

# Instrument Rating Knowledge Test Guide

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





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

**No. 10-2006-PEL Revision 1**

**Decision Director CASAS**

**Subject: Instrument Rating Knowledge Test Guide**

## **PREFACE**

This Decision Director CASAS No. 10-2006-PEL Revision 1, dated January 20<sup>th</sup>, 2009, Instrument Rating Knowledge Test Guide, provides information for applicants preparing to take instrument rating knowledge tests. Appendices provide lists for each aircraft category of an instrument rating 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

# INSTRUMENT RATING KNOWLEDGE TEST GUIDE

## PURPOSE

The purpose of this Decision Director CASAS (DDC) is to provide guidance for applicants preparing to take instrument rating 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 licencing.

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>>.

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

## INTRODUCTION

What is required to become a skilled and effective instrument rated pilot? Although some individuals possess more knowledge and skills than others, no one is a natural-born instrument rated pilot. Competent instrument rated pilots become so through study, training, and experience.

This knowledge test guide should answer most questions about taking an instrument rating knowledge test 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 Knowledge Test 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:

- |   |     |
|---|-----|
| • Instrument Rating – Aeroplane             | IRA |
| • Instrument Rating – Aeroplane Validation  | IVL |
| • Instrument Rating – Aeroplane Conversion  | ICL |
| • Instrument Rating – Helicopter            | IRH |
| • Instrument Rating – Helicopter Validation | IVH |
| • Instrument Rating – Helicopter Conversion | ICH |

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 pilot needs to operate safely in an ever increasingly complex airspace system.

## KNOWLEDGE TEST ELIGIBILITY REQUIREMENTS

Individuals pursuing an instrument rating should review: Civil Aviation Regulations Suriname (CARS), Part 2, section 2.2.1 General; section 2.2.3, Validity; section 2.3.3.5, Instrument Rating. The applicant for an instrument rating must be at least 17 years old and have a CASAS Class 1 or 2 medical certificate issued under CARS Part 2 as appropriate for the level of license held.

## KNOWLEDGE AREAS ON THE TESTS

Instrument rating tests are comprehensive because they must test applicant's knowledge in many subject areas.

Applicants pursuing an instrument rating should review the appropriate regulations in CARS Part 2, section 2.3.3.5 (c), Knowledge areas, for the knowledge areas on the tests.

## DESCRIPTIONS OF THE TESTS

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 tests each contain **60 questions**, and applicants are allowed a **maximum of 2.5 hours** to complete each test.

- Instrument Rating – Aeroplane
- Instrument Rating – Helicopter

The following tests each contain **50 questions**, and applicants are allowed a **maximum of 2.0 hours** to complete each test.

- Instrument Rating – Aeroplane Validation / Conversion
- Instrument Rating – Helicopter Validation / Conversion

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 contains a list of reference materials for applicants to study during their training for an instrument rating. 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 Licencing Division, P.O. Box 12587, Paramaribo, Suriname.

## **VALIDITY OF AIRMAN KNOWLEDGE TEST REPORTS**

Airman Knowledge Test Reports for an instrument rating 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 INSTRUMENT RATING REFERENCE MATERIALS FOR ALL CERTIFICATIONS

The publications listed below contain study material applicants need to be familiar with when preparing for instrument rating 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
- ❑ 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
- ❑ Enroute High Altitude Chart
- ❑ Enroute Low Altitude Chart
- ❑ Flight Theory for Pilots - IAP Inc. Publications
- ❑ Instrument Approach Procedure Chart

## APPENDIX 1 (CONTINUED)

### LIST OF INSTRUMENT RATING REFERENCE MATERIALS FOR ALL CERTIFICATIONS

- ❑ Sectional Aeronautical Chart
- ❑ U.S. Terminal Procedures (DP) (adopted in cooperation with FAA)
- ❑ FAA Accident Prevention Program Bulletin (adopted in cooperation with FAA)
- ❑ FAA AC 00-6 – Aviation Weather (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 20-103 – Aircraft Engine Crankshaft Failure (adopted in cooperation with FAA)
- ❑ FAA AC 60-22 – Aeronautical Decision Making (adopted in cooperation with FAA)
- ❑ 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 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-8083-15 – Instrument Flying Handbook (adopted in cooperation with the 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

### INSTRUMENT RATING - AEROPLANE (IRA)

#### SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Instrument Rating - Aeroplane knowledge test.

1. Air Law:
  - a. Rules and regulations relevant to flight under IFR;
  - b. Related air traffic services practices and procedures.
2. Aircraft General Knowledge:
  - a. Use, limitation and serviceability of avionics, electronic devices and instruments necessary for the control and navigation of aeroplanes under IFR and in instrument meteorological conditions;
  - b. Use and limitations of autopilot;
  - c. Compasses, turning and acceleration errors;
  - d. Gyroscopic instruments, operational limits and precession effects;
  - e. Practices and procedures in the event of malfunctions of various flight instruments.
3. Flight Performance, Planning and Loading:
  - a. Pre-flight preparations and checks appropriate to flight under IFR;
  - b. Operational flight planning;
  - c. Preparation and filing of air traffic services flight plans under IFR;
  - d. Altimeter setting procedures.
4. Human Performance:
  - a. Human performance relevant to instrument flight in aircraft;
  - b. Principles of threat and error management.
5. Meteorology:
  - a. Application of aeronautical meteorology;
  - b. Interpretation and use of reports, charts and forecasts;
  - c. Codes and abbreviations;
  - d. Use of, and procedures for obtaining, meteorological information;
  - e. Altimetry;
  - f. Causes, recognition and effects of icing;
  - g. Frontal zone penetration procedures;
  - h. Hazardous weather avoidance.
6. Navigation:
  - a. Practical air navigation using radio navigation aids;
  - b. Use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight;
  - c. Identification of radio navigation aids.

## APPENDIX 2 (CONTINUED)

### INSTRUMENT RATING - AEROPLANE (IRA)

#### SUBJECT MATTER OUTLINE

7. Operation Procedures:
  - a. Application of threat and error management to operational principles;
  - b. Interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en-route, descent and approach;
  - c. Precautionary and emergency procedures;
  - d. Safety practices associated with flight under IFR;
  - e. Obstacle clearance criteria.
  
8. Radiotelephony:
  - a. Communication procedures and phraseology as applied to aircraft operations under IFR;
  - b. Action to be taken in case of communication failure.

## APPENDIX 2 (CONTINUED)

### INSTRUMENT RATING - AEROPLANE (IRA)

#### SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

**1. Which flight time may be logged as instrument time when on an instrument flight plan?**

A – All of the time the aircraft was not controlled by ground references.

B – Only the time you controlled the aircraft solely by reference to flight instruments.

C – Only the time you were flying in IFR weather conditions.

**Answer B – Learning Statement: Recall regulations - flight / duty time**

**2. What does the miniature aircraft of the turn coordinator directly display?**

A – Rate of roll and rate of turn.

B – Angle of bank and rate of turn.

C – Angle of bank.

**Answer A – Learning Statement: Recall basic instrument flying - turn coordinator / turn and slip indicator**

**3. Where does wind shear occur?**

A – Exclusively in thunderstorms.

B – Wherever there is an abrupt decrease in pressure and/or temperature.

C – With either a wind shift or a wind speed gradient at any level in the atmosphere.

**Answer C – Learning Statement: Recall windshear - characteristics / hazards / power management**

**4. Which DME indication should you receive when you are directly over a VORTAC site at approximately 6,000 feet AGL?**

A – 0.

B – 1.

C – 1.3.

**Answer B – Learning Statement: Recall DME - characteristics / accuracy / indications / Arc**

**5. What minimum aircraft equipment is required for operation within Class C airspace?**

A – Two-way communications and Mode C transponder.

B – Two-way communications.

C – Transponder and DME.

**Answer A – Learning Statement: Recall airspace classes - limits / requirements / restrictions / airspeeds / equipment**

## APPENDIX 3

### INSTRUMENT RATING - AEROPLANE VALIDATION (IVL) INSTRUMENT RATING - AEROPLANE CONVERSION (ICL)

#### SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Instrument Rating - Aeroplane Validation and Conversion knowledge tests.

1. Air Law:
  - a. Rules and regulations relevant to flight under IFR;
  - b. Related air traffic services practices and procedures.
2. Meteorology:
  - a. Application of aeronautical meteorology;
  - b. Interpretation and use of reports, charts and forecasts;
  - c. Codes and abbreviations;
  - d. Use of, and procedures for obtaining, meteorological information;
  - e. Altimetry;
  - f. Causes, recognition and effects of icing;
  - g. Frontal zone penetration procedures;
  - h. Hazardous weather avoidance.
3. Operation Procedures:
  - a. Application of threat and error management to operational principles;
  - b. Interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en-route, descent and approach;
  - c. Precautionary and emergency procedures;
  - d. Safety practices associated with flight under IFR;
  - e. Obstacle clearance criteria.
4. Radiotelephony:
  - a. Communication procedures and phraseology as applied to aircraft operations under IFR;
  - b. Action to be taken in case of communication failure.

## APPENDIX 3 (CONTINUED)

### INSTRUMENT RATING - AEROPLANE VALIDATION (IVL) INSTRUMENT RATING - AEROPLANE CONVERSION (ICL)

#### SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

**1. For the renewal of a single-engine instrument rating, the applicant shall, within the preceding**

A – 12 months, complete a proficiency check with an instructor.

B – 6 months, complete a currency check with an instructor.

C – 12 calendar months, complete a proficiency check.

**Answer C – Learning Statement: Recall regulations - pilot currency requirements**

**2. For most effective use of the Radar Summary Chart during preflight planning, a pilot should**

A – consult the chart to determine more accurate measurements of freezing levels, cloud cover, and wind conditions between reporting stations.

B – compare it with other charts, reports, and forecasts.

C – utilize the chart as the only source of information regarding storms and hazardous conditions existing between reporting stations.

**Answer B – Learning Statement: Recall Radar Summary Chart**

**3. What does the absence of the procedure turn barb on the plan view on an approach chart indicate?**

A – A procedure turn is not authorised.

B – Teardrop-type procedure turn is authorised.

C – Racetrack-type procedure turn is authorised.

**Answer A – Learning Statement: Recall information on an Instrument Approach Procedures Chart**

**4. During an IFR flight in IMC, a distress condition is encountered, (fire, mechanical, or structural failure). The pilot should**

A – not hesitate to declare an emergency and obtain an amended clearance.

B – wait until the situation is immediately perilous before declaring an emergency.

C – contact ATC and advise that an urgency condition exists and request priority consideration.

**Answer A – Learning Statement: Recall emergency conditions / procedures**

## APPENDIX 4

### INSTRUMENT RATING - HELICOPTER (IRH)

#### SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Instrument Rating - Helicopter knowledge test.

1. Air Law:
  - a. Rules and regulations relevant to flight under IFR;
  - b. Related air traffic services practices and procedures.
  
2. Aircraft General Knowledge:
  - a. Use, limitation and serviceability of avionics, electronic devices and instruments necessary for the control and navigation of helicopters under IFR and in instrument meteorological conditions;
  - b. Use and limitations of autopilot;
  - c. Compasses, turning and acceleration errors;
  - d. Gyroscopic instruments, operational limits and precession effects;
  - e. Practices and procedures in the event of malfunctions of various flight instruments.
  
3. Flight Performance, Planning and Loading:
  - a. Pre-flight preparations and checks appropriate to flight under IFR;
  - b. Operational flight planning;
  - c. Preparation and filing of air traffic services flight plans under IFR;
  - d. Altimeter setting procedures.
  
4. Human Performance:
  - a. Human performance relevant to instrument flight in aircraft;
  - b. Principles of threat and error management.
  
5. Meteorology:
  - a. Application of aeronautical meteorology;
  - b. Interpretation and use of reports, charts and forecasts;
  - c. Codes and abbreviations;
  - d. Use of, and procedures for obtaining, meteorological information;
  - e. Altimetry;
  - f. Causes, recognition and effects of icing;
  - g. Frontal zone penetration procedures;
  - h. Hazardous weather avoidance;
  - i. Effects of rotor icing.
  
6. Navigation:
  - a. Practical air navigation using radio navigation aids;
  - b. Use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight;
  - c. Identification of radio navigation aids.



## APPENDIX 4 (CONTINUED)

### INSTRUMENT RATING - HELICOPTER (IRH)

#### SUBJECT MATTER OUTLINE

7. Operation Procedures:
  - a. Application of threat and error management to operational principles;
  - b. Interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en-route, descent and approach;
  - c. Precautionary and emergency procedures;
  - d. Safety practices associated with flight under IFR;
  - e. Obstacle clearance criteria.
  
8. Radiotelephony:
  - a. Communication procedures and phraseology as applied to aircraft operations under IFR;
  - b. Action to be taken in case of communication failure.

## APPENDIX 4 (CONTINUED)

### INSTRUMENT RATING - HELICOPTER (IRH)

#### SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

- 1. Aircraft being operated under IFR are required to have, in addition to the equipment required for VFR and night, at least**  
A – distance measuring equipment.  
B – dual VOR receivers.  
C – a slip skid indicator.  
**Answer C – Learning Statement: Recall regulations - equipment / instrument / certificate requirements**
- 2. Which practical test should be made on the electric gyro instruments prior to starting an engine?**  
A – Check that the electrical connections are secure on the back of the instruments.  
B – Check that the attitude of the miniature aircraft is wings level before turning on electrical power.  
C – Turn on the electrical power and listen for any unusual or irregular mechanical noise.  
**Answer C – Learning Statement: Recall aircraft instruments - gyroscopic**
- 3. Which primary source should be used to obtain forecast weather information at your destination for the planned ETA?**  
A – Area Forecast.  
B – Radar Summary and Weather Depiction Charts.  
C – Terminal Aerodrome Forecast (TAF).  
**Answer C – Learning Statement: Recall information on a Terminal Aerodrome Forecast (TAF)**
- 4. Which distance is displayed by the DME indicator?**  
A – Slant range distance in NM.  
B – Slant range distance in SM.  
C – Line of sight direct distance from aircraft to VORTAC in SM.  
**Answer A – Learning Statement: Recall DME - characteristics / accuracy / indications / Arc**
- 5. When installed with the ILS and specified in the approach procedures, DME may be used**  
A – in lieu of the OM.  
B – in lieu of visibility requirements.  
C – to determine distance from TDZ.  
**Answer A – Learning Statement: Recall approach - ILS**

## APPENDIX 5

### INSTRUMENT RATING - HELICOPTER VALIDATION (IVH) INSTRUMENT RATING - HELICOPTER CONVERSION (ICH)

#### SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Instrument Rating - Helicopter Validation and Conversion knowledge tests.

1. Air Law:
  - a. Rules and regulations relevant to flight under IFR;
  - b. Related air traffic services practices and procedures.
  
2. Meteorology:
  - a. Application of aeronautical meteorology;
  - b. Interpretation and use of reports, charts and forecasts;
  - c. Codes and abbreviations;
  - d. Use of, and procedures for obtaining, meteorological information;
  - e. Altimetry;
  - f. Causes, recognition and effects of icing;
  - g. Frontal zone penetration procedures;
  - h. Hazardous weather avoidance;
  - i. Effects of rotor icing.
  
3. Operation Procedures:
  - a. Application of threat and error management to operational principles;
  - b. Interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en-route, descent and approach;
  - c. Precautionary and emergency procedures;
  - d. Safety practices associated with flight under IFR;
  - e. Obstacle clearance criteria.
  
4. Radiotelephony:
  - a. Communication procedures and phraseology as applied to aircraft operations under IFR;
  - b. Action to be taken in case of communication failure.

## APPENDIX 5 (CONTINUED)

### INSTRUMENT RATING - HELICOPTER VALIDATION (IVH) INSTRUMENT RATING - HELICOPTER CONVERSION (ICH)

#### SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

**1. For the renewal of a single-engine instrument rating, the applicant shall, within the preceding**

A – 12 months, complete a proficiency check with an instructor.

B – 6 months, complete a currency check with an instructor.

C – 12 calendar months, complete a proficiency check.

**Answer C – Learning Statement: Recall regulations - pilot currency requirements**

**2. A pilot reporting turbulence that momentarily causes slight, erratic changes in altitude and/or attitude should report it as**

A – light turbulence.

B – moderate turbulence.

C – light chop.

**Answer A – Learning Statement: Recall turbulence - types / characteristics / reporting / corrective actions**

**3. The operation of an aerodrome rotating beacon during daylight hours may indicate that**

A – the in flight visibility is less than 3 miles and the ceiling is less than 1,500 feet within Class E airspace.

B – the ground visibility is less than 3 miles and/or the ceiling is less than 1,000 feet in Class B, C, or D airspace.

C – an IFR clearance is required to operate within the airport traffic area.

**Answer B – Learning Statement: Recall aerodrome operations - markings / signs / lighting**

**4. During an IFR flight in IMC, a distress condition is encountered, (fire, mechanical, or structural failure). The pilot should**

A – not hesitate to declare an emergency and obtain an amended clearance.

B – wait until the situation is immediately perilous before declaring an emergency.

C – contact ATC and advise that an urgency condition exists and request priority consideration.

**Answer A – Learning Statement: Recall emergency conditions / procedures**