

DDC No. 11-2006-PEL Revision 1

# Ground and Flight Instructor Knowledge Test Guide

Revision 1  
January 20<sup>th</sup>, 2009





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Paramaribo, January 20<sup>th</sup>, 2009

**No. 11-2006-PEL Revision 1**

**Decision Director CASAS**

**Subject: Ground and Flight Instructor Knowledge Test Guide**

**PREFACE**

This Decision Director CASAS, No. 11-2006-PEL, Revision 1, dated January 20<sup>th</sup>, 2009, Ground and Flight Instructor Knowledge Test Guide, provides information for applicants preparing to take the ground and flight instructor knowledge tests. Appendices provide lists for each aircraft category of ground and flight instructor licensing with subject matter outlines, reference materials, and sample questions with learning statement codes. This guide can be purchased from the Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname or downloaded from the CASAS web site at <http://www.casas.sr>.

Comments and/or questions regarding this guide should be sent to the following address: Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname.

/s/ January 20<sup>th</sup>, 2009

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Director CASAS

# GROUND AND FLIGHT INSTRUCTOR KNOWLEDGE TEST GUIDE

## PURPOSE

The purpose of this Decision Director CASAS (DDC) is to provide guidance for applicants preparing to take the ground or flight instructor knowledge tests. Appendices provide subject matter outlines, reference material, and sample questions with learning statements.

Civil Aviation Regulations Suriname (CARS) can be obtained from the Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname. CARS Part 2 Personnel Licensing regulations cover the requirements for personnel licensing.

This DDC can be purchased from the Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname or downloaded from the CASAS website at <<http://www.casas.sr>>.

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## INTRODUCTION

What is required to become a skilled and effective ground or flight instructor? Although some individuals possess more knowledge and skills than others, no one is a natural-born instructor. Competent instructors become so through study, training, and experience.

This knowledge test guide should answer most questions about taking the ground and flight instructor knowledge tests by covering the following areas: knowledge test eligibility requirements; knowledge areas on the tests; descriptions of the tests; process for taking a knowledge test; validity of Airman Test Knowledge Reports; use of test aids and materials; cheating or other unauthorised conduct; retesting procedures; and obtaining training and testing publications and general information.

This guide will help applicants in preparing to take one or all of the following tests:

- |   |     |
|---|-----|
| • Ground Instructor – Basic                 | BGI |
| • Ground Instructor – Advanced              | AGI |
| • Fundamentals of Instructing               | FOI |
| • Flight Instructor – Aeroplane             | FIA |
| • Flight Instructor – Helicopter            | FRH |
| • Flight Instructor – Glider                | FIG |
| • Flight Instructor – Airship               | FLA |
| • Flight Instructor – Balloon Gas           | FBG |
| • Flight Instructor – Balloon Hot Air       | FBH |
| • Ground Instructor – Instrument            | IGI |
| • Flight Instructor – Instrument Aeroplane  | FII |
| • Flight Instructor – Instrument Helicopter | FIH |

This guide is not offered as an easy way to obtain the necessary information for passing the knowledge tests. Rather, the intent of this guide is to define and narrow the field of study to the required knowledge areas included in the tests.

CASAS airman knowledge tests are a very effective instrument for aviation safety and regulatory compliance. However, these tests can only sample the vast amount of knowledge every instructor needs to operate safely in an ever increasingly complex airspace system.

## KNOWLEDGE TEST ELIGIBILITY REQUIREMENTS

Individuals pursuing a ground or flight instructor licence should review: Civil Aviation Regulations Suriname (CARS), Part 2, section 2.2.1 General; and section 2.2.3, Validity. The applicant for a ground or flight instructor licence knowledge test must be at least 18 years old and have a CASAS Class 1 medical certificate.

## KNOWLEDGE AREAS ON THE TESTS

Ground and flight instructor tests are comprehensive because they must test the applicant's knowledge in many subject areas.

Applicants pursuing an instructor rating should review the appropriate regulations in CARS Part 2, section 2.3.4.1 (b) Knowledge areas, for fundamentals of instructing and section 2.3.4.2 (c) for flight instructor knowledge areas, and 2.3.4.4 (b) for ground instructor licence knowledge areas.

## DESCRIPTIONS OF THE TESTS

If applicants are pursuing initial ground or flight instructor licensing, they must successfully complete the fundamentals of instructing knowledge test. However, if the applicant holds a current teacher's certificate issued by a national or local authority that authorises him to teach at the secondary or higher education level, or the applicant provides evidence of an equivalent level of experience acceptable to CASAS, the applicant can receive credit for this test.

All test questions are the objective, multiple-choice type. Each question can be correctly answered by the selection of a single response. Each test question is independent of other questions; therefore, a correct response to one does not depend upon, or influence, the correct response to another. **The minimum passing score is 75 percent.**

The following test contains **50 questions** and applicants are allowed a **maximum of 2.0 hours** to complete the test.

- Fundamentals of Instructing

The following tests each contain **100 questions** (except for Ground Instructor – Basic, which contains **80 questions**), and applicants are allowed a **maximum of 2.5 hours** to complete each test.

- Ground Instructor – Basic
- Ground Instructor – Advanced
- Flight Instructor – Aeroplane
- Flight Instructor – Helicopter
- Flight Instructor – Glider

- Flight Instructor – Airship
- Flight Instructor – Balloon Gas
- Flight Instructor – Balloon Hot Air
- Ground Instructor – Instrument
- Flight Instructor – Instrument Aeroplane
- Flight Instructor – Instrument Helicopter

Communication between individuals through the use of words is a complicated process. In addition to being an exercise in the application and use of aeronautical knowledge, a knowledge test is also an exercise in communication since it involves the use of the written language. Since the tests involve written rather than spoken words, communication between the test writer and the person being tested may become a difficult matter if care is not exercised by both parties. Consequently, considerable effort is expended to write each question in a clear, precise manner. Test applicants should be sure to carefully read the instructions given with each test, as well as the statements in each test item.

When taking a test, keep the following points in mind:

- Answer each question in accordance with the latest regulations and guidance publications.
- Read each question carefully before looking at the possible answers. Test applicants should clearly understand the problem before attempting to solve it.
- After formulating an answer, determine which choice corresponds with that answer. The answer chosen should completely resolve the problem.
- From the answers given, it may appear there is more than one possible answer; however, there is only one answer that is correct and complete. The other answers are either incomplete, erroneous, or represent common misconceptions.
- If a certain question is difficult, it is best to mark it for review and proceed to the next question. After answering the less difficult questions, return to those marked for review and answer them. The review marking procedure will be explained to test applicants prior to starting the test. Although the computer should alert test applicants to unanswered questions, test applicants should make sure every question has an answer recorded. This procedure will enable test applicants to use the available time to maximum advantage.
- When solving a calculation problem, the answer closest to the applicant's solution should be selected. The problem has been checked with various types of calculators; therefore, if the problem has been solved correctly, the applicant's answer will be closer to the correct answer than any of the other choices.

## **PROCESS FOR TAKING A KNOWLEDGE TEST**

The first step in the process of taking a knowledge test is to contact the CASAS office. They can provide applicants with information relating to knowledge test prerequisites, required authorisations and endorsements, testing locations, and the appropriate fees. In addition, applicants should visit the CASAS website at <<http://www.casas.sr>>.

The second step in the process of taking a knowledge test is for the applicant to complete the required training and receive an endorsement from an authorised instructor or aviation training organisation.

Acceptable forms of endorsement are:

- A certificate of graduation or a statement of accomplishment certifying the satisfactory completion of the ground school portion of a course for the licence or rating sought. The certificate or statement may be issued by an approved aviation training organisation.
- A written statement or logbook endorsement from an authorised ground or flight instructor certifying the applicant has completed an applicable ground training or home study course and is prepared to take the knowledge test.
- A failed, passed, or expired Airman Knowledge Test Report, provided the airman still has the original Airman Knowledge Test Report in his/her possession.
- An “expired test/credit” letter issued by the CASAS (in lieu of a duplicate Airman Knowledge Test Report).

The third step in the process of taking a knowledge test is for the applicant to receive written authorisation from CASAS.

The fourth step in taking a knowledge test is to proceed to the CASAS test center. An applicant for a knowledge test must provide proper identification. Testing center personnel will not begin the test until the test applicant’s identification is verified.

Upon completion of the knowledge test, the applicant will receive an Airman Knowledge Test Report showing the test score. The Airman Knowledge Test Report is certified with an embossed seal to authenticate the validity of the document.

The Airman Knowledge Test Report lists the learning statement codes for questions answered incorrectly. The total number of codes shown on the Airman Knowledge Test Report is not necessarily an indication of the total number of questions answered incorrectly.

The Appendices of this Knowledge Test Guide contain a list of reference materials for applicants to study during their training for an instructor licence. The questions on the knowledge test will come from these reference materials. Decision Director CASAS, No. 2-2006-PEL Revision 1, Learning Statement Reference Guide for Airman Knowledge Testing, contains learning statements and their corresponding codes for airman knowledge testing. Applicants should match the learning statement codes on the Airman Knowledge Test Report to these codes to review their areas of deficiency.

A list of reference materials has been prepared by CASAS to establish specific references for all knowledge standards and is to be used when preparing for an airman knowledge test. The list of reference materials is contained in the appendices to this Knowledge Test Guide.

An applicant’s instructor is required to provide instruction on each of the knowledge areas listed on the Airman Knowledge Test Report and to complete an endorsement of this instruction. The Airman Knowledge Test Report must be presented to the test examiner prior to taking the skill test. During the oral portion of the skill test, the test examiner is required to evaluate the noted areas of deficiency.

Applicants requiring a duplicate Airman Knowledge Test Report due to loss or destruction of the original should send a signed request to Civil Aviation and Safety Authority Suriname, Personnel Licensing Division, P.O. Box 12587, Paramaribo, Suriname.

## **VALIDITY OF AIRMAN TEST REPORTS**

Airman Knowledge Test Reports for an instructor licence are valid for 24 calendar months. The applicant should plan to complete the skill test during the 24 calendar month validity period. If the Airman Knowledge Test Report expires before completion of the skill test, the applicant must retake the knowledge test.

## **USE OF TEST AIDS AND MATERIALS**

Knowledge test applicants may use aids, reference materials, and test materials within the guidelines listed below. All models of aviation-oriented calculators may be used, including small electronic calculators that perform only arithmetic functions (add, subtract, multiply, and divide). Simple programmable memories, which allow addition to, subtraction from, or retrieval of one number from the memory, are permissible. Also, simple functions, such as square root and percent keys are permissible. The following guidelines apply:

1. Applicants may use any reference materials provided with the test. In addition, applicants may use scales, straightedges, protractors, plotters, navigation computers, log sheets, holding pattern entry aids, and electronic or mechanical calculators that are directly related to the test.
2. Manufacturers permanently inscribed instructions on the front and back of such aids, e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, mass and balance formulas, and air traffic control procedures are permissible.
3. CASAS personnel may provide a calculator to applicants and/or deny use of the applicant's personal calculator based on the following limitations:
  - (a) Prior to, and upon completion of the test, while in the presence of the test examiner, applicants must actuate the ON/OFF switch and perform any other function that ensures erasure of any data stored in memory circuits, including removal of batteries.
  - (b) The use of electronic calculators incorporating permanent or continuous type memory circuits without erasure capability is prohibited. The test examiner may refuse the use of the applicant's calculator when unable to determine the calculator's erasure capability.
  - (c) Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.
  - (d) The use of magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which pre-written programs or information related to the test can be stored and retrieved is prohibited.
  - (e) Applicants are not permitted to use any booklet or manual containing instructions related to use of test aids.
4. Dictionaries are not permitted in the testing area.
5. The CASAS test examiner makes the final determination relating to test materials and personal possessions the applicant may take into the testing area.

## **CHEATING OR OTHER UNAUTHORISED CONDUCT**

Knowledge testing must be carried out in accordance with the strictest security procedures to avoid test compromise. The CASAS test examiner will terminate a test at any time that he/she suspects that

a cheating incident has occurred. A CASAS investigation will be conducted. If the investigation determines that cheating or unauthorised conduct has occurred, any airman licence, certificate, or rating the applicant holds may be revoked, and the applicant will be prohibited for 1 year from applying for or taking any test for a licence, certificate or rating under CARS Part 2.

## **RETESTING PROCEDURES**

Applicants who receive a grade lower than 75 percent and who wish to retest must present the following to CASAS testing center personnel when appearing for the purpose of retesting:

- A failed Airman Knowledge Test Report.
- A written endorsement from an authorised instructor certifying that additional instruction has been given, and the instructor finds the applicant competent to pass the test.
- A written authorisation from CASAS to retake the test.

Applicants possessing an Airman Knowledge Test Report with a score of 75 percent or higher who decide to retake the test in anticipation of a better score, may retake the test after 30 days from the date their last test was taken. CASAS will not allow applicants to retake a passed test before the 30-day period has lapsed. Prior to retesting, applicants will be required to surrender their current Airman Knowledge Test Report to the test examiner. The last test taken will reflect the official final score.

## **OBTAINING TRAINING AND TESTING PUBLICATIONS AND GENERAL INFORMATION**

Most of the current CASAS airman training and testing publications can be obtained in electronic format from CASAS at the CASAS website at <<http://www.casas.sr>>.

## **AIRMAN KNOWLEDGE TEST ITEMS**

Sample questions and their corresponding learning statements and codes are contained in the appendices to this test guide. They are representative of questions for airman knowledge tests. These will help airmen become familiar with similar questions found on the airman knowledge tests. The knowledge test is not designed to intimidate any prospective airman; it is designed to measure the level of competency required to receive a CASAS licence, authorisation or rating. The list of reference materials contained in the appendices to this test guide is provided to ensure that instructors and students are able to determine the importance of the subject matter to be taught and learned.

## **COMPUTER TESTING SUPPLEMENTS**

The computer testing supplements contain the graphics, legends, and maps that are needed to successfully respond to certain knowledge test items. These supplements will be provided by CASAS test center personnel during the airman knowledge test.

## **KNOWLEDGE TEST GUIDES**

The knowledge test guides describe the knowledge testing policy and procedures for each licence area.



## **OTHER KNOWLEDGE TESTING INFORMATION**

Other knowledge testing information provides specific test information, such as test name, test code (three-digit test identifiers), number of questions, and the time (hours) allotted for each knowledge test. The test identifiers will assist airmen in selecting the proper test for the licence or rating being sought.

## **REFERENCE MATERIALS / LEARNING STATEMENT CODES**

The appendices of this guide contain the listings of reference materials and sample test questions with related learning statements used for airman knowledge testing. The listings of reference materials and sample questions have been prepared by CASAS to establish specific references for all knowledge standards. The listings contain reference materials to be used when preparing for all airman knowledge tests. The learning statements contained in Decision Director CASAS, No. 2-2006-PEL Revision 1, should be referred to when reviewing areas of deficiency on airman knowledge test reports.

## APPENDIX 1

### LIST OF GROUND AND FLIGHT INSTRUCTOR REFERENCE MATERIALS FOR ALL CERTIFICATIONS

The publications listed below contain study material applicants need to be familiar with when preparing for instructor knowledge tests. Most of these publications can be purchased from CASAS or be downloaded from the CASAS web site at <http://www.casas.sr>. ICAO publications can be purchased from ICAO at <http://www.icao.int>. The latest revision of the listed references should be requested.

- ❑ The Suriname Civil Aviation Safety and Security Act of March 12, 2002
- ❑ Civil Aviation Regulations Suriname (CARS), in particular:
  - CARS Part 1 – General Policies, Procedures, and Policies
  - CARS Part 2 – Personnel Licensing
  - CARS Part 5 – Airworthiness
  - CARS Part 7 – Instruments and Equipment
  - CARS Part 8 – Operations
  - CARS Part 11 – Aerial Work
- ❑ Implementing Standards Part 2
- ❑ ICAO Annexes: 3, 10 Volume II, 11 and 14 (pertinent parts)
- ❑ ICAO Document 4444: General provisions, Aero Control service, Approach control service, Aerodrome control service, and Flight information and alerting service.
- ❑ Aeronautical Information Manual (AIM)
- ❑ Aeronautical Information Publication (AIP) for Suriname
- ❑ Aircraft Electricity and Electronics - Glencoe Division, Macmillan/McGraw-Hill Publication Company
- ❑ Airport/Facility Directory
- ❑ Automatic Flight Control
- ❑ Balloon Digest – Balloon Federal of America
- ❑ Balloon Ground School – Balloon Publishing Company
- ❑ Cameron Balloons Flight Manual – Cameron Balloons Limited

## APPENDIX 1 (CONTINUED)

### LIST OF GROUND AND FLIGHT INSTRUCTOR REFERENCE MATERIALS FOR ALL CERTIFICATIONS

- ❑ Enroute High Altitude Chart
- ❑ Enroute Low Altitude Chart
- ❑ Flight Theory for Pilots - IAP Inc. Publications
- ❑ GA 42 Airship Training Manual – Jeppesen Sanderson
- ❑ Goodyear Airship Operations Manual –Goodyear Publications
- ❑ How To Fly A Balloon The Balloonist’s Resource – Balloon Publishing Company
- ❑ Instrument Approach Procedure Chart
- ❑ Pilot’s Handbook for Navy Model ZP2K Airship and Handling Rigid Airships on the Ground
- ❑ Sectional Aeronautical Chart
- ❑ Transport Category Aircraft Systems - Jeppesen Sandersen
- ❑ U.S. Terminal Procedures (DP) (adopted in cooperation with FAA)
- ❑ FAA Accident Prevention Program Bulletins (adopted in cooperation with FAA)
- ❑ FAA AC 00-6 – Aviation Weather (adopted in cooperation with FAA)
- ❑ FAA AC 00-8 – Powerline Advisory Circular (adopted in cooperation with FAA)
- ❑ FAA AC 00-24 – Thunderstorms (adopted in cooperation with FAA)
- ❑ FAA AC 00-30 – Atmospheric Turbulence Avoidance (adopted in cooperation with FAA)
- ❑ FAA AC 00-45 – Aviation Weather Services (adopted in cooperation with FAA)
- ❑ FAA AC 00-54 – Pilot Wind Shear Guide (adopted in cooperation with FAA)
- ❑ FAA AC 20-43 – Aircraft Fuel Control (adopted in cooperation with FAA)
- ❑ FAA AC 20-103 – Aircraft Engine Crankshaft Failure (adopted in cooperation with FAA)
- ❑ FAA AC 20-117 – Hazards Following Ground Deicing (adopted in cooperation with FAA)
- ❑ FAA AC 60-22 – Aeronautical Decision Making (adopted in cooperation with FAA)

## APPENDIX 1 (CONTINUED)

### LIST OF GROUND AND FLIGHT INSTRUCTOR REFERENCE MATERIALS FOR ALL CERTIFICATIONS

- ❑ FAA AC 61-107 – Operations of Aircraft at Altitudes Above 25,000 Feet (adopted in cooperation with FAA)
- ❑ FAA AC 90-48 – Pilot’s Role in Collision Avoidance (adopted in cooperation with FAA)
- ❑ FAA AC 91-6 – Water, Slush, and Snow on the Runway (adopted in cooperation with FAA)
- ❑ FAA AC 91-13 – Cold Weather Operation of Aircraft (adopted in cooperation with FAA)
- ❑ FAA AC 91-43 – Unreliable Airspeed Indication (adopted in cooperation with FAA)
- ❑ FAA AC 103-4 – Hazard with Dry Ice Aboard Aircraft (adopted in cooperation with FAA)
- ❑ FAA AC 120-58 – Pilot Guide Large Aircraft Deicing (adopted in cooperation with FAA)
- ❑ FAA-H-8083-1 – Aircraft Weight and Balance (adopted in cooperation with FAA)
- ❑ FAA-H-8083-3 – Airplane Flying Handbook (adopted in cooperation with FAA)
- ❑ FAA-H-8083-9 – Aviation Instructor Handbook (adopted in cooperation with FAA)
- ❑ FAA-H-8083-11 – Balloon Flying Handbook (adopted in cooperation with FAA)
- ❑ FAA-H-8083-13 – Glider Flying Handbook (adopted in cooperation with FAA)
- ❑ FAA-H-8083-15 – Instrument Flying Handbook (adopted in cooperation with FAA)
- ❑ FAA-H-8083-21 – Rotorcraft Flying Handbook (adopted in cooperation with FAA)
- ❑ FAA-H-8083-25 – Pilot’s Handbook of Aeronautical Knowledge (adopted in cooperation with FAA)

## APPENDIX 2

**GROUND INSTRUCTOR - BASIC (BGI)**  
**GROUND INSTRUCTOR - ADVANCED (AGI)**  
**FLIGHT INSTRUCTOR - AEROPLANE (FIA)**  
**FLIGHT INSTRUCTOR - HELICOPTER (FRH)**  
**FLIGHT INSTRUCTOR - GLIDER (FIG)**  
**FLIGHT INSTRUCTOR - AIRSHIP (FLA)**  
**FLIGHT INSTRUCTOR - BALLOON GAS (FBG)**  
**FLIGHT INSTRUCTOR - BALLOON HOT AIR (FBH)**

### SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Ground and Flight Instructor knowledge tests.

1. Receive and log training from an authorised instructor and pass a ground or flight instructor knowledge test on:
  - a. The aeronautical knowledge areas for a student, private and flight instructor pilot licence applicable to the aircraft category for which flight instructor privileges are sought.
  - b. For Ground Instructor - Basic rating, the knowledge for a student and private pilot licence as listed in this CARS Part 2.
  - c. For Ground Instructor - Advanced rating, the knowledge for a student, private, commercial and airline transport pilot knowledge areas as listed in CARS Part 2.
2. Meet the requirements for fundamentals of instructing as listed in CARS 2.3.4.1(b).

## APPENDIX 2 (CONTINUED)

### GROUND INSTRUCTOR - BASIC (BGI) GROUND INSTRUCTOR - ADVANCED (AGI) FLIGHT INSTRUCTOR - AEROPLANE (FIA) FLIGHT INSTRUCTOR - GLIDER (FIG)

#### SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

**1. To act as pilot-in-command of an aeroplane that has retractable landing gear, flaps, and a controllable pitch propeller, a pilot is required to**

A – successfully complete a skill test in such an aeroplane.

B – have a logbook endorsement from an authorised flight instructor certifying proficiency in an aeroplane with more than 200 horsepower.

C – receive an endorsement certifying ground and flight training from an authorised flight instructor in such an aeroplane, or approved flight training device, and a high performance aeroplane endorsement.

**Answer C – Recall regulations - experience / training requirements**

**2. While maintaining a magnetic heading of 180° and a true airspeed of 130 knots, the 270° radial of a VOR is crossed at 1037 and the 260° radial at 1042. The approximate time and distance to the station would be**

A – 30 minutes and 65 NM.

B – 42 minutes and 104 NM.

C – 44 minutes and 96 NM.

**Answer A – Calculate distance / bearing from/to a station**

**3. The pivotal altitude for eights-on-pylons is dependent primarily upon the**

A – groundspeed.

B – true airspeed.

C – distance from the pylon.

**Answer A – Recall flight operations - maneuvers**

**4. What is the location of the CG if 60 pounds are removed from Station 70?**

Aircraft mass                      8,420 lbs

CG location                         Station 85

A – 85.1.

B – 84.9.

C – 84.1.

**Answer A – Calculate mass and balance**

**5. If the same angle of attack is maintained in ground effect as when out of ground effect, lift will**

A – increase, and induced drag will decrease.

B – decrease, and parasite drag will increase.

C – decrease, and parasite drag will decrease.

**Answer A – Recall aircraft performance - ground effect**

**APPENDIX 2 (CONTINUED)**

**FLIGHT INSTRUCTOR - HELICOPTER (FRH)**

**SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS**

**1. Which instrument provides the most pertinent information (primary) for pitch control in straight-and-level flight?**

- A – Altimeter.
- B – Attitude indicator.
- C – Airspeed indicator.

**Answer A – Recall pitch control - collective / cyclic**

**2. With respect to advection fog, which statement is true?**

- A – It forms almost exclusively at night or near daybreak.
- B – It forms when unstable air is cooled adiabatically.
- C – It can appear suddenly during day or night, and it is more persistent than radiation fog.

**Answer C – Recall fog - types / formation / resulting weather**

**3. A particular VORTAC station is undergoing routine maintenance. This is evidenced by**

- A – removal of the identification feature.
- B – removal of the voice feature of the TACAN.
- C – transmitting a series of dashes after each identification signal.

**Answer A – Recall instrument/navigation system checks/inspections - limits / tuning / identifying / logging**

**4. With certain exceptions, Class E airspace extends upward from either 700 feet or 1,200 feet AGL to, but does not include**

- A – 10,000 feet MSL.
- B – 14,500 feet MSL.
- C – 18,000 feet MSL.

**Answer C – Recall airspace classes - limits / requirements / restrictions / airspeeds / equipment**

**5. Feathering of rotor blades means the angular change of the blades during a cycle of revolution in order to**

- A – counteract gyroscopic precession.
- B – equalize lift on upwind and downwind sides of the rotor disc.
- C – equalize lift on the opposite (retreating and advancing blade) side of the disc.

**Answer C – Recall rotor system - types / components / operating principles / characteristics**

**APPENDIX 2 (CONTINUED)**

**FLIGHT INSTRUCTOR - AIRSHIP (FLA)**

**SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS**

**1. When operating an airship with the ballonet air valve in the automatic forward position, the aft valve locks should not be engaged with either after-damper open because**

- A – ballonet overinflation and rupture may occur.
- B – the aircraft will enter an excessive bow-high attitude.
- C – the aircraft will enter an excessive stern-high attitude.

**Answer A – Recall secondary flight controls - types / purpose / functionality**

**2. Which is true regarding actual air temperature and dewpoint temperature spread? The temperature spread**

- A – decreases as the relative humidity decreases.
- B – decreases as the relative humidity increases.
- C – increases as the relative humidity increases.

**Answer B – Recall temperature - effects on weather formations**

**3. The ADF is tuned to a radio beacon. If the magnetic heading is 040° and the relative bearing is 290°, the magnetic bearing TO that radio beacon would be**

- A – 150°.
- B – 285°.
- C – 330°.

**Answer C – Interpret VOR / ADF / NDB / CDI / RMI - illustrations / indications / procedures**

**4. Which take-off procedure is considered to be most hazardous?**

- A – Failing to apply full engine power properly on all takeoffs, regardless of wind.
- B – Maintaining only 50 percent of the maximum permissible positive angle of inclination.
- C – Maintaining a negative angle of inclination during takeoff after elevator response is adequate for controllability.

**Answer C – Recall approach / landing / taxiing techniques**

**5. How does the pilot know when pressure height has been reached? Liquid in the gas**

- A – and air manometers will fall below the normal level.
- B – manometer will fall and the liquid in the air manometer will rise above normal levels.
- C – manometer will rise and the liquid in the air manometer will fall below normal levels.

**Answer C – Recall airship - flight operations**



## APPENDIX 2 (CONTINUED)

### FLIGHT INSTRUCTOR - BALLOON GAS (FBG)

#### SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

**1. One advantage nylon rope has over manila rope is that it**

A – will not stretch.

B – is nearly three times as strong.

C – does not tend to snap back if it breaks.

**Answer B – Recall secondary flight controls - types / purpose / functionality**

**2. To help manage cockpit stress, pilots must**

A – condition themselves to relax and think rationally when stress appears.

B – be aware of life stress situations that are similar to those in flying.

C – avoid situations that will improve their abilities to handle cockpit responsibilities.

**Answer A – Recall human factors - stress management**

**3. If clouds form as a result of very stable, moist air being forced to ascend a mountain slope, the clouds will be**

A – cirrus type with no vertical development or turbulence.

B – cumulonimbus with considerable vertical development and heavy rains.

C – stratus type with little vertical development and little or no turbulence.

**Answer C – Recall cloud types - formation / resulting weather**

**4. True course measurements on a Sectional Aeronautical Chart should be made at a meridian near the midpoint of the course because the**

A – values of isogonic lines change from point to point.

B – angles formed by isogonic lines and lines of latitude vary from point to point.

C – angles formed by lines of longitude and the course line vary from point to point.

**Answer C – Interpret information on a Sectional Chart**

**5. The weigh-off procedure is useful because the**

A – pilot can adjust the altimeter to the correct setting.

B – ground crew can assure that downwind obstacles are cleared.

C – pilot will learn what the equilibrium conditions are prior to being committed to fly.

**Answer C – Recall flight operations - takeoff / landing maneuvers**

**APPENDIX 2 (CONTINUED)**

**FLIGHT INSTRUCTOR - BALLOON HOT AIR (FBH)**

**SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS**

**1. On a balloon equipped with a blast valve, the blast valve is used for**

- A – climbs only.
- B – emergencies only.
- C – control of altitude.

**Answer C – Recall primary flight controls - types / purpose / functionality**

**2. What is the mass of propane?**

- A – 4.2 pounds per gallon.
- B – 6.0 pounds per gallon.
- C – 7.5 pounds per gallon.

**Answer A – Calculate mass and balance**

**3. Hazardous attitudes which contribute to poor pilot judgment can be effectively counteracted by**

- A – taking meaningful steps to be more assertive with attitudes.
- B – early recognition of hazardous thoughts.
- C – redirecting that hazardous attitude so that appropriate action can be taken.

**Answer C – Recall Aeronautical Decision Making (ADM) - hazardous attitudes**

**4. What single reference contains information regarding a volcanic eruption that is occurring or expected to occur?**

- A – In-flight weather advisories.
- B – Terminal area forecasts (TAF).
- C – Weather depiction chart.

**Answer A – Recall information on Inflight Aviation Weather Advisories**

**5. If the same angle of attack is maintained in ground effect as when out of ground effect, lift will**

- A – increase, and induced drag will decrease.
- B – decrease, and parasite drag will increase.
- C – decrease, and parasite drag will decrease.

**Answer A – Recall aircraft performance - ground effect**

## APPENDIX 3

### GROUND INSTRUCTOR - INSTRUMENT (IGI) FLIGHT INSTRUCTOR INSTRUMENT - AEROPLANE (FII) FLIGHT INSTRUCTOR INSTRUMENT - HELICOPTER (FIH)

#### SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Ground and Flight Instructor Instrument knowledge tests.

1. Receive and log training from an authorised instructor and pass a knowledge test on:
  - a. The aeronautical knowledge areas appropriate to the aircraft category, for the licence and ratings being sought.
  - b. The aeronautical knowledge areas for the instrument rating applicable to the category for which instrument flight instructor privileges are sought.
  - c. The aeronautical knowledge areas for the instrument rating applicable to the category for which instrument ground instructor privileges are sought.
2. Meet the requirements for fundamentals of instructing as listed in CARS 2.3.4.1(b).

## APPENDIX 3 (CONTINUED)

### GROUND INSTRUCTOR - INSTRUMENT (IGI) FLIGHT INSTRUCTOR INSTRUMENT - AEROPLANE (FII) FLIGHT INSTRUCTOR INSTRUMENT - HELICOPTER (FIH)

#### SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

**1. How long does a pilot meet the recency of experience requirements for IFR flight after successfully completing an instrument competency check if no further IFR flights are made?**

A – 90 days.

B – 6 calendar months.

C – 12 calendar months.

**Answer B – Recall regulations - pilot currency requirements**

**2. When an altimeter is changed from 30.11 inches Hg to 29.96 inches Hg, in which direction will the indicated altitude change and by what value?**

A – Altimeter will indicate 15 feet lower.

B – Altimeter will indicate 150 feet lower.

C – Altimeter will indicate 150 feet higher.

**Answer B – Recall altimeter - settings / setting procedures**

**3. What responsibility does the pilot in command of an IFR flight assume upon entering VFR conditions?**

A – Report VFR conditions to ARTCC so that an amended clearance may be issued.

B – Use VFR operating procedures.

C – To see and avoid other traffic.

**Answer C – Recall regulations - pilot-in-command authority / responsibility**

**4. The sensations which lead to spatial disorientation during instrument flight conditions**

A – are frequently encountered by beginning instrument pilots, but never by pilots with moderate instrument experience.

B – occur, in most instances, during the initial period of transition from visual instrument flight.

C – must be suppressed and complete reliance placed on the indications of the flight instruments.

**Answer C – Recall physiological factors - spatial disorientation**

**5. What is the primary pitch instrument during a stabilized climbing left turn at cruise climb airspeed?**

A – Attitude indicator.

B – VSI.

C – Airspeed indicator.

**Answer C – Recall basic instrument flying - fundamental skills**

## APPENDIX 4

### FUNDAMENTALS OF INSTRUCTING (FOI)

#### SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Fundamentals of Instructing knowledge test.

1. In addition to specific requirements listed in this section, and except as identified in (2) below, applicants for instructor licences, ratings and authorisations shall have received and logged training from an authorised instructor on the fundamentals of instructing and have passed a knowledge test on the following areas of instructing:
  - a. Techniques of applied instruction.
  - b. Assessment of student performance in those subjects in which ground instruction is given.
  - c. The learning process.
  - d. Elements of effective teaching.
  - e. Student evaluation and testing, training philosophies.
  - f. Training program development.
  - g. Lesson planning.
  - h. Classroom instructional techniques.
  - i. Use of training aids, including flight simulation training devices as appropriate.
  - j. Analysis and correction of student errors.
  - k. Human performance relevant to flight instruction.
  - l. Hazards involved in simulating system failures and malfunctions in the aircraft.
  - m. Principles of threat and error management.
  
2. The following applicants do not need to comply with paragraph (1) of this subsection:
  - a. The holder of an instructor licence issued under this part who has already passed the knowledge test in the areas of instructing.
  - b. The holder of a current teacher's certificate issued by a national or local authority that authorises the person to teach at a secondary educational level or higher.
  - c. A person who provides evidence of an equivalent level of experience acceptable to CASAS.

APPENDIX 4 (CONTINUED)

FUNDAMENTALS OF INSTRUCTING (FOI)

SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

**1. When has instruction taken place?**

A – When all the required material has been presented.

B – When a procedure has been explained, and the desired student response has occurred.

C – When the student hears what is presented.

**Answer B – Recall regulations - instructor requirements / responsibilities**

**2. A written test having the characteristic of discrimination will**

A – be easy to give and easily graded.

B – distinguish between students both low and high in achievement.

C – include a representative and comprehensive sampling of the course objectives.

**Answer B – Recall student evaluation - written tests / oral quiz / critiques.**

**3. After individuals are physically comfortable and have no fear for their safety, which human needs become the prime influence on their behavior?**

A – Social.

B – Physical.

C – Egoistic.

**Answer A – Recall human behavior - social / self fulfillment / physical**

**4. Faulty performance due to student overconfidence should be corrected by**

A – increasing the standard of performance for each lesson.

B – praising the student only when the performance is perfect.

C – providing strong, negative evaluation at the end of each lesson.

**Answer A – Recall FOI techniques / human behavior - dangerous tendencies**