Trinidad and Tobago
Civil Aviation Authority

TTCAA Advisory Circular

Subject: STUDENT PILOT PRE-SOLO TEST
TTCAA Advisory Circular TAC- PEL-053
Date: 2014/06/16

PURPOSE

1. The purpose of this TTCAA Advisory Circular (TAC) is to provide guidance to Aviation Training Organization (ATO) operators for the conduct of Student Pilot Pre-solo test.

INTRODUCTION

2. In accordance with regulation 27 of the Trinidad and Tobago Civil Aviation [(No. 1) General Application and Personnel Licensing] Regulations, 2004 –

27. (1) A student pilot shall not operate an aircraft in solo flight unless he has met the requirements of these Regulations.

(2) A student pilot shall, in order to operate an aircraft in solo flight, satisfactorily pass an aeronautical knowledge test administered by the Authority in the following areas:

(a) air law;

(b) airspace rules and procedures for the airport where the student pilot will perform solo flight; and

(c) flight characteristics and operational limitations for the make and model of aircraft to be flown.

(3) The Director General shall at the conclusion of the aeronautical knowledge test under subregulation (2) and before making a recommendation under subregulation (6), review all incorrect answers with the student.

(4) Prior to conducting a solo flight, a student pilot shall have—

(a) received and logged flight training for the manoeuvres and procedures set out in Part A of Schedule 2 that are appropriate to the make and model of aircraft to be flown; and

(b) demonstrated satisfactory proficiency and safety, as judged by an authorized instructor, on the manoeuvres and procedures required by this regulation in the make and model of aircraft or similar make and model of aircraft to be flown.

(5) A student pilot who is receiving solo flight training shall receive and log flight training for the additional manoeuvres and procedures, as applicable for each category and class rating in the areas set out in Part B of Schedule 2.

(6) Where the student pilot—

(a) passes the aeronautical knowledge test under subregulation (2); and

(b) meets the requirements of subregulations (4) and (5), the Director General may recommend that the Authority to authorize such Student Pilot to conduct a solo flight.

(7) A recommendation under subregulation (6) shall be endorsed on a student Pilot Licence.

PROCEDURES

3. (1) An ATO operator shall not conduct student pre-solo knowledge test unless such organization has been approved by the Authority to conduct such test.

(2) The Authority may approve an ATO operator to conduct student pilot pre-solo knowledge test provided the Training Procedures Manual contains procedures for –

(a) training Student Pilots in the aeronautical knowledge areas in paragraph 4;

(b) the development of a written examination to test the student pilot knowledge in the areas in paragraph 4;

(c) designating flight instructors to conduct the written examination;

(d) conducting interview of students who passed the Pre-Solo Knowledge test, to review all incorrect answers;

(e) briefing a Student Pilot prior to the conduct of the Solo flight;

(f) the assessment of a Student Pilot performance on the Solo flight; and

(g) recording and the preservation of student pilot pre-solo test written and oral test.

(3) The specific provisions of the ATO approval to conduct student pilot pre-solo test is contained in the ATO Training Specifications.

PRE-SOLO AERONAUTICAL KNOWLEDGE AREAS

4. An Aviation Training Organization is required to develop written pre-solo knowledge test. (Appendices 1, 2 & 3 are examples of pre-solo knowledge test). The following performance standards are acceptable to meet the aeronautical knowledge training requirements of TTCAR No 1:27:

(1) Aircraft General Knowledge

(a) Terminology: With respect to the items listed below recall the standard abbreviations used and meet the objectives stated.

Direction:

(i) recall the following methods of expressing direction:

(A) as a two figure group for runways;

(B) in the clock code;

(ii) Define Heading (HDG).

(A) true;

(b) Magnetic;

(c) Compass;

Time

(iii) Express time as a 4,6, and 8 figure group. TTCAR No2:159 &IP GEN 2.1.2.

(b) Power Plants and Systems-Basics

(i) State the purpose of the following gauges:

(A) RPM (tachometer),MAP;

(B) CHT,EGT;

(C) voltmeter, ammeter & loadmeter;

(D) fuel pressure,

(E) oil temperature and pressure

(c) Engine Handling

(d) Malfunctions

(e) Flight Instruments.

(i) Interpret colour codes on the ASI.

(ii) State the effect of an incorrect sub-scale setting on the reading of an altimeter.

(2) Flight Rules & Air Law

General and Documentation

(a) Introduce student to the method of maintaining a pilot's log book and the purpose of flight progress records. TTCAR No1:112

(b) Pilot License, privileges & limitation

(i) Recall the regulation with respect to change of permanent address. TTCAR No1:8

(ii) Recall the requirement to have in his/her physical possession or readily available aviation documents. TTCAR (No1:6.

(iii) Recall that a student pilot shall not act as Pilot in command of an aircraft. TTCAR No. 1:28;

(A) That is carrying a passenger

(B) That is carrying property for compensation ,hire, or in furtherance of a business

(C) That is on an international flight.

(D) When a flight cannot be made by visual reference to the surface.

(E) In a manner contrary to any limitations placed in the log book by an authorized Flight Instructor

(iv) Recall that a student pilot shall not operate an aircraft in solo flight unless he has received ad logged within 90 days preceding the flight, an endorsement from an authorized flight instructor for the specific make and model of the aircraft to be flown.

(c) Flight Rules & conditions of flight

(i) Recall /apply the following rules/requirements

(A) rules of the air. TTCAR No 2:133 &134:

(B) the requirement relating to the operation of aircraft on and in the vicinity of an aerodrome TTCAR No 2:157 and the conditions relating to turns after take-off;

(C) separation minima between aircraft for take-off & landing at an uncontrolled aerodrome TTCAR No 2:157:
visual flight rules TTCAR No 2:86, 87, 163, 165 &166: and visual meteorological conditions TTCAR No 2:162 & Schedule 8 for Class D & E airspace; (aeroplane) for operations below Fl100

(D) basic altimetry procedures below Transition Altitude.AIP EASTERN CARIBBEAN-ENR1 & (TTCAR 2:124

(i) State the rules relating to:

(A) the use of drug & alcohol TTCAR 2:46 and recall the minimum period between alcohol consumption and flight departure

(B) Temporary medical unfitness TTCAR (No1)-16)

(ii) Recall the meaning of the following light signals directed at an aircraft. TTCAR No 2:160 & Schedule 12:

(A) steady Green & Red lights;

(B) flashing Green, Red & White lights

(iii) Recall TTCAR requirements relating to the minimum heights for flights over TTCAR No 2:125 :

(A) populated areas;

(B) other areas.

(iv) List the minimum equipment and instruments that must be working properly in the aircraft for day time VFR. TTCAR No7:8)

(d) Air Traffic Service operations.

(i) Airspace Local

(A) Recall the class of airspace of the Piarco Aerodrome Traffic Zone. AIP EASTERN CARIBBEAN-ENR 2.2-11,

(B) Describe the standard traffic pattern

(C) Recall the vertical and horizontal area of Piarco Aerodrome Traffic Zone. AIP EASTERN CARIBBEAN-ENR 2.2-11.

(ii) Air traffic Clearance

(A) Recall the requirement to obtain and adhere to Air traffic control clearance. TTCAR No 2:150 &151

(B) Recall that flight crew shall read-back safety-related parts of ATC clearances and instructions.

(I) ATC route clearances.

(II) Clearances and instructions to enter, land on, take off from, hold short, cross, taxi and backtrack on any runway.

(III) Runway in use, altimeter setting, SSR codes, level instructions, heading and speed instructions.

(IV) Other clearances or instruction including conditional clearances, shall be read back or acknowledge by the flight crew in a manner to clearly indicate that they have been understood and will be complied with. DOC 4444-4.5.7.5

(iii) Glide Slope requirement
Recall the requirement for compliance with visual Glide slope.
TTCAR No 2:146

(iv) Flight plan

Recall the minimum time for submission of Flight Plan. TTCAR No :78

(v) Recall the restriction on use of aircraft in prohibited areas and restricted areas TTCAR No 2:142.

(vi) Recall the requirements for the use of aeronautical lights. TTCAR No 2:136.

(e) Aerodromes

(i) With reference to a diagram of the aerodrome(s) used for training:

(A) identify movement areas-Runway, Taxiways; AIP EASTERN CARIBBEAN-AD2.10-1-17

(B) Explain the significance of taxiway and/or runway lighting/ markings.

(ii) Identify the following positions in a circuit:

(A) downwind leg;

(B) base leg;

(C) crosswind leg;

(D) Upwind leg;

(E) Final;

(F) Dead side of the circuit.

(iii) Explain the significance of a white cross on the movement area.

(f) Emergencies & SAR

(i) Recall the general reporting procedures for occurrences. TTCAR No 2;67

(ii) Recall air traffic Incidents and in flight emergency reporting procedures. TTCAR No 2:69 & 72

(iii) Recall that pilot in command to report bird hazards. TTCAR No 2:71

(iv) Recall the intermittent use of navigation and landing lights by an aircraft to indicate that it is in difficulty. TTCAR No 2:136

(g) Aeronautical Information Publication

(i) Recall the publishing authority of the AIP AIP EASTERN CARIBBEAN-GEN 0.1-.1.1

(ii) List the structure of the AIP .AIP EASTERN CARIBBEAN-Part 1 GEN.0.1-4)-GEN,ENR,AD,

(iii) Differentiate between Prohibited areas and Restricted Areas .Identify on a map the Restricted and Prohibited airspaces within Trinidad and Tobago. AIP EASTERN CARIBBEAN-ENR 5.1

(3) RADIO TELEPHONY

(a) Phonetic alphabet;

The student should recall the phonetic alphabet and the method of transmitting numerals;

(i) recall pertinent (local) procedures and radio phraseology for:

(A) circuit flying;

(B) flight to/from training area;

(ii) state the purpose of the following radio controls:

(A) on/off switches;

(B) frequency control;

(C) transmit button and mute switch;

(b) Distress and Urgent message

Differentiate between a distress and urgent message and:

(A) give examples when each should be used;

(B) recall each prefix and extract the elements of each message.

(c) Tower frequencies

List the Frequencies of the Tower at which you operate.

(4) AEROPLANE TYPE KNOWLEDGE

Note: The following topics relate primarily to a basic nose-wheel training aeroplane. A person who wishes to gain a licence on a different class/type e.g. multi-engine, must meet the appropriate endorsement requirements specified.

(a) Aircraft make and Model-

The student should be introduced to the training aeroplane to be used and identify the following components (as applicable to type):

(i) fuselage:

(A) entry and emergency exits;

(B) aerials, static vents, rotating beacon;

(C) inspection hatches;

(ii) wings

(A) leading and trailing edges, nav lights;

(B) ailerons, flaps, trim tabs, and associated hinges/attachments;

(C) pitot head, tie down points, stall warning;

(D) fuel caps, tanks, drains, vents, hatches;

(iii) tail

(A) elevator/stabilizer:

(B) fins, rudder, trim tabs and associated hinges

(iv) undercarriage general cockpit layout

(A) struts, wheels, brakes, steering and ground handling points

(v) engine:

(A) location;

(B) type, number of cylinders;

(C) induction system;

(vi) general cockpit layout

(A) engine and flight controls;

(B) engine and flight instruments;

(C) heating and ventilation controls;

(D) main switches.

(b) Recall the:

(i) emergency actions listed in the pilot's operating handbook;

(ii) power plant and airspeed limitations given in the flight manual;

(iii) the following operating speeds:

(A) lift off;

(B) climb: normal ; best rate

(C) approach: normal; flapless; glide;

(iv) stall recognition and recovery relevant to make and model;

(v) pilot action in the event of:

(A) an aircraft fire in the air and on the ground;

(B) engine failure;

(I) after take off

(II) in the training area;

(C) propeller over speed.

(c) Systems

(i) Fuel and oil

(A) Recall the procedure for checking water and other sediment contamination;

(B) State the ways water can be introduced into the fuel system.

(C) Recall the reasons to inspect the fuel tank vent.

(ii) Landing gear, tires and brakes

(A) Recall the requirement to inspect tires for inflation, evidence of cuts, bruises, bulges, imbedded foreign objects and deterioration.

(Bi) recall the requirement to inspect the brake. and nose gear including the shimmy damper and torque link.

(iii) Engine and Propeller

(A) Recall the requirement to check the condition of the engine cowling and condition of the propeller

(B) Recall the requirement to check for signs of fuel dyne, oil leaks, and hydraulics lines.

(d) Engine handling:

(i) State the methods used to:

(A) control engine temperature;

(B) lean fuel/mixture;

(C) control power and recall the allied cockpit gauges which provide information on the above parameters.

(e) Take-off & landing performance;

(i) Explain the hazards associated with wake turbulence and pilot avoidance action.

(ii) Perform calculations on weight and loading problems for the make and type of aircraft to be used in first Solo.

(f) Landing

(i) Perform calculations on weight and loading problems for the make and type of aircraft to be used in first Solo.

(ii) Explain the hazards associated with wake turbulence and pilot avoidance action.

(5) AERODYNAMICS

(a) Basic theory

(i) Identify the following:

(A) aerofoil, angle of attack, relative airflow;

(B) centre of pressure, centre of gravity;

(C) lift, weight, thrust, Drag;

(ii) differentiate between IAS and GS;

(b) lift and Drag.

(i) State whether lift and drag of an aerofoil will increase or decrease with changes in :

(A) airspeed;

(B) angle of attack;

(C) flap setting.

(c) Flight Controls

(i) Describe the primary and further effects of the elevator, rudder and aileron on an aeroplane’s movement about the longitudinal , lateral and normal axes;

(ii) Describe the effect on changes in power and airspeed on pitch, trim and on the effectiveness of the elevator, rudder and aileron;

(iii) Describe the purpose of trim control;

(iv) State the effect of lowering or raising flap on lift, drag and attitude.

(d) Straight & level flight

(i) State the relationship between attitude, angle of attack and airspeed in level flight,

(e) Climbing

(i) Differentiate between rate and angle of climb.

(f) Descent.

(i) State the effect on rate, angle of descent and attitude resulting from changes in:

(A) power-constant IAS

(B) Flap-constant IAS

(ii) State the effect of head/tail wind on the glide path and glide distance (relevant to the earth's surface).

(iii) Explain why a pilot should maintain the recommended glide speed, if undershooting an approach to land.

(g) Turning.

(i) Describe what is meant by a balanced turn;

(ii) During a level turn, state the effect (increase/decrease) of bank angle on:
(A) Stall IAS

(iii) List reasons for avoiding steep turns:

(A) Shortly after take-off.

(B) During a glide-particularly on approach.

(h) Stalling, spinning

(i) Define stalling angle and describe:

(A) The characteristics of a stall.

(ii) Explain:

(A) The effect of using aileron when approaching and during a stall;

(B) Why an aircraft may stall at different speeds.

(iii) List the effect(increase/decrease/nil) of the following variables on the level flight stall IAS:

(A) Power;

(B) Flap;

(C) Wind shear, vertical gusts;

(D) Manoeuvres.

(i) Taxi , take-off and landing

(i) Taxiing or surface operations, including run-ups.

(ii) Cite situations which may cause an aeroplane to "wheel barrow" and state the recommended pilot action in the event of such an occurrence.

(ii) Describe the effect of a cross wind on high and low wing aeroplanes during taxi, take-off and landing.

Note: Effect of a cross wind "means the effect on "yaw" and "roll" and includes the tendency to nose over during taxi.

Approved by:

…….	……..	…….
Ramesh Lutchmedial	**Date**	**Stamp**
Director General of Civil Aviation		

APPENDIX 1

EXAMPLE
PRE-SOLO WRITTEN EXAMINATION - 1

_____

Student Name

_____

Examination Administered By

_____

Date Examination Completed

OFFICIAL USE ONLY

Pass Mark is 80%. Marks Obtained: Pass: ☐ Fail: ☐

_____

Examination Result

STUDENT ACTIONS:

As specified in regulation 27 of TTCAR No. 1, the student pilot must demonstrate satisfactory aeronautical knowledge on a pre-solo knowledge test.

(a) Applicable parts of the TTCARs;
(b) Airspace rules and procedures for the airport where the solo is performed; and
(c) Flight characteristics and operational limitations for the make and model of aircraft to be flown.

AVIATION TRAINING ORGANIZATION ACTION:

As specified in regulation 27 of TTCAR No. 1, the Aviation Training Organization authorized instructor) must:

(a) Administer the test
(b) At the conclusion of the test, review all incorrect answers with the student before authorizing that student to conduct a solo flight.
(c) Perform the proper Logbook and Student Pilot Certificate endorsements
(d) Keep exam for three (3) years and make copy for school records.

The Flight Instructor and Student Pilot upon comprehensive review will decide the best date, time, and weather condition to allow the Student to perform safe solo flight.

Student pilots should have adequate knowledge to operate safely during solo flight in your local training environment. Since the surrounding area includes controlled airspace, such as Class B, C, D, or E airspace, you will be asked to answer appropriate questions on operations in these areas.

There are supply-type (fill in the blank) and selection-type (multiple choice) questions to allow the instructor a way to evaluate the student's knowledge and application of Aeronautical Knowledge.

PRESOLO WRITTEN EXAM

This exam contains general questions, aircraft questions, and airport and airspace questions. the General and aircraft questions apply to all students. Flight instructors who administer this test may add or delete questions as necessary to make the exam more appropriate to the training aircraft and surrounding flight environment.

EXAM PROCEDURES AND INSTRUCTIONS

This pre-solo written exam will be given to a Student Pilot in anticipation of solo flight. Each of the questions in this exam requires the Student Pilot to supply an answer rather than choose the correct answer.

After the Student Pilot completes the exam, it will be reviewed with the student's instructor. Any incorrect answers will be discussed and corrected. All questions address important areas that are critical to safe, legal and enjoyable flying. It is most important that the information be known and understood.

GENERAL QUESTIONS

Instructions: All students should answer the general questions.

1. What personal documents and endorsements are student pilots required to have for solo flights?

_____
_____
_____
_____

2. Who has the final authority and responsibility for the operation of the aircraft when you are flying solo?

_____

3. Discuss what pre-flight action concerning the airport and aircraft performance is specified in the regulations for a local flight.

_____
_____
_____
_____
_____
_____
_____

4. Who is responsible for determining the airworthiness condition of the aircraft?

a. The aircraft owner
b. A certified mechanic
c. The pilot-in-command
d. A CAA inspector

5. When taxiing with a quartering tailwind, what is the appropriate aileron position?

a. Ailerons neutral
b. Aileron down on the side from which the wind is blowing
c. Aileron up on the side from which the wind is blowing

6. When practicing stalls, you should:

a. perform clearing turns.
b. start at an altitude that will allow for completion no lower than 1500' AGL.
c. recover immediately.
d. all of the above

7. Are Student Pilots permitted to use the grass? _____

8. What are the visibility and cloud clearance requirements for VFR flight in class E airspace (assume below 10,000ft MSL)?

a. 1 mile and clear of clouds
b. 3 miles and 1000' ceiling
c. 3 statute miles, 500' below, 1000' above, 2000' horizontal
d. 5 statute miles, 1000' below, 1000' above, 1 statute mile horizontal

9. If an altimeter setting is not available before flight, the altimeter should be set to:

a. pressure altitude corrected for nonstandard temperature.
b. 29.92.

c. field elevation of the departure airport.
d. the reported altimeter of an appropriate available station.

10. What does each of the following light signals mean?

Lights signal	On the Ground	In Flight
Steady Green		
Flashing Green		
Steady Red		
Flashing Red		
Alternating Red and Green		
Flashing White		

11. What aircraft certificates and documents must be on board for any flight?
A_____
R_____
O_____
W_____

12. No person may operate an aircraft so close to another aircraft as to create a(n)_____.

13. During engine run up, you cause rocks, debris, and propeller blast to be directed toward another aircraft or person. Could this be considered careless or reckless operation of an aircraft? _____

14. You may not fly as pilot of a civil aircraft within _____ hours after consumption of any alcoholic beverage, or while you have _____ % by weight or more alcohol in your blood.

15. What are the general requirements pertaining to the use of safety belts and shoulder harnesses?

_____
_____

16. When is a go-around appropriate?

_____
_____

17. List the privileges and limitations placed on student pilots.

_____
_____
_____
_____
_____
_____
_____

19. What is the minimum fuel reserve for day VFR flight, and on what power setting is the fuel reserve based?

_____
_____

20. Who has the right-of-way when two aircraft are on final approach to land at the same time?

_____

21. What should you do if you are flying a head-on collision course with another aircraft?

_____

_____

If another single-engine aircraft is converging from the right, who has the right-of-way?

_____

_____

22. Except when necessary for take-offs and landings, what are the minimum safe altitudes when flying over congested and other than congested areas?

_____

_____

_____

23. When operating in controlled airspace, who is responsible for collision avoidance?

_____

In uncontrolled airspace?

_____

24. VFR DAY REQUIRED INSTRUMENTS

1	2
3	4
5	6
7	8
9	10
11	12

AIRCRAFT QUESTIONS

Instructions: All students should answer the aircraft questions. Additional questions that are pertinent to the make and model aircraft to be flown are found in the attachments pertaining to the specific make and model aircraft you are training in.

1. Fill in the V-speed definitions and the speeds for your training airplane.

	DEFINITION	SPEED
V_{SO}		
V_{S1}		
V_X		
V_Y		
V_{FE}		
V_A		
V_{NO}		
V_{NE}		

2. What is the best glide speed for your training airplane? _____KIAS

3. What flap settings should be used in your airplane for the following operations?

Take-off: Normal _____ Short Field _____ Soft Field _____
Landing: Normal _____ Short Field _____ Soft Field _____

4. The total usable fuel capacity for your aircraft is _____gallons. On a standard day (sea level temperature: 59°F, altimeter 29.92 in. Hg.), the fuel consumption rate during normal (75% power) cruise is _____gallons per hour.

6. What grade or grades of fuel can be safely used in your aircraft? _____
What are the colors of the recommended fuels? _____
What happens to the color of the fuel if two grades are mixed? _____

7. The maximum oil capacity of your aircraft is _____quarts, and the minimum oil capacity to begin a flight is _____quarts.

8. The maximum crosswind component specified by your instructor for solo take-offs and landings in the training aircraft is _____-knots.

9. What procedure do you follow if on start up the engine erupts on fire?
_____
_____
_____

10. What is the take-off and landing distance over a 50-foot obstacle for your aircraft at your airport? Assume maximum certificated take-off weight, 80°F, winds calm, and an altimeter setting of 29.52. _____

AIRPORT AND LOCAL AIRSPACE QUESTIONS

Instructions: The following questions pertain to Piarco International Airport and surrounding local areas.

1. What is the traffic pattern altitude (MSL) at Piarco International Airport?
_____/_____

2. (a) How do you enter and exit the traffic pattern at your airport? _____
_____
_____

(b) What, if any, radio communications are required? _____
_____

3. (a) What radio calls are required in the traffic pattern at an uncontrolled airport?
_____

(b) What radio calls are recommended at Piarco International Airport?
_____
_____
_____

4. What is the standard direction of turns in the traffic pattern?_____

Give an example of a visual display indicating a nonstandard traffic pattern.
_____
_____
_____

5. What is CTAF?_____

Explain CTAF procedures at your training airport(s).

_____
_____
_____

6. Identify the following frequencies:
Piarco International Airport CTAF _____ and ATIS _____

7. How can you determine if a runway is closed? _____
_____

8. If you receive ATC instructions that you feel may compromise safety or will cause you to violate a regulation, what should you do? _____
_____

9. In addition to equipment requirements and a student pilot certificate, what other requirement(s), if any, must be met before a student pilot is authorized to fly solo within Class B airspace? _____
_____

10. Explain the general transponder equipment and use requirement(s) when operating within or near Class B airspace._____
_____
_____

11. Explain the minimum visibility and ceiling requirements for VFR flight in Class D airspace.

_____
_____
_____

12. Can a student request a special VFR clearance in Class D airspace when visibility is less than three miles? _____

Explain your answer. _____
_____
_____

13. If you are flying solo to the practice area, to another airport, or on a cross country and you return to Piarco and find the airport is closed, what should you do?

_____
_____
_____
_____

Date Examination Completed: _____

Instructor Signature and Certificate:_____

Student Signature: _____

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APPENDIX 2

EXAMPLE
PRE-SOLO WRITTEN EXAMINATION - 2

_____

Student Name

Examination Administered By

Date Examination Completed

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Pass Mark is 80%. Marks Obtained: Pass: ☐ Fail: ☐

Examination Result

STUDENT ACTIONS:

As specified in regulation 27 of TTCAR No. 1, the student pilot must demonstrate satisfactory aeronautical knowledge on a pre-solo knowledge test.

(a) Applicable parts of the TTCARs;
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After the Student Pilot completes the exam, it will be reviewed with the student's instructor. Any incorrect answers will be discussed and corrected. All questions address important areas that are critical to safe, legal and enjoyable flying. It is most important that the information be known and understood.

GENERAL QUESTIONS

1. What personal documents and endorsements are you required to have before you fly solo?

_____
_____
_____

2. What are your limitations as a student pilot regarding carrying of passengers or cargo and flying for compensation or hire?

_____
_____
_____

3. Who has the final authority and responsibility for the operation of the aircraft when you are flying solo?

_____
_____
_____

4. Explain student pilot limitations regarding visibility, ceilings and flight above clouds.

_____
_____
_____

5. Discuss what preflight action concerning the airport and aircraft performance is specified in the regulations for a local flight.

_____
_____
_____

6. What are the general requirements pertaining to the use of safety belts and shoulder harnesses?

_____
_____
_____

7. What is the minimum fuel reserve for day VFR flight and on what cruise speed is the fuel reserve based?

_____
_____
_____

8. What aircraft certificates and documents must be on board when you are flying solo?

_____
_____
_____

9. Discuss the right-of-way rules regarding overtaking another aircraft, approaching head-on and another aircraft converging from the side.

_____
_____
_____

10. Who has the right-of-way when two aircraft are on final approach to land at the same time?

_____

11. Discuss the regulations regarding the consumption of alcohol and operating an aircraft.

12. At and around your home airport, where is an operating mode C transponder required?

13. If your aircraft has an operating mode C transponder, when is it required to be turned on?

14. Except when necessary for takeoffs and landings, what are the minimum safe altitudes when flying over congested and other than congested areas?

15. List at least three sources for the local altimeter setting at an airport and another alternative if none is available.

16. When practicing steep turns, stalls and maneuvering during slow flight, the entry altitude must allow a recovery to be completed no lower than how many feet AGL?

17. When is a go-around appropriate?

18. Discuss the steps in the go-around process.

19. What general steps should you follow after an engine failure in flight?

20. During flight, you begin to see a gradual decrease in power. What is a likely cause and what should be done to remedy the situation?

_____
_____

21. During engine run-up, you cause rocks, debris and propeller blast to be directed toward another aircraft or person.
Could this be considered careless or reckless operation of an aircraft? _____
Why or why not?
Explain your answer _____
_____
_____

22. What altitudes should you use when operating VFR in level cruising flight at more than 3000 feet AGL and what determines those altitudes?

_____
_____
_____

23. What is the emergency frequency?

_____
_____
_____

AIRCRAFT QUESTIONS

1. List the minimum equipment and instruments that must be working properly in your aircraft for day VFR flight.

1	2
3	4
5	6
7	8
9	10

2. Fill in the V-speed definitions and the corresponding speed for your training airplane.

	DEFINITION	SPEED
Vso		
V_{S1}		
Vx		
Vy		
Vfe		
Va		
Vno		
Vne		

3. What is the best glide speed for your training airplane? _____MPH/KIAS

4. Describe the changes in Vg and Va with changes in the gross weight of an aircraft.

_____
_____
_____

5. What flap settings should be used in your training airplane for the following operations?
Takeoff: Normal _____Short Field_____ Soft Field_____

Landing: Normal_____ Short Field_____ Soft Field_____

6. Describe any limitations on flap use in your training airplane.

_____

7. (a) What grade or grades of fuel can be safely used in your aircraft? _____
(b) What are the colors of the recommended fuels? _____
(c) What happens to the color if two grades are mixed? _____

_____
_____

8. What are the minimum and maximum oil capacities for your training airplane?

_____
_____
_____

9. Under what circumstances should you use carburetor heat?

_____
_____
_____

10. If during a flight, you experience carburetor ice and full carburetor heat is applied, what changes in engine performance would you expect?

_____
_____
_____

11. Under what circumstances could a spin occur in your training aircraft?

_____
_____
_____

12. Describe the spin recovery procedures for your training aircraft.

_____
_____
_____

13. What is the stall speed of your training airplane in a 60 degree bank with flaps up?

_____
_____
_____

AIRCRAFT PERFORMANCE

1. Perform the following calculations using the conditions provided:

Field Elevation	1000’	T/O Distance (50’ obs.) _____
Temperature	75 degrees F	Rate of Climb _____
Weight	Max Gross	Landing Distance (50’ obs.) _____
Wind	10 Kt. Headwind	
Runway	Hard Surface	
Altimeter Setting	29.92	

Field Elevation	5500’	T/O Distance (50’ obs.) _____
Temperature	90 degrees F	Rate of Climb _____

Weight	Max Gross	Landing Distance (50’ obs.) _____
Wind	Calm	
Runway	Hard Surface	
Altimeter Setting	29.42	

2. What power setting in your training airplane will yield 75% power at 3000’ MSL? _____

3. What is the TAS and fuel flow at the power setting in question 2? _____

WEIGHT AND BALANCE

Enter the current weight and balance information for your training aircraft and then calculate the weight and balance for the conditions given. Use the space provided below.

Empty Wt _____Moment_____ Useful Load_____ Gross T/O Wt._____

Conditions: full fuel, 180# passenger in each seat, 25# baggage.
If this is over gross weight or out of CG range, alter the load to correct the problem.

AIRPORT/AIRSPACE

1. What are the traffic patterns for each runway at your Piarco International airport. What is the MSL altitude for the traffic pattern?

_____
_____
_____

2. (a) How do you enter and exit the traffic pattern at Piarco International airport? _____
_____

(b) What radio communications are required?

_____
_____

3. Describe how you would approach and enter the traffic pattern at an uncontrolled airport.

_____
_____
_____

4. What radio calls are recommended as you approach and fly in the traffic pattern at an uncontrolled airport?

_____
_____
_____

5. What are the typical dimensions of Class D airspace and what requirement(s) must be met prior to entry?

_____
_____
_____

6. What is CTAF? Explain the CTAF procedures at your home airport.

_____
_____

_____

7. How can you tell if a runway is closed?

_____
_____
_____

8. If you receive ATC instructions that you do not understand or feel may compromise safety, what should you do?

_____
_____
_____

9. What is the meaning of each of the following ATC light signals?

	In Flight	**On the Ground**
Steady Green		
Flashing Green		
Steady Red		
Flashing Red		
White		

10. What aircraft equipment and student pilot authorizations are required for a student pilot to fly solo in Class B airspace?

_____
_____
_____

11. Can a student pilot request a special VFR clearance in less than VFR conditions? Explain your answer.

_____
_____
_____

12. A magenta dashed line surrounds certain uncontrolled airports. What does this indicate and what is its significance to VFR pilots?

_____
_____
_____

13. Provide visibility and cloud clearance requirements for the following airspace.
Class D _____
Class E below 10,000' MSL_____
Class G below 1,200' AGL during the day_____
Class G below 1,200' AGL at night_____

14. What are the minimum visibility and ceiling requirements for VFR flight in Class D airspace?

_____
_____
_____

15. Prior to taking the runway at an uncontrolled airport, it is recommended to maneuver the airplane as needed to view the final approach area to confirm that there is no other landing traffic. At an airport with a control tower is this still a recommended maneuver? _____

Explain your answer. _____
_____
_____

Piarco International airport

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APPENDIX 3

EXAMPLE
PRE-SOLO WRITTEN EXAMINATION - 3

_____

Student Name

Examination Administered By

Date Examination Completed

OFFICIAL USE ONLY

Pass Mark is 80%. Marks Obtained: Pass: ☐ Fail: ☐

Examination Result

STUDENT ACTIONS:

As specified in regulation 27 of TTCAR No. 1, the student pilot must demonstrate satisfactory aeronautical knowledge on a pre-solo knowledge test.

(a) Applicable parts of the TTCARs;
(b) Airspace rules and procedures for the airport where the solo is performed; and
(c) Flight characteristics and operational limitations for the make and model of aircraft to be flown.

AVIATION TRAINING ORGANIZATION ACTION:

As specified in regulation 27 of TTCAR No. 1, the Aviation Training Organization authorized instructor) must:

(a) Administer the test
(b) At the conclusion of the test, review all incorrect answers with the student before authorizing that student to conduct a solo flight.
(c) Perform the proper Logbook and Student Pilot Certificate endorsements
(d) Keep exam for three (3) years and make copy for school records.

The Flight Instructor and Student Pilot upon comprehensive review will decide the best date, time, and weather condition to allow the Student to perform safe solo flight.

Student pilots should have adequate knowledge to operate safely during solo flight in your local training environment. Since the surrounding area includes controlled airspace, such as Class B, C, D, or E airspace, you will be asked to answer appropriate questions on operations in these areas.

There are supply-type (fill in the blank) and selection-type (multiple choice) questions to allow the instructor a way to evaluate the student's knowledge and application of Aeronautical Knowledge.

PRESOLO WRITTEN EXAM

This exam contains general questions, aircraft questions, and airport and airspace questions. the General and aircraft questions apply to all students. Flight instructors who administer this test may add or delete questions as necessary to make the exam more appropriate to the training aircraft and surrounding flight environment.

EXAM PROCEDURES AND INSTRUCTIONS

This pre-solo written exam will be given to a Student Pilot in anticipation of solo flight. Each of the questions in this exam requires the Student Pilot to supply an answer rather than choose the correct answer.

After the Student Pilot completes the exam, it will be reviewed with the student's instructor. Any incorrect answers will be discussed and corrected. All questions address important areas that are critical to safe, legal and enjoyable flying. It is most important that the information be known and understood.

GENERAL QUESTIONS

1. What personal documents and endorsements are you required to have before you fly solo?

_____
_____
_____

2. What are your student pilot limitations regarding carriage of passengers or cargo and flying for compensation or hire?

_____
_____
_____

3. Explain student pilot limitations concerning visibility and flight above clouds.

_____
_____
_____

4. Who has the final authority and responsibility for the operation of the aircraft when you are flying solo?

_____
_____
_____

5. Discuss what preflight action concerning the airport and aircraft performance is specified in the regulations for a local flight.

_____
_____
_____

6. During engine run up, you cause rocks, debris, and propeller blast to be directed towards another aircraft or person. Could this be considered careless or reckless operation of an aircraft? _____

7. You may not fly as pilot of a civil aircraft within _____ hours after consumption of any alcoholic beverage or while you have _____% or more alcohol in your blood.

8. What are the general requirements pertaining to the use of safety belts and shoulder harnesses?

_____
_____
_____

9. What are the minimum fuel reserves for day VFR flight, and what cruise speed is the fuel reserve based. _____

10. A transponder with Mode C is required at all times in all airspace at and above _____ feet MSL, excluding that airspace at and below _____ feet AGL.

11. What aircraft certificate and documents must be on board when you are flying solo?
    A _____
    R _____
    O _____
    W _____

12. No person may operate an aircraft so close to another aircraft as to create a(n)
    _____

13. Who has the right-of-way when two aircrafts are on final approach to land at the same time?

_____
_____
_____

14. What action do you need to take if you are overtaking another aircraft, and which aircraft has the right-of-way? What should you do if you are flying on a head on collision course with another aircraft? If another single engine aircraft is converging from the right, who has the right-of-way?

_____
_____
_____
_____
_____
_____

15. Except when necessary for takeoffs and landings, what are the minimum safe altitudes when flying over congested areas?

_____
_____
_____

16. If the altimeter setting is not available at an airport, what setting should you use before departing on a local flight?

_____
_____
_____

17. What altitudes should you use when operating under VFR in level cruising flight at more than 3,000 feet AGL?

_____
_____
_____
_____

18. When practicing steep turns and stalls and maneuvering during slow flight, the entry altitude must allow a recovery to be completed no lower than _____ feet AGL.

19. When is a go-around appropriate?

_____
_____
_____
_____

20. What general steps should you follow after an engine failure in flight?

A _____
L _____
E _____
R _____
T _____
S _____

AIRCRAFT QUESTIONS

1. List the minimum equipment and instruments that must be working properly in your aircraft for day VFR flight:

1	2
3	4
5	6
7	8
9	10
11	12

2. Fill in the V-speeds definitions and the corresponding speed for you training airplane.

	Definition	**Speed (Kts)**
Vne		
Vno		
Va		
Vfe		
Vy		
Vx		
Vg		
Vs		
Vso		

3. What is the best glide speed for your training airplane? _____KIAS

4. What is the maximum allowable flap setting for takeoff in you aircraft?

_____

5. The total usable fuel capacity for your aircraft is _____ gallons. On a standard day (sea level temperature 15° C (59° F), altimeter 29.92 in. Hg., the fuel consumption rate during normal (75% power) cruise at 2500 feet is _____ gallons per hour.

6. What grade of fuel can be safely used in your training aircraft?

_____

7. The maximum oil capacity of your aircraft is _____ quarts, and the minimum oil capacity to begin a flight is _____ quarts.

8. The maximum demonstrated crosswind component for takeoffs and landings in your training aircraft is _____ knots.

9. (a) When do you use carburetor heat?

_____

_____

(b) What are the indications of carburetor icing?

_____

_____

_____

10. What is the takeoff and landing distance over a 50-foot obstacle for your aircraft at your airport?

(Assume maximum certified takeoff weight, 26°C, winds calm, and an altimeter setting of 29.52.)

AIRPORT AND LOCAL AIRSPACE QUESTIONS

1. (a) What are the traffic patterns for each runway at Piarco International Airport?

(b) What is the MSL altitude for traffic pattern?

2. (a) How do you enter the traffic pattern at Piarco International Airport?

(b) What, if any, radio communications?

3. What radio calls are recommended in the traffic pattern at an uncontrolled airport?

4. What is the standard direction of turns in the traffic pattern?

Give an example of a visual display indicating a nonstandard traffic pattern.

5. What is CTAF?.

Explain CTAF procedures at Piarco International Airport

6. How can you determine if a runway is closed?

_____
_____
_____

7. (a) What is the maximum speed permitted for aircraft below 10,000 feet MSL?

_____
_____

(b) What is the maximum speed allowed in class B airspace?

_____
_____

(c) What is the maximum speed allowed in a VFR corridor through class B airspace?

_____
_____

8. If you receive ATC instructions that you feel may compromise safety or will cause you to violate an regulation, what should you do?

_____
_____
_____
_____

9. What is the meaning of each of the following ATC light signals?

Alternating red and green _____

IN FLIGHT

Steady green _____
Flashing green _____
Steady red _____
Flashing red _____

ON GROUND

Steady green _____
Flashing green _____
Steady red _____
Flashing red _____
Flashing white _____

10. (a) Describe Class B boundaries and how they apply to an airport within that airspace. (Draw a diagram if necessary)

_____
_____
_____
_____

(b) Explain how you can use navigation equipment and/or ground reference points to identify the Class B boundaries.

_____
_____
_____

(c) Draw a diagram, if necessary.

DIAGRAM

11. In addition to equipment requirements and a student pilot certificate, what other requirements, if any, must be met before a student pilot is authorized to fly solo within class B airspace?

_____
_____
_____
_____

12. Explain the general transponder equipment and use requirements when operation within or near class B airspace.

_____
_____
_____
_____

13. You have called ATC just prior to entering class B airspace and the controller tells you to "Squawk 3245 and ident." Are you now allowed to enter class B airspace without any further instructions? Explain.

_____
_____
_____
_____

14. On a sectional chart, what does a dashed blue line around an airport indicate?

_____
_____
_____
_____

15. What are the typical dimensions of class D airspace, and what requirements must be met prior to entry?

_____

16. Explain the minimum visibility and ceiling requirements for VFR flight in class D airspace.

17. Can a student pilot request a special SVFR clearance in class D airspace when the visibility is less than three miles? Explain.

18. You have called ATC prior to entering class D airspace and the controller tells you “Cadet 143ND, Standby.” Are you now allowed to enter this airspace without any further instructions? Explain.

19. Describe the typical dimensions of class C airspace. Is participation in the radar service mandatory within the outer area of class C airspace?

20. Describe the airspace boundaries that affect your airport or a nearby airport. Explain how you can use navigation equipment and/or ground reference points to identify the airspace boundaries.

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