

## South African Powered Paragliding Theoretical Knowledge Test

Last Updated 5 February 2002

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### Question 1: (PTE)

Explain what you understand about the *Propeller Torque Effect*, including its **causes** and **effects** and, how it **affects PPG flight**. What aspects influence the **extent** of the effect, and **steps to be taken** to minimise the consequences.

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### Question 2: (GP)

Describe the **Gyroscopic** Aspects, with particular emphasis on *Gyroscopic Precession*. What it is, what **causes** it and how it **affects PPG flight** and the resulting **dangers** thereof. Detail some **examples**, including resulting action and powered paraglider **behavior**.

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### Question 3: (ABT)

Describe the **three causes** of *Asymmetric Blade Thrust* and its **effect**. What **factors** influence the extent of the problem and how can it be reduced.

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### Question 4: (Attachments)

Explain why powered paragliders usually have higher *Attachment Points* (riser attachments) than free-flight harnesses. Describe the various **methods of attachments** and the **advantages- and disadvantages-** of each.

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### Question 5: (running-in)

Discuss *running-in* of new engines, the **purpose** thereof, **procedures** and **precautions**. Cover aspects of **carb tuning**, ratio of **oil** mixtures, **vibration** problems, **loosening** fittings, etc

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### Question 6: (Fuel /oil)

Comment on *Fuel Mixtures* with specific reference to **oil types** (i.e. Synthetic vs Mineral oils), mixture **ratio's** and **running-in** considerations.

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### Question 7: (Heat Seizure)

Discuss *heat-seizure* of engines, **causes** thereof, assessing **extent of damage**, resulting **repairs** required, and **preventative** action.

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### Question 8: (SC Rule)

**Briefly** describe the concept of the *Semi-Circular Separation Rule*, as pertaining to air-traffic separation. (no need to reproduce the actual table here)

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### Question 9: (Line Rule)

Explain the principles and application of the *Following Line Rule*.

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### Question 10: (Abbr.)

What do the following **abbreviations** stand for, and give a brief description of each:

1. VMC
  2. VFR
  3. QNE
  4. AGL
  5. FL
  6. UTC
  7. CTR
  8. FAR
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### Question 11: (Radio broadcasts)

How often do you need to make general radio announcements while in flight?

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**Question 12: (Radio broadcasts-a)**

Write an example of a general radio broadcast announcement for your area.

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**Question 13: (motor inspections)**

When should you inspect your motor for potential problems (nuts, bolts, rubbers, belt, etc) ?

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**Question 14: (kill switch)**

If you are about to land and discover that your engine kill-switch is not functional, what would you do and how would you kill the engine?

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**Question 15: (Speed Bar)**

Why is it important to have your speed-bar fitted?

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**Question 16: (Trim-tabs)**

What are the benefits and usages of having trimtabs on a powered wing?

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**Question 17: (formation flying-a)**

If you are flying with a friend, what must you beware of?

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**Question 18: (Formation Flying-b)**

If you are flying alongside a buddy and you accidentally bump wingtips, what is the correct course of action for both pilots?

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**Question 19: (over water)**

If you are flying near the coast (or lake or dam), what is a safe distance and height to go out over the water?

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**Question 20: (Log book)**

Why would you log your flying hours?

- a) to record progress
  - b) for licensing and renewal purposes
  - c) proof of experience and licenses received
  - d) to keep track of engine hours for servicing intervals
  - e) all of the above.
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**Question 21: (safety altitude)**

If you double your flying height above the ground, by what factor is the landing area you can reach by gliding increased? (in the event of an engine-out)

- a) Double
  - b) Triple
  - c) Four times
  - d) 50%
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**Question 22: (Clouds)**

How far do you need to remain away from clouds? Vertically and horizontally

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**Question 23: (sunset flying)**

When flying around sunset, what is the latest you may remain in the air?

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**Question 24: (Tandem flying)**

What do you need before you may take a passenger for a tandem flight on your paramotor? (in terms of licensing and equipment)

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**Question 25:** A lighter all-up take-off weight will increase:

- a) Climb rate.
  - b) Take-off distance.
  - c) Power off stall speed
  - d) Power on stall speed
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**Question 26:**

A heavier all-up take-off weight will increase:

- a) overall airspeed
- b) stall speed
- c) take-off run

- d) internal cell pressure
  - e) all of the above
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**Question 27:**

The \_\_\_\_\_ is an imaginary straight line drawn through an airfoil (wing) from the leading edge to the trailing edge.

- a) angle of attack.
  - b) camber line
  - c) chord line
  - d) relative wind line
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**Question 28:**

Angle of attack is defined as:

- a) The angle between the horizon and the chord line
  - b) The angle between the horizon and the relative wind
  - c) The angle between the wing chord line and the vertical tail
  - d) The angle between the wing chord line and the relative wind
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**Question 29:**

A stall occurs when:

- a) The critical angle of attack is exceeded.
  - b) The nose is too high above the horizon.
  - c) The airspeed gets too low.
  - d) The engine quits at a bad time.
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**Question 30:**

Trim speed is defined as:

- a) flying off the brakes, off speedbar, and trim tabs set to neutral
  - b) flying off the brakes, on maximum speedbar
  - c) flying at 50% throttle setting
  - d) flying as slowly as possible
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**Question 31:**

In heavy turbulence it is safest to minimise deflections by flying:

- a) Downwind.
  - b) At as high a speed as possible.
  - c) At a very slow speed
  - d) At Trim speed
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**Question 32:**

You are on a head-on collision course with another aircraft in open areas. You should avoid the other aircraft by:

- a) Turning to the right
  - b) turning to the left
  - c) climbing
  - d) diving
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**Question 33:**

You are flying north in straight and level flight with a True Airspeed of 38km/h. The wind at your altitude is from 180 degrees at 10 km/h. What is your groundspeed?

- a) 38 mph
  - b) 48 mph
  - c) 28 mph
  - d) 10 mph
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**Question 34:**

A magnetic compass is accurate:

- a) With the powered paraglider in any attitude
  - b) Only when the airplane operated below manoeuvring speed
  - c) At all times
  - d) Only when the airplane is operated in straight and level flight at constant speed
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**Question 35:**

You would most likely find turbulent flying in conditions near:

- a) Stratus clouds

- b) Fog
  - c) Cirrus clouds
  - d) Cumulus clouds
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**Question 36:**

You would likely find turbulence

- a) near mountains
  - b) in the mid afternoon
  - c) deep inland
  - d) downwind of buildings
  - e) all of the above
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**Question 37:**

Why does SAHPA exist?

- a) to keep the sport self regulating
  - b) to provide 3rd party aviation insurance
  - c) to provide a safety orientated licensing system
  - d) to provide international recognition to the sport
  - e) all of the above
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**Question 38:**

What is the very last safety action to perform prior to starting an engine?

- a) check the fuel/oil ratio on the fuel.
  - b) check for sufficient fuel quantity.
  - c) do a pre-flight inspection.
  - d) yell "Clear prop" and verify that the prop area is clear of personnel.
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**Question 39:** Considering density altitude, your motor and wing would perform better on

- a) warm humid days.
  - b) cold humid days.
  - c) warm dry days.
  - d) cold dry days.
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**Question 40:**

When may you enter a Restricted Area (FAR)?

- a) Never!
  - b) After receiving permission from the appropriate authority.
  - c) Whenever you wish with extreme caution
  - d) Only on weekends when the areas are closed.
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**Question 41:**

When may you enter a Prohibited Area (FAP)?

- a) Never!
  - b) Only with a written waiver from the CAA Administrator or his designee.
  - c) With verbal permission from the controlling agency
  - d) Anytime after official sunset and before official sunrise
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**Question 42:**

What frequency is used for emergency communications

- a) 126.7 Mhz
  - b) 124.8 Mhz
  - c) 130.35 Mhz
  - d) 121.5 Mhz
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**Question 43:**

Take off run distance is increased by:

- a) Lighter headwind
  - b) Higher Altitude
  - c) Higher Humidity
  - d) Lower QNH
  - e) All of the above
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**Question 44:**

Carb mixture adjustment should be

- a) richened for lower altitudes

- b) richened for higher QNH
  - c) richened for lower humidity
  - d) All of the above
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**Question 45:**

Which of the following is true:

- a) below 1500 foot AGL, the altimeter subscale is set to local QNH
  - b) below 1500 foot AGL, radio your altitude in Feet.
  - c) above transition altitude, the altimeter subscale is set to QNE
  - d) When the altimeter subscale has been changed to QNE, radio your altitude in "Flight Level"
  - e) All of the above
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**Question 46:**

Which one is true:

Rate of climb is

- a) affected by your throttle setting, unaffected by the windspeed and direction
  - b) increased in a headwind, reduced in a tailwind
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**Question 47:**

Angle of climb is

- a) increased in a headwind
  - b) increased with added power
  - c) reduced at faster airspeed trim
  - d) reduced in turns
  - e) all of the above
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**Question 48:**

When Taking off in thermic conditions, you are 10 meters up when you fly into a thermal. The glider Pitches back, your reaction is.

- a) Stay on full power and increase break pressure
  - b) Come to Idle power immediately and pump the breaks
  - c) maintain 3/4 power and catch the pendulum as the glider surges forward
  - d) do nothing
  - e) Scream
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