



Barbados Civil Aviation Department

PERSONNEL
LICENSING
ADVISORY
CIRCULAR

BCAD Document PLAC-065

COMMERCIAL PILOT LICENCE
KNOWLEDGE TEST GUIDE

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Subject: COMMERCIAL PILOT LICENCE KNOWLEDGE TEST GUIDE
BCAD Advisory Circular PLAC- 065
Date: 07/11/22

PURPOSE

1. (1) The purpose of this Barbados Civil Aviation Department (BCAD) Advisory Circular (PLAC) is to provide guidance for applicants preparing to take Commercial Pilot knowledge tests. Appendices provide subject matter outlines, reference material, and sample questions with learning statements.

(2) Barbados Civil Aviation Regulations (BCAR) can be obtained from the Barbados Government printery, Bay Street, St. Michael, Barbados. BCAR General Application & Personnel Licensing Regulations cover the requirements for personnel licensing.

(3) This PLAC can be purchased from the Barbados Civil Aviation Department, Grantley Adams International Airport, Christ Church, Barbados or downloaded from the BCAD website at <<http://www.bcad.gov.bb>>.

(4) Comments and/or questions regarding this PLAC should be sent to Barbados Civil Aviation Department, Grantley Adams International Airport, Christ Church, Barbados.

INTRODUCTION

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

(2) This knowledge test guide will answer most questions about taking the Commercial Pilot 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 unauthorized conduct; retesting procedures; and obtaining training and testing publications and general information.

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

- (a) Commercial Pilot—Aeroplane (CAX);
- (b) Commercial Pilot—Aeroplane Conversion (CCL);
- (c) Commercial Pilot—Aeroplane Validation (CVL);
- (d) Commercial Pilot—Helicopter (CRH);
- (e) Commercial Pilot—Helicopter Conversion (CCH);
- (f) Commercial Pilot—Helicopter Validation (CVH);
- (g) Commercial Pilot—Airship (CLA);
- (h) Commercial Pilot—Airship Conversion (CCA);
- (i) Commercial Pilot—Airship Validation (CVA);
- (j) Military Competency—Aeroplane (MCA);
- (k) Military Competency—Helicopter (MCH).

(4) 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.

(5) The BCAD 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

3. Individuals pursuing a Commercial Pilot licence should review BCAD Regulations 2007: General Application and Personnel Licensing Regulation – Commercial Pilot Licence General Requirements; Conversion of a Commercial Pilot Licence from another contracting state; and/or Validation of a foreign licence. The applicant for a Commercial Pilot licence knowledge test must be at least 16 years old and have a BCAD Class 1 medical certificate.

KNOWLEDGE AREAS ON THE TESTS

4. (1) Commercial pilot tests are comprehensive because they must test the applicant's knowledge in many subject areas.

(2) Applicants pursuing a commercial pilot licence or added rating should review BCAR General Application & Personnel Licensing Regulation – Knowledge areas for the knowledge areas on the tests.

DESCRIPTIONS OF THE TESTS

5. (1) 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.**

(2) The following tests each contain **100 questions**, and applicants are allowed a **maximum of 3.0 hours** to complete each test.

- (a) Commercial Pilot—Aeroplane;
- (b) Commercial Pilot—Helicopter.

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

- (a) Commercial Pilot—Aeroplane Conversion / Validation;
- (b) Commercial Pilot—Helicopter Conversion / Validation;
- (c) Commercial Pilot—Airship;
- (d) Commercial Pilot—Airship Conversion / Validation;
- (e) Military Competency —Aeroplane;
- (f) Military Competency —Helicopter.

(4) 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.

- (5) When taking a test, keep the following points in mind:
- (a) Answer each question in accordance with the latest regulations and guidance publications;
 - (b) Read each question carefully before looking at the possible answers. Test applicants should clearly understand the problem before attempting to solve it;
 - (c) After formulating an answer, determine which choice corresponds with that answer. The answer chosen should completely resolve the problem;
 - (d) From the answers given, it may appear that 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;
 - (e) 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, applicants should make sure every question has an answer recorded. This procedure will enable test applicants to use the available time to maximum advantage;
 - (f) 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

6. (1) The first step in the process of taking a knowledge test is to contact the BCAD office. They can provide applicants with information relating to knowledge test prerequisites, required authorizations and endorsements, testing locations, and the appropriate fees. In addition applicants should visit the BCAD website at <<http://www.bcad.gov.bb>>.

(2) 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 authorized instructor or aviation training organization

(3) Acceptable forms of endorsement are:

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

(d) An “expired test/credit” letter issued by the BCAD (in lieu of a duplicate Airman Knowledge Test Report).

(4) The third step in the process of taking a knowledge test is for the applicant to receive written authorization from BCAD.

(5) The fourth step in taking a knowledge test is to proceed to the BCAD computer test centre. An applicant for a knowledge test must provide proper identification. Testing centre personnel will not begin the test until the test applicant’s identification is verified.

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

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

(8) The Appendices of this Knowledge Test Guide contain a list of reference materials for applicants to study during their training for the Commercial Pilot licence. The questions on the knowledge test will come from these reference materials. BCAD Advisory Circular PLAC - xxx, Learning Statement Reference Guide for Airman Knowledge Testing, contains learning statements and the corresponding codes for airman knowledge testing. Applicants should match the learning statement code on their test report to these codes to review their areas of deficiency.

(9) A list of reference materials has been prepared by BCAD 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 Appendix to this Knowledge Test Guide.

(10) 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 flight test examiner prior to taking the skill test. During the oral portion of the skill test, the examiner is required to evaluate the noted areas of deficiency.

(11) Applicants requiring a duplicate Airman Knowledge Test Report due to loss or destruction of the original should send a signed request to the Barbados Civil Aviation Department, Grantley Adams International Airport, Christ Church, Barbados.

VALIDITY OF AIRMAN KNOWLEDGE TEST REPORTS

7. Airman Knowledge Test Reports for the Commercial Pilot 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

8. 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:

- (a) 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;
- (b) Manufacturers' permanently inscribed instructions on the front and back of such aids, e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, weight and balance formulas, and air traffic control procedures are permissible;
- (c) BCAD personnel may provide a calculator to applicants and/or deny use of the applicant's personal calculator based on the following limitations:
 - (i) Prior to, and upon completion of the test, while in the presence of the proctor, 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;
 - (ii) The use of electronic calculators incorporating permanent or continuous type memory circuits without erasure capability is prohibited. The proctor may refuse the use of the applicant's calculator when unable to determine the calculator's erasure capability;
 - (iii) Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature;
 - (iv) 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;
 - (v) Applicants are not permitted to use any booklet or manual containing instructions related to use of test aids.
- (d) Dictionaries are not permitted in the testing area;
- (e) The BCAD test proctor makes the final determination relating to test materials and personal possessions the applicant may take into the testing area.

CHEATING OR OTHER UNAUTHORIZED CONDUCT

9. Computerized knowledge testing must be carried out in accordance with the strictest security procedures to avoid test compromise. The BCAD Test Proctor will terminate a test at any time that he/she suspects that a cheating incident has occurred. A BCAD investigation will then be conducted. If the investigation determines that cheating or unauthorized conduct has occurred, then any airman licence, certificate, or rating that 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 BCAR General Application and Personnel Licensing Regulations.

RETESTING PROCEDURES

10. (1) Applicants who receive a grade lower than 75 percent and who wish to retest must present the following to BCAD testing centre personnel when appearing for the purpose of retesting:

- (a) A failed Airman Knowledge Test Report;
- (b) A written endorsement from an authorized instructor certifying that additional instruction has been given, and the instructor finds the applicant competent to pass the test;
- (c) A written authorization from BCAD to retake the test.

(2) 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. The BCAD 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 proctor. The last test taken will reflect the official final score.

OBTAINING TRAINING AND TESTING PUBLICATIONS AND GENERAL INFORMATION

11. Most of the current BCAD airman training and testing publications can be obtained in electronic format from BCAD at the BCAD website at <http://www.bcad.gov.bb>.

AIRMAN KNOWLEDGE TEST ITEMS

12. Sample questions, and their corresponding learning statements and codes, are contained in the appendix to this test guide. They are representative of questions on 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 BCAD licence, authorisation or rating. The list of reference materials contained in the appendix 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

13. 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 BCAD test centre personnel during the airman knowledge test.

KNOWLEDGE TEST GUIDES

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

OTHER COMPUTER TESTING INFORMATION

15. Other computer 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/rating being sought.

REFERENCE MATERIALS / LEARNING STATEMENT CODES

16. 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 the BCAD 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 BCAD Advisory Circular PLAC-052, should be referred to when reviewing areas of deficiency on airman knowledge test reports.

E. A. Archer
Director of Civil Aviation

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APPENDIX A

LIST OF COMMERCIAL PILOT REFERENCE MATERIALS FOR ALL CERTIFICATIONS

The publications listed below contain study material applicants need to be familiar with when preparing for commercial pilot knowledge tests. Most of these publications can be purchased from Barbados Civil Aviation Department, or be downloaded from the BCAD web site at <<http://www.bcad.gov.bb>>. ICAO publications can be purchased from ICAO at <<http://www.icao.int>>. The latest revision of the listed references should be requested.

- (1) Barbados Civil Aviation Regulation (BCAR), in particular:
 - (a) BCAR – General Application and Personnel Licensing
 - (b) BCAR – Aircraft Operations
 - (c) BCAR – Airworthiness
 - (d) BCAR – Instruments and Equipment
 - (e) BCAR – Aerial Work
- (2) ICAO Annexes: 3, 10 Volume II, 11 and 14 (pertinent parts)
- (3) ICAO Document 4444: General provisions, Aero Control service, Approach control service, Aerodrome control service, and Flight information and alerting service.
- (4) Aeronautical Information Publication (AIP) Eastern Caribbean
- (5) Airport/Facility Directory
- (6) Enroute Low Altitude Chart
- (7) Enroute High Altitude Chart
- (8) Flight Theory for Pilots – IAP Inc. Publications
- (9) GA 42 Airship Training Manual – Jeppesen Sanderson
- (10) Instrument Approach Procedure Chart
- (11) Pilot's Handbook for Navy Model ZP2K Airship and Handling Rigid Airships on the Ground
- (12) Sectional Aeronautical Chart
- (13) Transport Category Aircraft Systems – Jeppesen Sanderson
- (14) FAA AC 00-6—Aviation Weather
- (15) FAA AC 00-30—Atmospheric Turbulence Avoidance

APPENDIX A (CONTINUED)

- (16) FAA AC 00-45—Aviation Weather Services
- (17) FAA AC 00-54—Pilot Wind Shear Guide
- (18) FAA AC 20-43—Aircraft Fuel Control
- (19) FAA AC 20-103—Aircraft Engine Crankshaft Failure
- (20) FAA AC 20-117—Hazards Following Ground Deicing
- (21) FAA AC 60-22—Aeronautical Decision Making
- (22) FAA AC 91-6—Water, Slush, and Snow on the Runway
- (23) FAA AC 91-13— Cold Weather Operation of Aircraft
- (24) FAA AC 103-4—Hazard with Dry Ice Aboard Aircraft
- (25) FAA AC 120-58—Pilot Guide Large Aircraft Deicing
- (26) FAA Accident Prevention Program Bulletins (adopted in cooperation with FAA)
- (27) FAA-H-8083-1—Aircraft Weight and Balance (adopted in cooperation with FAA)
- (28) FAA-H-8083-3—Airplane Flying Handbook (adopted in cooperation with FAA)
- (29) FAA-H-8083-15—Instrument Flying Handbook (adopted in cooperation with the FAA)
- (30) FAA-H-8083-21—Rotorcraft Flying Handbook (adopted in cooperation with FAA)
- (31) FAA-H-8083-25—Pilot’s Handbook of Aeronautical Knowledge (adopted in cooperation with FAA)
- (32) U.S. Terminal Procedures

APPENDIX B
COMMERCIAL PILOT – AEROPLANE (CAX)
SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Commercial Pilot – Aeroplane knowledge test.

1. Air Law:
 - (a) Rules and regulations relevant to the holder of a CPL;
 - (b) Rules of the air;
 - (c) Appropriate air traffic services practices and procedures.

2. Aircraft General Knowledge:
 - (a) Principles of operation and functioning of powerplants, systems and instruments;
 - (b) Operating limitations of the appropriate category of aircraft and powerplants;
 - (c) Relevant operational information from the flight manual or other appropriate document;
 - (d) Use and serviceability checks of equipment and systems of appropriate aircraft;
 - (e) Maintenance procedures for airframes, systems and powerplants of appropriate aircraft.

3. Flight Performance and Planning:
 - (a) Effects of loading and weight distribution on aircraft handling, flight characteristics and performance;
 - (b) Weight and balance calculations;
 - (c) Use and practical application of take-off or launching, landing and other performance data;
 - (d) Pre-flight and en-route flight planning appropriate to operations under VFR;
 - (e) Preparation and filing of air traffic services flight plans;
 - (f) Appropriate air traffic services procedures, position reporting procedures, altimeter setting procedures, and operations in areas of high-density traffic;
 - (g) In the case of helicopter and powered-lift, effects of external loading.

4. Human Performance:
 - (a) Human performance relevant to the appropriate aircraft type;
 - (b) Principles of threat and error management.

5. Meteorology:
 - (a) Interpretation and application of aeronautical meteorological reports, charts and forecasts;
 - (b) Use of, and procedures for obtaining, meteorological information, pre-flight, and in-flight;
 - (c) Altimetry;

APPENDIX B (CONTINUED)

COMMERCIAL PILOT – AEROPLANE (CAX)

SUBJECT MATTER OUTLINE

- (d) Aeronautical meteorology;
 - (e) Climatology of relevant areas in respect of the elements having an effect upon aviation;
 - (f) The movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
 - (g) Causes, recognition and effects of icing; frontal zone penetration procedures.
 - (h) Hazardous weather avoidance.
6. Navigation:
- (a) Air navigation, including the use of aeronautical charts, instruments and navigation aids;
 - (b) Understanding of the principles and characteristics of appropriate navigation systems.
 - (c) Operation of air borne equipment.
7. Operational Procedures:
- (a) Application of threat and a error management to operational procedures;
 - (b) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
 - (c) Altimeter setting procedures;
 - (d) Appropriate precautionary and emergency procedures;
 - (e) Operational procedures for carriage of freight;
 - (f) Potential hazards associated with dangerous goods;
 - (g) Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
 - (h) In the case of the helicopter, and if applicable powered-lift, settling with power, ground resonance, retreating blade stall, dynamic roll-over and other operational hazards;
 - (i) Safety procedures, associated with flight under VFR.
8. Principles of Flight:
- (a) Principles of flight relating to the appropriate category of aircraft.
9. Radiotelephony:
- (a) Communication procedures and phraseology as applied to VFR operations;
 - (b) Action to be taken in case of communication failure.

APPENDIX B-1

COMMERCIAL PILOT—AEROPLANE (CAX)

SAMPLE QUESTIONS, LEARNING STATEMENTS AND ANSWERS

1. When are non-rechargeable batteries of an emergency locator transmitter (ELT) required to be replaced?

A—Every 24 months.

B—When 50 percent of their useful life expires.

C—At the time of each 100-hour or annual inspection.

Answer B—Learning Statement: Recall regulations - ELT requirements

2. After take off from a slushy runway, the freezing of landing gear mechanisms can be minimized by

A—recycling the gear.

B—delaying gear retraction.

C—increasing the airspeed to VLE before retraction.

Answer A—Learning Statement: Recall aircraft performance - cold weather operations

3. With respect to using the weight information given in a typical aircraft owner`s manual for computing gross weight, it is important to know that if items have been installed in the aircraft in addition to the original equipment, the

A—allowable useful load is decreased.

B—allowable useful load remains unchanged.

C—maximum allowable gross weight is increased.

Answer A—Learning Statement: Recall performance planning - aircraft loading

4. Which is true regarding the presence of alcohol within the human body?

A—A small amount of alcohol increases vision acuity.

B—An increase in altitude decreases the adverse effect of alcohol.

C—Judgment and decision-making abilities can be adversely affected by even small amounts of alcohol.

Answer C—Learning Statement: Recall effects of alcohol on the body

5. 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—Learning Statement: Recall weather conditions – temperature / moisture / dewpoint

APPENDIX C

COMMERCIAL PILOT – AEROPLANE CONVERSION (CCL) COMMERCIAL PILOT – AEROPLANE VALIDATION (CVL)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Commercial Pilot – Aeroplane Conversion and Validation knowledge tests.

1. Air Law

- (a) Rules and regulations relevant to the holder of a CPL.
- (b) Rules of the air.
- (c) Appropriate air traffic services practices and procedures.

2. Meteorology

- (a) Interpretation and application of aeronautical meteorological reports, charts and forecasts.
- (b) Use of and procedures for obtaining meteorological information, pre-flight, and in-flight.
- (c) Altimetry.
- (d) Aeronautical meteorology.
- (e) Climatology of relevant areas in respect of the elements having an effect upon aviation.
- (f) The movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions.
- (g) Causes, recognition and effects of icing; frontal zone penetration procedures.
- (h) Hazardous weather avoidance.

3. Operational Procedures

- (a) Application of threat and error management to operational procedures.
- (b) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations.
- (c) Altimeter setting procedures.
- (d) Appropriate precautionary and emergency procedures.
- (e) Operational procedures for carriage of freight.
- (f) Potential hazards associated with dangerous goods.
- (g) Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft.
- (h) Safety procedures associated with flight under VFR.

4. Radiotelephony

- (a) Communication procedures and phraseology as applied to VFR operations.
- (b) Action to be taken in case of communication failure.

APPENDIX C-1

**COMMERCIAL PILOT – AEROPLANE CONVERSION (CCL)
COMMERCIAL PILOT – AEROPLANE VALIDATION (CVL)**

SAMPLE QUESTIONS, LEARNING STATEMENTS AND ANSWERS

1. What minimum flight visibility is required for VFR flight operations on an airway below 10,000 feet MSL?

- A—2 statute miles.
- B—5 kilometers.
- C—8 kilometers.

Answer B—Learning Statement: Recall regulations - visual flight rules and limitations

2. Which conditions are favorable for the formation of a surface based temperature inversion?

- A—Clear, cool nights with calm or light wind.
- B—Area of unstable air rapidly transferring heat from the surface.
- C—Broad areas of cumulus clouds with smooth, level bases at the same altitude.

Answer A—Learning Statement: Recall inversion layer – characteristics

3. The numbers 9 and 27 on a runway indicate that the runway is oriented approximately

- A—009° and 027° true.
- B—090° and 270° true.
- C—090° and 270° magnetic.

Answer C—Learning Statement: Recall aerodrome operations - markings / signs / lighting

4. When a distress or urgency condition is encountered, the pilot of an aircraft with a transponder, who desires to alert a ground radar facility, should squawk code

- A—7700.
- B—7600.
- C—7500.

Answer A—Learning Statement: Recall emergency conditions / procedures

APPENDIX D

COMMERCIAL PILOT – HELICOPTER (CRH)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Commercial Pilot—Helicopter knowledge test.

1. Air Law
 - (a) Rules and regulations relevant to the holder of a CPL.
 - (b) Rules of the air.
 - (c) Appropriate air traffic services practices and procedures.
2. Aircraft General Knowledge
 - (a) Principles of operation and functioning of powerplants, systems and instruments.
 - (b) Operating limitations of the appropriate category of aircraft and powerplants.
 - (c) Relevant operational information from the flight manual or other appropriate document.
 - (d) Use and serviceability checks of equipment and systems of appropriate aircraft.
 - (e) Maintenance procedures for airframes, systems and powerplants of appropriate aircraft.
3. Flight Performance and Planning
 - (a) Effects of loading and weight distribution on aircraft handling, flight characteristics and performance.
 - (b) Mass and balance calculations.
 - (c) Use and practical application of take-off, landing and other performance data.
 - (d) Pre-flight and en-route flight planning appropriate to operations under VFR.
 - (e) Preparation and filing of air traffic services flight plans.
 - (f) Appropriate air traffic services procedures, position reporting procedures, altimeter setting procedures, and operations in areas of high-density traffic.
 - (g) Effects of external loading.
4. Human Performance
 - (a) Human performance relevant to the appropriate aircraft type.
 - (b) Principles of threat and error management.
5. Meteorology
 - (a) Interpretation and application of aeronautical meteorological reports, charts and forecasts.
 - (b) Use of and procedures for obtaining meteorological information, pre-flight, and in-flight.
 - (c) Altimetry.
 - (d) Aeronautical meteorology.
 - (e) Climatology of relevant areas in respect of the elements having an effect upon aviation.
 - (f) The movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions.

APPENDIX D (CONTINUED)

COMMERCIAL PILOT – HELICOPTER (CRH)

SUBJECT MATTER OUTLINE

- (g) Causes, recognition and effects of icing; frontal zone penetration procedures.
- (h) Hazardous weather avoidance.

6. Navigation

- (a) Air navigation, including the use of aeronautical charts, instruments and navigation aids.
- (b) Understanding of the principles and characteristics of appropriate navigation systems.
- (c) Operation of airborne equipment.

7. Operational Procedures

- (a) Application of threat and error management to operational procedures.
- (b) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations.
- (c) Altimeter setting procedures.
- (d) Appropriate precautionary and emergency procedures.
- (e) Operational procedures for carriage of freight.
- (f) Potential hazards associated with dangerous goods.
- (g) Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft.
- (h) Settling with power, ground resonance, retreating blade stall, dynamic roll-over and other operational hazards.
- (i) Safety procedures associated with flight under VFR.

8. Principles of Flight

- (a) Principles of flight relating to the appropriate category of aircraft.

9. Radiotelephony

- (a) Communication procedures and phraseology as applied to VFR operations.
- (b) Action to be taken in case of communication failure.

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APPENDIX D-1

COMMERCIAL PILOT – HELICOPTER (CRH)

SAMPLE QUESTIONS, LEARNING STATEMENTS AND ANSWERS

1. With certain exceptions, safety belts are required to be secured about passengers during

A—taxi, takeoffs, and landings.

B—all flight conditions.

C—flight in turbulent air.

Answer A—Learning Statement: Recall regulations - use of seats / safety belts / harnesses (passenger)

2. What is the primary purpose of the clutch?

A—It allows the engine to be started without driving the main rotor system.

B—It provides disengagement of the engine from the rotor system for autorotation.

C—It transmits engine power to the main rotor, tail rotor, generator/alternator, and other accessories.

Answer A—Learning Statement: Recall rotorcraft transmission - components / operating principles / characteristics

3. During a normal approach to a hover, the collective pitch control is used primarily to

A—maintain RPM.

B—control the rate of closure.

C—control the angle of descent.

Answer C—Learning Statement: Recall pitch control - collective / cyclic

4. Which is true regarding the presence of alcohol within the human body?

A—A small amount of alcohol increases vision acuity.

B—An increase in altitude decreases the adverse effect of alcohol.

C—Judgment and decision-making abilities can be adversely affected by even small amounts of alcohol.

Answer C—Learning Statement: Recall effects of alcohol on the body

5. During departure, under conditions of suspected low-level wind shear, a sudden decrease in headwind will cause

A—a loss in airspeed equal to the decrease in wind velocity.

B—a gain in airspeed equal to the decrease in wind velocity.

C—no change in airspeed, but groundspeed will decrease.

Answer A—Learning Statement: Recall windshear - characteristics / hazards / power management

APPENDIX E

COMMERCIAL PILOT – HELICOPTER CONVERSION (CCH) COMMERCIAL PILOT – HELICOPTER VALIDATION (CVH)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Commercial Pilot – Helicopter Conversion and Validation and knowledge tests.

1. Air Law

- (a) Rules and regulations relevant to the holder of a CPL.
- (b) Rules of the air.
- (c) Appropriate air traffic services practices and procedures.

2. Meteorology

- (a) Interpretation and application of aeronautical meteorological reports, charts and forecasts.
- (b) Use of and procedures for obtaining meteorological information, pre-flight, and in-flight.
- (c) Altimetry.
- (d) Aeronautical meteorology.
- (e) Climatology of relevant areas in respect of the elements having an effect upon aviation.
- (f) The movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions.
- (g) Causes, recognition and effects of icing; frontal zone penetration procedures.
- (h) Hazardous weather avoidance.

3. Operational Procedures

- (a) Application of threat and error management to operational procedures.
- (b) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations.
- (c) Altimeter setting procedures.
- (d) Appropriate precautionary and emergency procedures.
- (e) Operational procedures for carriage of freight.
- (f) Potential hazards associated with dangerous goods.
- (g) Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft.
- (h) Settling with power, ground resonance, retreating blade stall, dynamic roll-over and other operational hazards.
- (i) Safety procedures associated with flight under VFR.

4. Radiotelephony

- (a) Communication procedures and phraseology as applied to VFR operations.
Action to be taken in case of communication failure.

APPENDIX E-1

**COMMERCIAL PILOT – HELICOPTER CONVERSION (CCH)
COMMERCIAL PILOT – HELICOPTER VALIDATION (CVH)**

SAMPLE QUESTIONS, LEARNING STATEMENTS AND ANSWERS

1. With certain exceptions, safety belts are required to be secured about passengers during

- A—taxi, takeoffs, and landings.
- B—all flight conditions.
- C—flight in turbulent air.

Answer A—Learning Statement: Recall regulations - use of seats / safety belts / harnesses (passenger)

2. During departure, under conditions of suspected low-level wind shear, a sudden decrease in headwind will cause

- A—a loss in airspeed equal to the decrease in wind velocity.
- B—a gain in airspeed equal to the decrease in wind velocity.
- C—no change in airspeed, but groundspeed will decrease.

Answer A—Learning Statement: Recall windshear - characteristics / hazards / power management

3. Which technique should a pilot use to scan for traffic to the right and left during straight-and-level flight?

- A—Systematically focus on different segments of the sky for short intervals.
- B—Concentrate on relative movement detected in the peripheral vision area.
- C—Continuous sweeping of the windshield from right to left.

Answer A—Learning Statement: Recall collision avoidance - scanning techniques

4. Which conditions are favorable for the formation of a surface based temperature inversion?

- A—Clear, cool nights with calm or light wind.
- B—Area of unstable air rapidly transferring heat from the surface.
- C—Broad areas of cumulus clouds with smooth, level bases at the same altitude.

Answer A—Learning Statement: Recall inversion layer – characteristics

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APPENDIX F
COMMERCIAL PILOT – AIRSHIP (CLA)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Commercial Pilot – Airship knowledge test.

1. Air Law
 - (a) Rules and regulations relevant to the holder of a CPL.
 - (b) Rules of the air.
 - (c) Appropriate air traffic services practices and procedures.

2. Aircraft General Knowledge
 - (a) Principles of operation and functioning of powerplants, systems and instruments.
 - (b) Operating limitations of the appropriate category of aircraft and powerplants.
 - (c) Relevant operational information from the flight manual or other appropriate document.
 - (d) Use and serviceability checks of equipment and systems of appropriate aircraft.
 - (e) Maintenance procedures for airframes, systems and powerplants of appropriate aircraft.

3. Flight Performance and Planning
 - (a) Effects of loading and weight distribution on aircraft handling, flight characteristics and performance.
 - (b) Mass and balance calculations.
 - (c) Use and practical application of launching, landing and other performance data.
 - (d) Pre-flight and en-route flight planning appropriate to operations under VFR.
 - (e) Preparation and filing of air traffic services flight plans.
 - (f) Appropriate air traffic services procedures, position reporting procedures, altimeter setting procedures, and operations in areas of high-density traffic.

4. Human Performance
 - (a) Human performance relevant to the appropriate aircraft type.
 - (b) Principles of threat and error management.

5. Meteorology
 - (a) Interpretation and application of aeronautical meteorological reports, charts and forecasts.
 - (b) Use of and procedures for obtaining meteorological information, pre-flight, and in-flight.
 - (c) Altimetry.
 - (d) Aeronautical meteorology.
 - (e) Climatology of relevant areas in respect of the elements having an effect upon aviation

APPENDIX F (CONTINUED)**COMMERCIAL PILOT – AIRSHIP (CLA)****SUBJECT MATTER OUTLINE**

- (f) The movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions.
 - (g) Causes, recognition and effects of icing; frontal zone penetration procedures.
 - (h) Hazardous weather avoidance.
6. Navigation
- (a) Air navigation, including the use of aeronautical charts, instruments and navigation aids.
 - (b) Understanding of the principles and characteristics of appropriate navigation systems.
 - (c) Operation of airborne equipment.
7. Operational Procedures
- (a) Application of threat and error management to operational procedures.
 - (b) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations.
 - (c) Altimeter setting procedures.
 - (d) Appropriate precautionary and emergency procedures.
 - (e) Operational procedures for carriage of freight.
 - (f) Potential hazards associated with dangerous goods.
 - (g) Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft.
 - (h) Safety procedures associated with flight under VFR.
8. Principles of Flight
- (a) Principles of flight relating to the appropriate category of aircraft.
9. Radiotelephony
- (a) Communication procedures and phraseology as applied to VFR operations.
 - (b) Action to be taken in case of communication failure

APPENDIX F-1

COMMERCIAL PILOT – AIRSHIP (CLA)

SAMPLE QUESTIONS, LEARNING STATEMENTS AND ANSWERS

1. To determine pressure altitude prior to takeoff, the altimeter should be set to

A—the current altimeter setting.

B—1013.2 Hp and the altimeter indication noted.

C—the field elevation and the pressure reading in the altimeter setting window noted.

Answer B—Learning Statement: Recall altimeter - settings / setting procedures

2. 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—cumulus type with considerable vertical development and turbulence.

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

Answer C—Learning Statement: Recall cloud types - formation / resulting weather

3. 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—Learning Statement: Interpret information on a Sectional Chart

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—Learning Statement: Recall flight operations - takeoff / landing maneuvers

5. Critical factors affecting the flight characteristics and controllability of an airship are

A—airspeed and power.

B—static and dynamic trim.

C—temperature and atmospheric density.

Answer B—Learning Statement: Recall forces acting on aircraft - stability / controllability

APPENDIX G**COMMERCIAL PILOT – AIRSHIP CONVERSION (CCA)
COMMERCIAL PILOT – AIRSHIP VALIDATION (CVA)****SUBJECT MATTER OUTLINE**

The following outlines the major topics and underlying content areas on the Commercial Pilot – Airship Conversion and Validation knowledge tests.

1. Air Law

- (a) Rules and regulations relevant to the holder of a CPL.
- (b) Rules of the air.
- (c) Appropriate air traffic services practices and procedures.

2. Meteorology

- (a) Interpretation and application of aeronautical meteorological reports, charts and forecasts.
- (b) Use of and procedures for obtaining meteorological information, pre-flight, and in-flight.
- (c) Altimetry.
- (d) Aeronautical meteorology.
- (e) Climatology of relevant areas in respect of the elements having an effect upon aviation.
- (f) The movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions.
- (g) Causes, recognition and effects of icing; frontal zone penetration procedures.
- (h) Hazardous weather avoidance.

3. Operational Procedures

- (a) Application of threat and error management to operational procedures.
- (b) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations.
- (c) Altimeter setting procedures.
- (d) Appropriate precautionary and emergency procedures.
- (e) Operational procedures for carriage of freight.
- (f) Potential hazards associated with dangerous goods.
- (g) Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft.
- (h) Safety procedures associated with flight under VFR.

4. Radiotelephony

- (a) Communication procedures and phraseology as applied to VFR operations.
- (b) Action to be taken in case of communication failure.

APPENDIX G-1

**COMMERCIAL PILOT – AIRSHIP CONVERSION (CCA)
COMMERCIAL PILOT – AIRSHIP VALIDATION (CVA)****SAMPLE QUESTIONS, LEARNING STATEMENTS AND ANSWERS**

1. Pilots who change their permanent mailing address and fail to notify the Authority of this change, are entitled to exercise the privileges of their pilot licence for a period of

A—30 days.

B—60 days.

C—90 days.

Answer A—Learning Statement: Recall regulations – change of address

2. 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—cumulus type with considerable vertical development and turbulence.

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

Answer C—Learning Statement: Recall cloud types - formation / resulting weather

3. 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—Learning Statement: Recall flight operations - takeoff / landing maneuvers

4. When a distress or urgency condition is encountered, the pilot of an aircraft with a transponder, who desires to alert a ground radar facility, should squawk code

A—7700.

B—7600.

C—7500.

Answer A—Learning Statement: Recall emergency conditions / procedures

APPENDIX H

MILITARY COMPETENCY – AEROPLANE (MCA)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Commercial Pilot – Military Competency – Aeroplane knowledge tests.

1. Air Law

- (a) Rules and regulations relevant to the holder of a CPL.
- (b) Rules of the air.
- (c) Appropriate air traffic services practices and procedures.

2. Meteorology

- (a) Interpretation and application of aeronautical meteorological reports, charts and forecasts.
- (b) Use of and procedures for obtaining meteorological information, pre-flight, and in-flight.
- (c) Altimetry.
- (d) Aeronautical meteorology.
- (e) Climatology of relevant areas in respect of the elements having an effect upon aviation.
- (f) The movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions.
- (g) Causes, recognition and effects of icing; frontal zone penetration procedures.
- (h) Hazardous weather avoidance.

3. Operational Procedures

- (a) Application of threat and error management to operational procedures.
- (b) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations.
- (c) Altimeter setting procedures.
- (d) Appropriate precautionary and emergency procedures.
- (e) Operational procedures for carriage of freight.
- (f) Potential hazards associated with dangerous goods.
- (g) Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft.
- (h) Safety procedures associated with flight under VFR.

4. Radiotelephony

- (a) Communication procedures and phraseology as applied to VFR operations.
- (b) Action to be taken in case of communication failure.

APPENDIX H-1**MILITARY COMPETENCY – AEROPLANE (MCA)****SAMPLE QUESTIONS, LEARNING STATEMENTS AND ANSWERS****1. With respect to the certification of aircraft, which is a class of aircraft?**

- A—Aeroplane, glider, balloon.
- B—Normal, utility, acrobatic, limited.
- C—Transport, restricted, provisional.

Answer A—Learning Statement: Recall regulations - aircraft Category / Class

2. What wind conditions would you anticipate when squalls are reported at your destination?

- A—Rapid variations in windspeed of 15 knots or more between peaks and lulls.
- B—Peak gusts of at least 35 knots combined with a change in wind direction of 30° or more.
- C—Sudden increases in windspeed of at least 16 knots to a sustained speed of 22 knots or more for at least 1 minute.

Answer C—Learning Statement: Recall squall lines - formation / characteristics / resulting weather

3. When departing behind a heavy aircraft, the pilot should avoid wake turbulence by maneuvering the aircraft

- A—below and downwind from the heavy aircraft.
- B—above and upwind from the heavy aircraft.
- C—below and upwind from the heavy aircraft.

Answer B—Learning Statement: Recall wake turbulence – characteristics / avoidance techniques

4. 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—Learning Statement: Recall Aeronautical Decision Making (ADM) - hazardous attitudes

APPENDIX I**MILITARY COMPETENCY – HELICOPTER (MCH)****SUBJECT MATTER OUTLINE**

The following outlines the major topics and underlying content areas on the Commercial Pilot Military Competency – Helicopter knowledge test.

1. Air Law

- (a) Rules and regulations relevant to the holder of a CPL.
- (b) Rules of the air.
- (c) Appropriate air traffic services practices and procedures.

2. Meteorology

- (a) Interpretation and application of aeronautical meteorological reports, charts and forecasts.
- (b) Use of and procedures for obtaining meteorological information, pre-flight, and in-flight.
- (c) Altimetry.
- (d) Aeronautical meteorology.
- (e) Climatology of relevant areas in respect of the elements having an effect upon aviation.
- (f) The movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions.
- (g) Causes, recognition and effects of icing; frontal zone penetration procedures.
- (h) Hazardous weather avoidance.

3. Operational Procedures

- (a) Application of threat and a error management to operational procedures.
- (b) Use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations.
- (c) Altimeter setting procedures.
- (d) Appropriate precautionary and emergency procedures.
- (e) Operational procedures for carriage of freight.
- (f) Potential hazards associated with dangerous goods.
- (g) Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft.
- (h) Settling with power, ground resonance, retreating blade stall, dynamic roll-over and other operational hazards.
- (i) Safety procedures associated with flight under VFR.

4. Radiotelephony

- (a) Communication procedures and phraseology as applied to VFR operations.
- (b) Action to be taken in case of communication failure.

APPENDIX I-1

MILITARY COMPETENCY – HELICOPTER (MCH)

SAMPLE QUESTIONS, LEARNING STATEMENTS AND ANSWERS

1. With respect to the certification of aircraft, which is a class of aircraft?

- A—Aeroplane, glider, balloon.
- B—Normal, utility, acrobatic, limited.
- C—Transport, restricted, provisional.

Answer A—Learning Statement: Recall regulations - aircraft Category / Class

2. What wind conditions would you anticipate when squalls are reported at your destination?

- A—Rapid variations in windspeed of 15 knots or more between peaks and lulls.
- B—Peak gusts of at least 35 knots combined with a change in wind direction of 30° or more.
- C—Sudden increases in windspeed of at least 16 knots to a sustained speed of 22 knots or more for at least 1 minute.

Answer C—Learning Statement: Recall squall lines - formation / characteristics / resulting weather

3. When departing behind a heavy aircraft, the pilot should avoid wake turbulence by maneuvering the aircraft

- A—below and downwind from the heavy aircraft.
- B—above and upwind from the heavy aircraft.
- C—below and upwind from the heavy aircraft.

Answer B—Learning Statement: Recall wake turbulence – characteristics / avoidance techniques

4. 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—Learning Statement: Recall Aeronautical Decision Making (ADM) - hazardous attitudes

5. For IFR operations off established airways, ROUTE OF FLIGHT portion of an IFR flight plan should list VOR navigational aids which are no more than

- A—40 miles apart.
- B—70 miles apart.
- C—80 miles apart.

Answer C—Learning Statement: Recall flight plan - IFR