching a tandem from a high inland site which is above 2000m ASL.

a) What differences would you encounter as opposed to launching near sea level? (2)

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b) Why is this especially dangerous on tandem when compared to solo? (2)

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Section Total = [21]

**SECTION E:** FLYING

1. List three most common noticeable symptoms of a PAX beginning to feel airsick? (3)

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1. List the actions you would take to if your PAX feels airsick? (2)

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1. List what you would do (and the practical process you would apply) in the event of your PAX throwing up? (2)

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1. Should you give medicine or drugs to a PAX to help against airsickness and explain your motives? (2)

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* + - * 1. List what else a pilot can you do during flight to help avoid airsickness in your PAX sick? (2)

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1. List the actions you would take if your PAX passes out? (3)

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1. What do you do if: your PAX panics and tries to exit the aircraft / climb the risers / throw the reserve / open the harness buckles? (2)

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1. Is it OK to hit a PAX when he/she insists in climbing your A-risers after being asked / told not to, in regards to aviation law? (2)

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1. If you give the controls to the PAX, and they do not release them when needed, or pulls them (way down there), list what you would do and the sequence you would do it. (2)

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1. If your PAX is steering the glider as you thermal into an SA TMA or CTF or a SIDs and STARS path are you still breaking the law, or is the PAX now the pilot breaking

airspace? (2)

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1. If you give the controls to the PAX, is it acceptable to squeeze any part of their body to indicate which brake they should pull? Explain (2)

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Section Total = [24]

**SECTION F:** LANDING

1. Describe the recommended technique and sequence for dropping a tandem wing in

strong wind **when experienced assistants are available**? (4)

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1. Explain one of the recommended techniques for dropping a tandem wing in strong wind without assistance, and when you do **not** have quick outs fitted to the spreaders? (4)

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1. Explain how a tandem glider differs from a solo glider on landing approach, set up and landing? (6)

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1. Taking the hanging position of a pax into consideration a Tandem should be flared: (1)

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| --- | --- |
| a) Earlier than a solo wing |  |
| b) Later than on a solo wing |  |
| c) Usually same as solo wing |  |
| d) None of the above |  |

1. Describe a suitable approach and technique to make a softer landing on a tandem in a

**no wind situation** and **an average wind situation.** (4)

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Section Total = [19]

**SECTION G:** TECHNICAL

1. Describe the in-flight differences between hard and soft spreader bars and their

respective benefits. . (5)

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1. When using multi-attachment hard spreaders, explain how you decide where and how to hook in your PAX, yourself and the risers to make the system neutral? (4)

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1. Explain why it is dangerous to use hard spreader bars when taking a child or very light

PAX for a tandem flight and what other safety considerations must be put in place. (4)

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1. Can a solo reserve be used for tandem flying? (1)

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1. State if it is safe and legal to connect your tandem reserve only to the shoulder hook-ups

of the pilot harness? (1)

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1. List four possible the dangers of connecting the tandem reserve only to the pilot harness shoulder hook-ups? (4)

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1. If you are using quick-outs on your system, where should they be installed? (1)

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| --- | --- |
| a) Between your harness and the spreader bars |  |
| b) Between your PAX harness and the spreader bars |  |
| c) Between the spreaders and the risers |  |
| d) All of the above |  |

1. Which way around should the quick outs be installed? (1)

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| --- | --- |
| a) Riser inserts to the rear |  |
| b) Riser inserts to the front |  |

1. Are aerobatic manoeuvres are allowed on a Tandem flight and if so how or where do

you ascertain what is allowed? (2)

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1. What is the minimum alt that you should stop allowable aerobatic flying on a tandem? (1)

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| --- | --- |
| a) 500m Agl |  |
| b) 150m Agl |  |
| c) When your wingtip touches the ground |  |
| d) None of the above |  |

1. What is the minimum recommended footwear for your PAX? (2)

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1. If the Pax arrives with sandals or slops can you legally and is it with in the ethical professional of a Tandem pilot’s image to use duct tape to attach this footwear to their feet so they will not be lost during the flight? (1)

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| --- | --- |
| a) Yes |  |
| b) No |  |
| c) Provided they sign the waiver |  |
| d) Only in places with smooth take-off and landing areas |  |

1. Can you take a PAX that is dressed in a skirt should they wish to fly and are unconcerned of the repercussions of wind etc? (1)

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1. What do you do if your PAX admits to having a mild heart condition but wishing to fly anyway and signs a waiver? (1)

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| a) Fly them anyway |  |
| b) Refuse to take them |  |
| c) Tell them it is their choice (must understand risk), if you fly, avoid any wild flying. |  |
| d) Have them sign a special indemnity, and take them anyway. |  |

1. The friends of your PAX ask you to try to scare or make your PAX throw up during flight, what do you do? (2)

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1. As you launch, you step on the heel of your PAX and their shoe falls off, what do you

do? (1)

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| --- | --- |
| a) Take off your shoe and give it to them. |  |
| b) Take a spare shoe out of the back pocket of the PAX harness and give it to them. |  |
| c) Fly as normal, taking extra care on landing. |  |
| d) Land immediately in the nearest safe field. |  |

1. Where should the tow bridle be attached to your tandem rig when doing a winch

launch? (1)

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1. Explain with reasons what your PAX should so during following briefing in each all phase

of a tow launch relating to the tow line / the bridal and at the time or release? (4)

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Section Total = [37]

. **SECTION H:** S.O.S

1. Describe the actions you will take if do if you forget to close your legs straps, and fall

out of your pilot harness as you inflate, resulting in the risk of the PAX becoming

airborne on their own? (2)

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1. Explain (in sequence) what you do if you forget to close your leg straps, and end up airborne hanging by your arms from your harness? (3)

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1. List the actions you would take after launch when you find your PAX’s harness is open, they start sliding out ending up hanging by their armpits from the harness? (3)

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1. Describe in sequence how you would land in the water (sea, river and lake) with a

tandem if in a situation where you have no other safe option but to land in the water. (4)

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1. If you are making an out landing with a tandem in really strong wind (i.e. going

backwards), describe the sequence and thinking you will implement to make the

landing as safe as possible if you do not have quick-out karabiners installed? (4)

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1. Is it advisable to ask your PAX to open their harness buckles just before landing and

have them jump out when you reach the ground holding & pulling the brakes to drop

the wing in a strong wind landing? (2)

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1. List the dangers of the above technique? (2)

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1. You are doing your multieth tandem for the day, you loose focus a bit and take off with

a very light PAX clipped in high on the front hook ups of your hard spreader bars. Your PAX is now obstructing your view and you let go of the brakes to try re adjust the

situation. When you fail to do this you find you are hanging so low that you cannot reach the brakes again.

a) Explain what do you do in sequence? (3)

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b) What other dangers are associated with hanging low besides restricted view? (2)

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1. During a tow launch, you find that your tow release won’t release under tension, the wind has picked up enough to keep the tow line tight even though the tow vehicle has stopped, what do you do if you cannot communicate with the winch driver? (2)

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1. List extra safety items a tandem pilot should carry in your opinion (3)

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Section Total = [30]

Section I - airlaw Each question = 1 mark

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| **78** | **A Tandem paraglider overtaking another paraglider, except when engaged in ridge soaring, should do so by:**   |  |  | | --- | --- | | 1. Passing on the upwind side of the glider being overtaken |  | | b) Passing on the left of the glider being overtaken |  | | 1. Passing on whichever side the pilot of the overtaking glider considers safest |  | | 1. Overtaking on the downwind side of the glider being overtaken |  | |
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| **79** | **When two gliders are approaching head on, or approximately so, and there is a danger of collision:**   |  |  | | --- | --- | | 1. The Tandem glider shall pass on the upwind side of the other |  | | 1. The glider which has right of way shall continue on its course whilst the other glider shall alter course to the right |  | | 1. Both gliders shall alter course to the left |  | | 1. Both gliders shall alter course to the right |  | |
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| **80** | **When two gliders are on converging courses at approximately the same altitude:** |
|  | |  |  | | --- | --- | | 1. The glider on the right shall give way |  | | 1. The glider flying highest shall give way |  | | 1. The glider on the left shall dive under the other |  | | 1. The glider which has the other on its right shall give way |  | |
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| **81** | **Tandem passengers are to be counselled and briefed:**   |  |  | | --- | --- | | 1. Before Strapping in. |  | | 1. Before Take Off |  | | 1. Before Landing |  | | 1. Continuously before and during the entire flight experience |  | |
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| **82** | **It is acceptable to pull up and take off in wind speeds greater than 28kph:**   |  |  | | --- | --- | | 1. Provided the passenger has paid for the flight |  | | 1. You have 2 large persons to anchor you during the pull up phase |  | | 1. It is not a training flight and the passenger is ballasted. |  | | 1. Not at all |  | |
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| **83** | **On the 1:1000 000 Aeronautical Chart airways are shown with a letter followed by a number. This is followed by a figure. For Example . This means that:** |
|  | |  |  | | --- | --- | | 1. The lower level of the airway is 3800ft and the upper level extends to 15 000ft above the ground |  | | 1. The lower level of the airway is 1500 metres above the ground and that the upper level extends 3800 meters with the altimeter set to 1013.2 millibars |  | | 1. The lower level of the airway is 1500ft above the ground and that the upper level extends 38 000ft with the altimeter set to 1013.2 millibars |  | | 1. The lower level is 1500ft above the ground with the altimeter set to QNE and the upper level extends 38 000ft above mean sea level |  | |
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| **84** | **Paragliders may operate above FL195:**   |  |  | | --- | --- | | 1. Anywhere in SA |  | | 1. In flight information regions in VFR |  | | 1. Only with prior permission from Air Traffic Control |  | |
|  |  |
| **85** | **An accident involving a fatality or serious injury must be reported to:**   |  |  | | --- | --- | | 1. The commissioner for Civil Aviation, Pretoria direct or through any Air Traffic Services unit, the nearest police station and SAHPA within 14 days |  | | 1. Immediately to the Club Safety Officer if not at the site |  | | 1. As soon as possible to the commissioner for Civil Aviation, Pretoria direct, to the nearest police station and to SAHPA within 7 days |  | |
|  |  |
| **86** | **Which of the following could be classified as a reportable accident?**   |  |  | | --- | --- | | 1. A normal field landing and the glider gets tangled in the surrounding trees with no injuries. |  | | 1. A field landing when on touch down the pilot and passenger get dragged but suffer only scratches and bruises. |  | | 1. A normal landing but passenger bumps their head and requires observation overnight at a hospital just in case. |  | | 1. All except A |  | |
|  |  |
| **87** | **Paragliders may not legally fly at night. Official aviation day is between:**   |  |  | | --- | --- | | 1. 15 minutes before sunrise to 15 minutes after sunset |  | | 1. 30 minutes before sunrise to 30 minutes after sunset |  | | 1. It is considered day if the pilot can still read a car number plate at 25 meters |  | |
|  |  |
| **88** | **It is a legal requirement that all persons flying in charge of paragliders must be members of the Aero Club and SAHPA?**   |  |  | | --- | --- | | 1. True |  | | 1. False |  | |
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| **89** | **Paragliders may only fly in Visual Metrological Conditions (VMC) By Day?** |
|  | |  |  | | --- | --- | | 1. True |  | | 1. False |  | |
| **90** | **Paragliders must remain clear of cloud and adhere to Visual Flight Rules this can be defined as?**   |  |  | | --- | --- | | 1. Clear of all cloud in daylight more than 500M above the ground unless the flight can be conducted in safety |  | | 1. Clear of cloud less than 500M above the ground and 150M below cloud within 600M of themselves if above 500M above ground. |  | | 1. Clear of cloud less than 500M above ground at night and below but within 600M of cloud by day. |  | |
| **91** | **Indemnity forms signed by passengers are necessary only if the flight is conducted as a training flight?** |
|  | |  |  | | --- | --- | | 1. True |  | | 1. False |  | |
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| **92** | **Which part of the South African Civil Aviation Rules deals with Paraglider Pilots licensing?**   |  |  | | --- | --- | | 1. Part 62 |  | | 1. Part 96 |  | | 1. Part 61 |  | |
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| **93** | **Which section deals with Tandem licensing requirements in the SAHPA Manual of Operations Revision 2**   |  |  | | --- | --- | | 1. Section 3.2.4 |  | | 1. Section 1.16 |  | | 1. None of the above |  | |
|  |  |
| **94** | **What is the total number of flights required for the initial issue of a Tandem Rating** |
|  | |  |  | | --- | --- | | 1. 32 |  | | 1. 35 |  | | 1. 12 |  | | 1. 40 |  | |
|  |  |
| **95** | **Is it permissible to carry an Adult with a small child as passengers with a safe harness arrangement?**   |  |  | | --- | --- | | 1. Yes, provided you don’t exceed the weight limitation of the glider |  | | 1. Yes, provided the harness arrangement is DHV certified |  | | 1. No |  | |
|  |  |
| **96** | **Does a Tandem pilot that wishes to operate on a South African TFI rating need to have a legal work permit?** |
|  | |  |  | | --- | --- | | 1. Yes, if he is not a South African Citizen |  | | 1. Not if he is working for a South African paragliding operation |  | | 1. No, it is legal to do tandems in South Africa without a work permit if you have a TFI rating |  | |
| **97** | **It is only legal to operate as a TFI**   |  |  | | --- | --- | | 1. If you have completed and submitted all required paperwork and test |  | | 1. If you have completed the requirements and have a letter giving you authorisation from SAHPA |  | | 1. If you TFI rating instructors says it is okay, you can fly |  | | 1. If an instructor signs your logbook |  | |
|  |  |
| **98** | **It is legal to fly in South Africa**   |  |  | | --- | --- | | 1. Only if you are in class G airspace with all relevant permissions and after having checked. Notam’s and got guidance from SAHPA, Clubs or LSO’s |  | | 1. In class G airspace with permission to from a club as long as you have placed a notam with CAMU |  | | 1. In class G airspace but with permission from a senior club member |  | | 1. Holding a temporary license for longer that 2 months |  | |
|  |  |
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| **99** | **To be sure of the rules and regulations a pilot responsibility and best practice is to check with:** |
|  | |  |  | | --- | --- | | 1. Only Instructors and other pilots |  | | 1. Club officers only |  | | 1. Senior pilots and local landowners |  | | 1. Sahpa the organisation and Accredited relevant Clubs and their official LSO’s operating sites and/or Instructors accredited to SAHPA |  | |
|  |  |
| **100** | **To become a TFI a tandem pilot must** |
|  | |  |  | | --- | --- | | Do a course with any TFI |  | | Complete a course with a TFI rated B Grade instructor or Higher |  | | Fulfil the practical requirements in the TFI pack |  | | Notify Sahpa and then complete the full requirements as directed in the Tandem or TFI pack |  | |

Section Total = [23]

Grand Total **= [240]**