



# TTCAA Advisory Circular

---

**Subject: SUBJECT MATTER CODES FOR AIRMAN KNOWLEDGE TESTING**  
**TTCAA Advisory Circular TAC-PEL050**  
**Date: 06/10/02**

## PURPOSE

1. (1) The purpose of this TTCAA Advisory Circular (TAC) is to provide guidance for applicants preparing to take airman knowledge tests. This TAC contains the listing of subject matter knowledge codes and learning statements for airman knowledge testing.

(2) The Trinidad and Tobago Civil Aviation Regulations (TTCARs) can be obtained from the Trinidad and Tobago Government printery, Victoria Avenue, Port-Of-Spain Trinidad. TTCAR No. 1 covers the requirements for personnel licensing.

(3) This TAC can be purchased from the Tobago Civil Aviation Authority, P.O. Box 2163, National Mail Centre, Golden Grove Road, PiarcO, Republic of Trinidad and Tobago or downloaded from the TTCAA website at <<http://www.caa.gov.tt>>.

(4) Comments and/or questions regarding this TAC should be sent to Trinidad and Tobago Civil Aviation Authority, P.O. Box 2163, National Mail Centre, Golden Grove Road, PiarcO, Republic of Trinidad and Tobago.

## GENERAL

2. (1) Each airman knowledge test question has a subject matter code, which is linked to a specific knowledge area on the airman knowledge test. Each subject matter code will have a corresponding learning statement, which represents an indication of the depth and scope of knowledge required by the question.

(2) The expression “learning statements” as used in airman testing, refers to measurable statements of the skills and/or knowledge that a student should be able to demonstrate following a defined element of training. In order that the individual learning statements may be read as complete sentences, they should be assumed to be preceded by the words: “*On the successful completion of training the student should be able to.....*”

(3) In general, the learning statements are worded in such a way that the standard required to achieve them is self evident. It should be noted that learning statements do not provide a ready-made ground training syllabus and should not be viewed as a substitute for thorough training course-design.

(4) When an applicant for an airman licence takes the applicable airman knowledge test required for that licence, the applicant will receive an Airman Test Report. The airman test report will list the subject matter codes for questions that are answered incorrectly. The student should match the subject matter code with the learning statement contained in this TAC to review their areas of deficiency. A listing of reference materials for knowledge training testing is contained in the applicable TTCAA Knowledge Test Guide. An applicant's instructor is required to provide instruction on each of the areas of deficiency listed on the Airman Test Report and to complete an endorsement of this instruction. The Airman Test Report must be presented to the inspector or examiner conducting the skill test. During the oral portion of the skill test, the inspector or examiner is required to evaluate the noted areas of deficiency.

### **ELECTRONIC ACCESS**

3. The subject matter codes, some of the reference materials listed, and knowledge test guides can be obtained from the TTCAA website at: [www.caa.gov.tt](http://www.caa.gov.tt).

---

Ramesh Lutchmedial  
Director General of Civil Aviation

## SUBJECT MATTER CODES AND LEARNING STATEMENTS FOR KNOWLEDGE TESTING

|     | <b>Air Law</b>   |
|-----|--|
| B01 | Apply regulations governing airworthiness requirements / responsibilities        |
| B02 | Define aircraft certification categories   |
| B03 | Define crewmember  |
| B04 | Define Night   |
| B05 | Define operational control   |
| B06 | Define stopway   |
| B07 | Define V2 speed  |
| B08 | Define Va speed  |
| B09 | Define Vs speed  |
| B10 | Explain aircraft category  |
| B11 | Knowledge of accident / incident reporting regulations                           |
| B12 | Knowledge of aircraft operation regulations                                      |
| B13 | Knowledge of basic flight fuel requirement rules                                 |
| B14 | Knowledge of basic regulations regarding crew rest and crew duty                 |
| B15 | Knowledge of flight rule regulations   |
| B16 | Knowledge of flight time definitions / regulations                               |
| B17 | Knowledge of medical certificate privileges / limitations                        |
| B18 | Knowledge of pilot licencing privileges / limitations                            |
| B19 | Knowledge of regulations governing airworthiness requirements                    |
| B20 | Knowledge of regulations regarding duties / responsibilities of pilot in command |
| B21 | Recall alternate minimums / helicopter   |
| B22 | Recall appropriate alternate minimums  |
| B23 | Recall basic aircraft equipment requirements                                     |
| B24 | Recall basic flight rules / requirements   |
| B25 | Recall basic VFR flight rules / requirements                                     |
| B26 | Recall TTCARs No.1: Certificate / Licence holder responsibilities                |
| B27 | Recall TTCARs No.1: Certificate required   |
| B28 | Recall TTCARs No.1: Change of Address  |
| B29 | Recall TTCARs No.1: Definitions  |
| B30 | Recall TTCARs No.1: Definitions / Category                                       |
| B31 | Recall TTCARs No.1: Definitions / Night  |
| B32 | Recall TTCARs No.1: Drug and Alcohol Testing                                     |
| B33 | Recall TTCARs No.1: Falsification  |
| B34 | Recall TTCARs No.1: Licences and certificates                                    |
| B35 | Recall TTCARs No.1: Performance During Medical Deficiency                        |
| B36 | Recall TTCARs No.1: Reapplication After Revocation                               |
| B37 | Recall TTCARs No.11: Agricultural Aircraft Operator Certificate                  |
| B38 | Recall TTCARs No.11: Fish Spotting   |
| B39 | Recall TTCARs No.11: Sightseeing   |
| B40 | Recall TTCARs No.1: Categories of Aircraft                                       |
| B41 | Recall TTCARs No.1: Pilot licence validity period                                |
| B42 | Recall TTCARs No.1: Pilot medical certificate validity period                    |
| B43 | Recall TTCARs No.1: Privileges, limitations - flight review                      |
| B44 | Recall TTCARs No.1: Privileges, limitations - medical certification              |
| B45 | Recall TTCARs No.1: Privileges, limitations - pilot licence renewal              |
| B46 | Recall TTCARs No.1: Privileges, limitations - proficiency check required         |
| B47 | Recall TTCARs No.1: Privileges, limitations - recent experience                  |
| B48 | Recall TTCARs No.1: Privileges, limitations for Class II medical certificate     |

|     |   |
|-----|---|
| B49 | Recall TTCARs No.1: Privileges, limitations medical certification - use of medication   |
| B50 | Recall TTCARs No.1: Privileges, limitations, and definitions                            |
| B51 | Recall TTCARs No.1: V speeds  |
| B52 | Recall TTCARs No.1: Validity of licences  |
| B53 | Recall TTCARs No.1: Validity of Medical Certificates                                    |
| B54 | Recall TTCARs No.5: Airworthiness - preventative maintenance                            |
| B55 | Recall TTCARs No.5: Airworthiness Directives  |
| B56 | Recall TTCARs No.5: General Maintenance   |
| B57 | Recall TTCARs No.5: Maintenance Records   |
| B58 | Recall TTCARs No.5: Malfunctions and defects  |
| B59 | Recall TTCARs No.5: Required Reports  |
| B60 | Recall TTCARs No.7: Definition / Extended overwater operation                           |
| B61 | Recall TTCARs No.7: Extended overwater operations                                       |
| B62 | Recall TTCARs No.7: Minimum flight and navigational instruments                         |
| B63 | Recall TTCARs No.7: Required equipment for flight                                       |
| B64 | Recall TTCARs No.7: State requirements for ELT battery replacement                      |
| B65 | Recall TTCARs No.7: State requirements for ELT's  |
| B66 | Recall TTCARs No.2: Accident reports  |
| B67 | Recall TTCARs No.2: Aircraft Operating Limitations                                      |
| B68 | Recall TTCARs No.2: Altimeter Setting   |
| B69 | Recall TTCARs No.2: Crew oxygen requirements  |
| B70 | Recall TTCARs No.2: Flight rules general - 100 hour inspection validity period          |
| B71 | Recall TTCARs No.2: Flight rules general - acrobatic flight / minimum altitude          |
| B72 | Recall TTCARs No.2: Flight rules general - acrobatic flight / minimum visibility        |
| B73 | Recall TTCARs No.2: Flight rules general - aerobatic flight requirements                |
| B74 | Recall TTCARs No.2: Flight rules general - altimeter setting                            |
| B75 | Recall TTCARs No.2: Flight rules general - annual inspection / maintenance records      |
| B76 | Recall TTCARs No.2: Flight rules general - annual inspection expiration                 |
| B77 | Recall TTCARs No.2: Flight rules general - determining airworthiness                    |
| B78 | Recall TTCARs No.2: Flight rules general - deviation from ATC clearance for emergency   |
| B79 | Recall TTCARs No.2: Flight rules general - dropping objects from an aircraft            |
| B80 | Recall TTCARs No.2: Flight rules general - flight crewmembers / alcoholic beverages     |
| B81 | Recall TTCARs No.2: Flight rules general - formation flight                             |
| B82 | Recall TTCARs No.2: Flight rules general - fuel reserves for VFR - day                  |
| B83 | Recall TTCARs No.2: Flight rules general - interpret light gun signals                  |
| B84 | Recall TTCARs No.2: Flight rules general - minimum safe altitude                        |
| B85 | Recall TTCARs No.2: Flight rules general - parachute requirement                        |
| B86 | Recall TTCARs No.2: Flight rules general - briefing of passengers                       |
| B87 | Recall TTCARs No.2: Flight rules general - pilot in command / preflight action required |
| B88 | Recall TTCARs No.2: Flight rules general - preventive maintenance                       |
| B89 | Recall TTCARs No.2: Flight rules general - responsibility for AD compliance             |
| B90 | Recall TTCARs No.2: Flight rules general - responsibility of pilot in command           |
| B91 | Recall TTCARs No.2: Flight rules general - right of way rules                           |
| B92 | Recall TTCARs No.2: Flight rules general - use of safety belts                          |
| B93 | Recall TTCARs No.2: Flight rules general - VFR cruising altitudes                       |
| B94 | Recall TTCARs No.2: Fuel requirements   |
| B95 | Recall TTCARs No.2: General flight rules  |
| B96 | Recall TTCARs No.2: Maintenance Requirements  |
| B97 | Recall TTCARs No.2: Maximum allowable flight hours                                      |
| B98 | Recall TTCARs No.2: Passenger oxygen requirements                                       |
| B99 | Recall TTCARs No.2: Pilot Duties and Responsibilities                                   |

|      |   |
|------|---|
| B100 | Recall TTCARs No.2: Proximity to persons/property on the surface                |
| B101 | Recall TTCARs No.2: Required Documents  |
| B102 | Recall TTCARs No.2: State requirements for accident reporting                   |
| B103 | Recall TTCARs No.2: Visual Flight Rules   |
| B104 | Recall conditions where PIC must possess an instrument rating                   |
| B105 | Recall contents of a flight release / operational flight plan                   |
| B106 | Recall flight experience requirements for PIC in IMC powered aircraft           |
| B107 | Recall general definitions used in regulations                                  |
| B108 | Recall minimum instrument flight experience requirements for PIC                |
| B109 | Recall minimum requirements for currency for instrument approach                |
| B110 | Recall regulations governing airworthiness requirements / responsibilities      |
| B111 | Recall regulations relating to privileges / limitations of medical certificates |
| B112 | Recall regulations relating to privileges / limitations of pilot licences       |
| B113 | Recall regulations/definitions regarding flight time                            |
| B114 | Recall requirements / responsibilities of glider towing                         |
| B115 | Recall requirements / responsibilities of licence holders                       |
| B116 | Recall requirements for PIC under IFR   |
| B117 | Recall requirements to act as PIC of an aircraft                                |
| B118 | Recall requirements to maintain IFR currency                                    |
| B119 | Recall rules for logging instrument flight time                                 |
| B120 | Understand cockpit voice recorders  |
| B121 | Understand duties / responsibilities of pilot-in-command                        |
| B122 | Understand flight instructor recordkeeping requirements                         |
| B123 | Understand flight instructor requirements                                       |
| B124 | Understand ground instructor privileges   |
| B125 | Understand instructors certification of instruction given                       |
| B126 | Understand logging of pilot time  |
| B127 | Understand regulations governing airworthiness requirements / responsibilities  |
| B128 | Understand student pilot endorsements   |
|      | <b>Aircraft General Knowledge</b>   |
| C01  | Calculate aircraft landing performance using a chart                            |
| C02  | Calculate aircraft takeoff performance using a chart                            |
| C03  | Calculate crosswind / headwind components                                       |
| C04  | Calculate cruise performance using a chart                                      |
| C05  | Calculate fuel burn / range   |
| C06  | Calculate landing performance using chart                                       |
| C07  | Calculate rate of climb using a performance chart                               |
| C08  | Calculate stall speed using a performance chart                                 |
| C09  | Define absolute altitude  |
| C10  | Define density altitude   |
| C11  | Define ground effect  |
| C12  | Define how airspeed measurements are derived                                    |
| C13  | Describe a canard   |
| C14  | Describe a stabilizer   |
| C15  | Describe a typical oil system   |
| C16  | Describe aerodynamic forces acting on an aircraft                               |
| C17  | Describe affects of density altitude on turbine engines                         |
| C18  | Describe affects of density altitude on turbo prop engines                      |
| C19  | Describe aircraft flap design types   |
| C20  | Describe characteristics and effects of a compressor stall                      |
| C21  | Describe characteristics of a fully articulated rotor system                    |

|     |  |
|-----|--|
| C22 | Describe characteristics of a supercharger                                       |
| C23 | Describe characteristics of rotor systems  |
| C24 | Describe characteristics of turbine engines                                      |
| C25 | Describe components / operation of a typical fuel system                         |
| C26 | Describe components / operation of rotor systems                                 |
| C27 | Describe components / operation of turbine engines                               |
| C28 | Describe components / purpose of the tail rotor system                           |
| C29 | Describe components and operation of rotor systems                               |
| C30 | Describe components of a rotorcraft transmission                                 |
| C31 | Describe controls / operation of a supercharger                                  |
| C32 | Describe controls / operation of a typical aircraft engine                       |
| C33 | Describe correct operation of a constant speed propeller                         |
| C34 | Describe design limit factors  |
| C35 | Describe effects of density altitude on aircraft performance                     |
| C36 | Describe factors affecting carburetor icing                                      |
| C37 | Describe factors affecting takeoff performance                                   |
| C38 | Describe flight controls functionality on high performance aircraft              |
| C39 | Describe functionality of a pitot static system                                  |
| C40 | Describe functions / gauges associated with a typical aircraft electrical system |
| C41 | Describe instruments associated with turbine engines                             |
| C42 | Describe operation and purpose of leading edge slats                             |
| C43 | Describe operation of a turboprop engine   |
| C44 | Describe operation of aircraft powerplants                                       |
| C45 | Describe operation of constant / variable speed propellers                       |
| C46 | Describe operational characteristics of a turbine engine                         |
| C47 | Describe purpose / operation / types of leading edge devices                     |
| C48 | Describe purpose / operation of a balance tab                                    |
| C49 | Describe purpose / operation of a horizontal stabilizer                          |
| C50 | Describe purpose / operation of elevator trim tab                                |
| C51 | Describe purpose / operation of flap types                                       |
| C52 | Describe purpose / operation of stabilizer                                       |
| C53 | Describe purpose / operation of wing spoilers                                    |
| C54 | Describe purpose of a balance tab  |
| C55 | Describe purpose of a tail rotor   |
| C56 | Describe purpose of leading edge flaps   |
| C57 | Describe purpose of wing spoilers  |
| C58 | Describe types / purpose of secondary flight controls                            |
| C59 | Describe use / limitations associated with basic aircraft instruments            |
| C60 | Describe use / limitations of airborne radar                                     |
| C61 | Determine TAS  |
| C62 | Interpret a MACH meter reading   |
| C63 | Interpret airspeed indicator readings  |
| C64 | Interpret altimeter values   |
| C65 | Interpret VSI pointer readings   |
| C66 | Interpret weather radar information  |
| C67 | Knowledge of characteristics of a fully articulated rotor system                 |
| C68 | Knowledge of characteristics of a semi-rigid rotor system                        |
| C69 | Knowledge of characteristics of rotorcraft vibration                             |
| C70 | Knowledge of effects of atmosphere on a turbine engine                           |
| C71 | Knowledge of effects of icing on aircraft lift                                   |

|      |  |
|------|--|
| C72  | Knowledge of leading edge device types   |
| C73  | Knowledge of vertical speed indicator  |
| C74  | Recall aircraft general knowledge - pitot static systems                           |
| C75  | Recall aircraft general knowledge avionics - radar                                 |
| C76  | Recall aircraft general knowledge flight instruments - altimeter                   |
| C77  | Recall aircraft general knowledge landing gear - brakes in cold weather            |
| C78  | Recall altimeter setting procedures  |
| C79  | Recall atmospheric effects   |
| C80  | Recall avionics - ELT  |
| C81  | Recall electrical - generator  |
| C82  | Recall electrical failure - emergency  |
| C83  | Recall flight controls - primary   |
| C84  | Recall flight controls - secondary   |
| C85  | Recall flight instruments - airspeed indicator                                     |
| C86  | Recall flight Instruments - altimeter  |
| C87  | Recall flight Instruments - attitude indicator                                     |
| C88  | Recall flight Instruments - directional gyro                                       |
| C89  | Recall flight instruments - magnetic compass                                       |
| C90  | Recall flight instruments - turn indicator   |
| C91  | Recall fuel - additives  |
| C92  | Recall fuel - air mixture  |
| C93  | Recall fuel - carburetor   |
| C94  | Recall fuel - fuel pump  |
| C95  | Recall fuel - general  |
| C96  | Recall fuel system - pre-flight  |
| C97  | Recall limitations airspeed  |
| C98  | Recall pitot static system - general   |
| C99  | Recall powerplant - abnormal operation   |
| C100 | Recall powerplant - carburetor heat  |
| C101 | Recall powerplant - carburetor ice   |
| C102 | Recall powerplant - cooling  |
| C103 | Recall powerplant - ignition   |
| C104 | Recall propeller - adjustable pitch  |
| C105 | Recall propeller - fixed pitch   |
| C106 | Recall propeller - general   |
| C107 | Recall sources of abnormal helicopter vibrations                                   |
| C108 | Understand basic elements of aerodynamics  |
| C109 | Understand principles / functions of a typical pitot static system                 |
| C110 | Understand principles / functions of basic flight instruments                      |
| C111 | Use a chart to calculate gliding distance  |
|      | <b>Aircraft Performance</b>  |
| D01  | Calculate aircraft performance - airspeed from chart                               |
| D02  | Calculate aircraft performance - angle of climb speed from performance chart       |
| D03  | Calculate aircraft performance - best rate of climb from performance chart         |
| D04  | Calculate aircraft performance - cross wind  |
| D05  | Calculate aircraft performance - density altitude                                  |
| D06  | Calculate aircraft performance - distance to clear obstacle from performance chart |
| D07  | Calculate aircraft performance - glide distance from performance chart             |
| D08  | Calculate aircraft performance - ground roll from chart                            |
| D09  | Calculate aircraft performance - ground speed and fuel used from performance chart |

|     |   |
|-----|---|
| D10 | Calculate aircraft performance - landing distance from chart                  |
| D11 | Calculate aircraft performance - performance charts                           |
| D12 | Calculate aircraft performance - stall speed from performance chart           |
| D13 | Define / Understand aircraft performance - max structural cruising speed      |
| D14 | Define aircraft performance - maneuvering speed                               |
| D15 | Define aircraft performance - turbulence / load factor / maneuvering speed    |
| D16 | Define aircraft performance - Vmc multiengine                                 |
| D17 | Define aircraft performance - Vmc speed                                       |
| D18 | Define aircraft performance - Vyse  |
| D19 | Define aircraft performance instrument indications - blue line speed          |
| D20 | Define aircraft performance instrument indications - green arc                |
| D21 | Define aircraft performance instrument indications - white arc                |
| D22 | Define aircraft performance instrument markings - maneuvering speed           |
| D23 | Define aircraft performance instrument markings - red line speed              |
| D24 | Define Vne speed  |
| D25 | Interpret aircraft performance - cross wind component from chart              |
| D26 | Recall aircraft performance - atmospheric effects on performance              |
| D27 | Recall aircraft performance - density altitude                                |
| D28 | Recall aircraft performance - effects of uphill runway slope                  |
| D29 | Recall aircraft performance - ground effect                                   |
| D30 | Recall aircraft performance - load factor from performance chart              |
| D31 | Recall aircraft performance - mountain flying / density altitude              |
| D32 | Recall aircraft performance - stall speed                                     |
| D33 | Recall aircraft performance - weight vs takeoff performance                   |
|     | <b>Aircraft Systems</b>   |
| E01 | Define flight instruments - absolute altitude                                 |
| E02 | Define flight instruments - density altitude                                  |
| E03 | Define flight instruments - magnetic compass acceleration / deceleration      |
| E04 | Define flight instruments - magnetic compass deviation errors                 |
| E05 | Define flight instruments - magnetic compass turning errors                   |
| E06 | Define flight instruments - true altitude                                     |
| E07 | Define gyroscopic flight instruments - heading indicator                      |
| E08 | Define powerplant - carburetor ice  |
| E09 | Define powerplant - detonation  |
| E10 | Define powerplant - pre-ignition  |
| E11 | Define powerplant multiengine - critical engine                               |
| E12 | Describe fuel grade - effects of improper fuel grade                          |
| E13 | Interpret flight instruments - unusual attitude                               |
| E14 | Recall altimeter - effect of temperature changes                              |
| E15 | Recall electrical - alternator / battery failure                              |
| E16 | Recall electrical - characteristics of lead acid battery                      |
| E17 | Recall electrical generator / alternator differences                          |
| E18 | Recall flight controls secondary - flaps / fowler                             |
| E19 | Recall flight controls secondary - flaps / slotted                            |
| E20 | Recall flight controls secondary - flaps / split                              |
| E21 | Recall flight instruments - primary / supporting turns                        |
| E22 | Recall fuel - purpose of vent system  |
| E23 | Recall fuel operating procedures - minimizing moisture in tanks               |
| E24 | Recall fuel operating procedures - safety - grounding aircraft during fueling |
| E25 | Recall fuel preflight - contaminants  |

|     |  |
|-----|--|
| E26 | Recall fuel preflight contaminants - water in fuel                             |
| E27 | Recall fuel vent system - potential result of blockage                         |
| E28 | Recall oxygen - preflight  |
| E29 | Recall oxygen - rebreather bag   |
| E30 | Recall oxygen - types available  |
| E31 | Recall oxygen - types of systems   |
| E32 | Recall pitot static system installation error - effects on indications         |
| E33 | Recall pitot static system malfunction - effects on instruments                |
| E34 | Recall powerplant - basic principles   |
| E35 | Recall powerplant - basic types  |
| E36 | Recall powerplant - detonation cause / characteristics                         |
| E37 | Recall powerplant - effect of high operating temperature                       |
| E38 | Recall powerplant - fuel system pumps operating principles / characteristics   |
| E39 | Recall powerplant - operating principles characteristics                       |
| E40 | Recall powerplant - turbochargers basic  |
| E41 | Recall powerplant cooling - oil system general                                 |
| E42 | Recall powerplant fuel air ignition - operating principles characteristics     |
| E43 | Recall powerplant fuel air mixture adjustment - altitude                       |
| E44 | Recall powerplant fuel air mixture adjustment - effects                        |
| E45 | Recall powerplant ignition system - operating principles characteristics       |
| E46 | Recall powerplant magneto ignition - operating principles characteristics      |
| E47 | Recall powerplant mixture control - operating principles characteristics       |
| E48 | Recall powerplant multiengine - engine failure performance                     |
| E49 | Recall powerplant operating principles characteristics - engine runup          |
| E50 | Recall powerplant operating principles characteristics - fuel injection system |
| E51 | Recall powerplant spark plug - ignition operating principles characteristic    |
| E52 | Recall powerplant turbo chargers - operating principles characteristics        |
| E53 | Recall pressurization system malfunction - effects on altimeter indication     |
| E54 | Recall static system alternate - effects on airspeed indication                |
| E55 | Recall static system alternate - effects on instruments                        |
| E56 | Recognize powerplant - carburetor ice  |
| E57 | Understand airspeed indications - blocked pitot / static drain                 |
| E58 | Understand airspeed indicator markings   |
| E59 | Understand carburetor - float type operating principles                        |
| E60 | Understand effects of carburetor heat  |
| E61 | Understand fuel preflight - fuel system vents                                  |
| E62 | Understand instruments - manifold pressure gauge                               |
| E63 | Understand instruments - primary and supporting indications                    |
| E64 | Understand powerplant - carburetor heat / ice                                  |
| E65 | Understand powerplant fuel air mixture - adjustment                            |
| E66 | Understand powerplant fuel air mixture - adjustment - best power               |
| E67 | Understand powerplant fuel air mixture - altitude                              |
|     | <b>Airspace (Operational Procedures)</b>                                       |
| F01 | Interpret airspace Class B - charts - diagrams                                 |
| F02 | Interpret airspace Class C - charts - diagrams                                 |
| F03 | Interpret airspace general - charts - diagrams                                 |
| F04 | Recall airspace - restricted areas authorization                               |
| F05 | Recall airspace Class B - special VFR  |
| F06 | Recall airspace Class B, C, and D - requirements                               |
| F07 | Recall airspace Class D - general  |

|     |   |
|-----|---|
| F08 | Recall airspace Class G - requirements  |
| F09 | Recall airspace controlled - IFR  |
| F10 | Recall airspace controlled - operation into towered aerodromes                |
| F11 | Recall airspace IFR - outside controlled airspace                             |
| F12 | Recall limits and requirements for airspace categories                        |
| F13 | Recall MAA (Maximum Authorized Altitude)                                      |
| F14 | Understand airspace - warning area requirements                               |
| F15 | Understand airspace Class B - requirements                                    |
| F16 | Understand airspace Class C - avionics required                               |
| F17 | Understand airspace Class C - requirements                                    |
| F18 | Understand airspace Class D - requirements                                    |
|     | Flight Operations (Operational Procedures)                                    |
| G01 | Calculate rate / angle of descent for approach                                |
| G02 | Describe considerations for wake turbulence avoidance                         |
| G03 | Describe flight operations - four fundamentals of maneuvering an aircraft     |
| G04 | Explain flight operations - chandelle   |
| G05 | Explain flight operations - characteristics of slow flight                    |
| G06 | Explain flight operations - characteristics of turns                          |
| G07 | Explain flight operations - common student errors                             |
| G08 | Explain flight operations - cross control stall                               |
| G09 | Explain flight operations - eights on pylons                                  |
| G10 | Explain flight operations - lazy eight  |
| G11 | Explain flight operations - rectangular course                                |
| G12 | Explain flight operations - required stall demonstration by flight instructor |
| G13 | Explain flight operations - S turns   |
| G14 | Explain flight operations - S turns across a road                             |
| G15 | Explain flight operations - spin recovery                                     |
| G16 | Explain flight operations - stall / spin awareness                            |
| G17 | Explain flight operations - steep turns                                       |
| G18 | Explain flight operations - turns around a point                              |
| G19 | Explain flight operations characteristics of turns - slips                    |
| G20 | Explain flight operations characteristics of turns - slips / skids            |
| G21 | Explain region of reverse command   |
| G22 | Interpret flight operations - glide distance chart                            |
| G23 | Recall approach / landing - perceptions                                       |
| G24 | Recall approach / landing - rejected landing                                  |
| G25 | Recall basic instrument procedures for circling                               |
| G26 | Recall collision avoidance - air traffic control procedures                   |
| G27 | Recall collision avoidance - scanning techniques                              |
| G28 | Recall collision avoidance - statistical                                      |
| G29 | Recall collision avoidance - use of landing lights                            |
| G30 | Recall definition of density altitude   |
| G31 | Recall final approach in turbulence - procedures                              |
| G32 | Recall flight operations - sound judgment and safety                          |
| G33 | Recall flight operations abnormal emergency - downwind landing                |
| G34 | Recall flight operations approach / landing - go arounds                      |
| G35 | Recall lost communications procedures - IFR                                   |
| G36 | Recall procedures for a sidestep approach maneuver                            |
| G37 | Recall procedures for radio failure during an IFR flight                      |
| G38 | Recall reporting requirements when deviating from a clearance                 |

|     |   |
|-----|---|
| G39 | Recall responsibilities of PIC during IFR flight  |
| G40 | Recall stabilized approach - landing / floating   |
| G41 | Recall the parameters for a stabilized approach   |
| G42 | Recall the techniques for drift correction during approach                              |
| G43 | Understand effects of controls - crosswinds   |
| G44 | Understand flight operations - crosswind landing techniques                             |
| G45 | Understand flight operations - go around controllability                                |
| G46 | Understand flight operations - landing / ballooning                                     |
| G47 | Understand flight operations - short field approach / landing                           |
| G48 | Understand flight operations - short field takeoff procedures                           |
| G49 | Understand flight operations - wind component chart                                     |
| G50 | Understand flight operations approach / landing - flare                                 |
| G51 | Understand flight operations approach / landing - student errors                        |
| G52 | Understand flight operations longitudinal axis - direction of motion                    |
| G53 | Understand flight operations multiengine - engine inoperative procedures                |
| G54 | Understand short field approach / landing - region of reverse command                   |
|     | <b>Flight Performance and Planning</b>  |
| H01 | Calculate aircraft performance charts   |
| H02 | Calculate aircraft performance charts - accelerate stop field length                    |
| H03 | Calculate aircraft performance charts - critical engine failure / takeoff safety speeds |
| H04 | Calculate aircraft performance charts - fuel consumption                                |
| H05 | Calculate aircraft performance charts - ground distance during climb                    |
| H06 | Calculate aircraft performance charts - IAS and EPR settings                            |
| H07 | Calculate aircraft performance charts - max continuous EPR                              |
| H08 | Calculate aircraft performance charts - multiengine climb / descent                     |
| H09 | Calculate aircraft performance charts - multiengine rate of climb                       |
| H10 | Calculate aircraft performance charts - N1 power setting                                |
| H11 | Calculate aircraft performance charts - over obstacle at takeoff                        |
| H12 | Calculate aircraft performance charts - over obstacle landing                           |
| H13 | Calculate aircraft performance charts - rotation speed                                  |
| H14 | Calculate aircraft performance charts - service ceiling with inoperative engine         |
| H15 | Calculate aircraft performance charts - single engine climb / descent                   |
| H16 | Calculate aircraft performance charts - STAB TRIM                                       |
| H17 | Calculate aircraft performance charts - takeoff ground roll / V1 speed                  |
| H18 | Calculate aircraft performance charts - time en route                                   |
| H19 | Calculate aircraft performance charts - V1 / VR / V2                                    |
| H20 | Calculate aircraft performance charts - Vne   |
| H21 | Calculate altitude loss vs distance using a chart                                       |
| H22 | Calculate altitude loss vs gliding distance using a performance chart                   |
| H23 | Calculate crosswind / headwind components   |
| H24 | Calculate endurance using a performance chart   |
| H25 | Calculate flight time using a performance chart   |
| H26 | Calculate fuel consumed using a performance chart                                       |
| H27 | Calculate fuel dump from a chart  |
| H28 | Calculate fuel used from a chart  |
| H29 | Calculate fuel used to climb  |
| H30 | Calculate in ground effect hover altitude   |
| H31 | Calculate load factor using a performance chart   |
| H32 | Calculate range applying regulatory fuel reserves                                       |
| H33 | Calculate range using a performance chart   |

|     |  |
|-----|--|
| H34 | Calculate rate of climb using a performance chart                                |
| H35 | Calculate stall speed using a performance chart                                  |
| H36 | Calculate takeoff distance using a performance chart                             |
| H37 | Calculate TAS / fuel consumption using a performance chart                       |
| H38 | Calculate time to climb  |
| H39 | Calculate time, distance and fuel used during climb                              |
| H40 | Compute a glide ratio  |
| H41 | Compute aircraft performance - airspeed  |
| H42 | Compute aircraft performance - ETE   |
| H43 | Compute CG   |
| H44 | Compute flight time applying required fuel reserves                              |
| H45 | Compute flight time based on fuel burn charts                                    |
| H46 | Compute fuel burn  |
| H47 | Compute landing distance using a performance chart                               |
| H48 | Compute maximum weight for obstacle clearance takeoff                            |
| H49 | Compute takeoff distance using a performance chart                               |
| H50 | Define basic concepts affecting aircraft weight and balance                      |
| H51 | Define glide ratio   |
| H52 | Define max structural speed  |
| H53 | Define minimum control speed   |
| H54 | Demonstrate use of performance charts  |
| H55 | Describe effects of density altitude on aircraft performance                     |
| H56 | Describe effects of density altitude on rotorcraft performance                   |
| H57 | Describe how CG can affect aircraft stability in flight                          |
| H58 | Determine ground roll using a performance chart                                  |
| H59 | Determine never exceed speed from a performance chart                            |
| H60 | Determine range using a performance chart  |
| H61 | Determine rate of climb using performance chart                                  |
| H62 | Determine the L/D ratio using a chart  |
| H63 | Explain effect of loading on glider performance                                  |
| H64 | Explain effects of aft CG on aircraft stability                                  |
| H65 | Explain effects of density altitude on aircraft performance                      |
| H66 | Explain most common factors affecting aircraft performance                       |
| H67 | Explain under what conditions glider performance is enhanced by carrying ballast |
| H68 | Interpret a glider performance chart   |
| H69 | Interpret a performance chart  |
| H70 | Interpret Standard Instrument Approach Chart                                     |
| H71 | Recall / Calculate aircraft performance - crosswind takeoff                      |
| H72 | Recall / Compute aircraft performance - center of gravity                        |
| H73 | Recall / Compute aircraft performance - crosswind                                |
| H74 | Recall / Compute aircraft performance - fuel                                     |
| H75 | Recall / Compute aircraft performance fuel - TAS groundspeed                     |
| H76 | Recall Aircraft General Knowledge / Publications / AIM / FSS                     |
| H77 | Recall Aircraft General Knowledge / Publications / AIM / Navigational Aids       |
| H78 | Recall aircraft loading - computations   |
| H79 | Recall aircraft loading - general  |
| H80 | Recall aircraft performance - airspeed   |
| H81 | Recall aircraft performance - atmospheric effects                                |
| H82 | Recall aircraft performance - fuel requirements                                  |
| H83 | Recall aircraft performance - landing distance                                   |

|      |   |
|------|---|
| H84  | Recall aircraft performance - takeoff distance                                |
| H85  | Recall aircraft performance atmospheric effects - density altitude            |
| H86  | Recall aircraft performance atmospheric effects - general                     |
| H87  | Recall aircraft performance center of gravity - general                       |
| H88  | Recall aircraft performance charts  |
| H89  | Recall aircraft performance flight planning - general                         |
| H90  | Recall flight performance and planning computations - range                   |
| H91  | Recall formula for computing CG   |
| H92  | Recall performance planning - aircraft loading                                |
| H93  | Recall relationship between design maneuvering speed and turbulence           |
| H94  | Understand effect of density altitude on takeoff / climb performance          |
| H95  | Understand effects of aft CG on helicopter performance                        |
| H96  | Understand how CG affects aircraft stability                                  |
| H97  | Understand how maximum range is affected by airspeed / weight                 |
| H98  | Understand how runway slope affects takeoff performance                       |
| H99  | Understand how to determine CG  |
| H100 | Understand relationship between density altitude / airspeed                   |
|      | <b>Fundamentals of Instruction</b>  |
| J01  | Define cognitive level of learning  |
| J02  | Define critique evaluation  |
| J03  | Define critique evaluation - instructor as a critic                           |
| J04  | Define critique evaluation - oral quiz  |
| J05  | Define FOI learning process - learning  |
| J06  | Define FOI learning process - learning plateau                                |
| J07  | Define FOI learning process levels of learning - application                  |
| J08  | Define FOI learning process levels of learning - outcomes / perception        |
| J09  | Define FOI learning process levels of learning - rote                         |
| J10  | Define FOI learning process levels of learning - understanding                |
| J11  | Define FOI learning process memory types - disuse                             |
| J12  | Define FOI learning process memory types - interference                       |
| J13  | Define FOI learning process memory types - long term                          |
| J14  | Define FOI learning process memory types - recoding                           |
| J15  | Define FOI learning process memory types - repression                         |
| J16  | Define FOI learning process memory types - sensory register                   |
| J17  | Define FOI learning process memory types - short term                         |
| J18  | Define FOI learning process principles of learning - basic needs              |
| J19  | Define FOI learning process principles of learning - intensity                |
| J20  | Define FOI learning process principles of learning - readiness                |
| J21  | Define FOI learning process principles of learning - recency                  |
| J22  | Define FOI learning process principles of learning - understand exercise      |
| J23  | Define FOI learning process principles of learning elements - fear / threat   |
| J24  | Define FOI learning process principles of learning elements - insights        |
| J25  | Define FOI learning process principles of learning elements - motivation      |
| J26  | Define FOI learning process principles of learning insights - perceptions     |
| J27  | Define FOI learning process principles of learning insights - self concept    |
| J28  | Define FOI learning process principles of learning perceptions - self concept |
| J29  | Define FOI learning process transfer of learning - negative                   |
| J30  | Define FOI learning process transfer of learning - positive                   |
| J31  | Define hazards involved in simulating system failures                         |
| J32  | Define human factors - ADM  |

|     |  |
|-----|--|
| J33 | Define lesson planning - curriculum  |
| J34 | Define lesson planning presentation methods - lecture                            |
| J35 | Define levels of learning - taxonomy   |
| J36 | Define principles of learning - affective domain                                 |
| J37 | Define principles of learning - cognitive domain of learning                     |
| J38 | Define principles of learning - effect   |
| J39 | Define principles of learning - exercise   |
| J40 | Define principles of learning - insights / perceptions                           |
| J41 | Define principles of learning - negative self concept                            |
| J42 | Define teaching methods - cooperative group learning                             |
| J43 | Define teaching methods - guided discussion method                               |
| J44 | Define teaching methods lecture method - overhead                                |
| J45 | Define use of training aids - function   |
| J46 | Define use of training aids - purpose  |
| J47 | Define use of training aids - types  |
| J48 | Describe steps of the teaching process   |
| J49 | Explain use of training aids - design key point                                  |
| J50 | Recall aeromedical physiological night vision - effects of altitude              |
| J51 | Recall critique evaluation - effective critiques                                 |
| J52 | Recall critique evaluation - measured against lesson plan                        |
| J53 | Recall critique evaluation - selection of test items                             |
| J54 | Recall critique evaluation - student progress                                    |
| J55 | Recall critique evaluation - written tests                                       |
| J56 | Recall critique evaluation written tests - choice matching                       |
| J57 | Recall critique evaluation written tests - discrimination                        |
| J58 | Recall critique evaluation written tests - distracters                           |
| J59 | Recall critique evaluation written tests - general                               |
| J60 | Recall critique evaluation written tests - multiple choice                       |
| J61 | Recall critique evaluation written tests - performance                           |
| J62 | Recall critique evaluation written tests - reliability                           |
| J63 | Recall critique evaluation written tests - true / false                          |
| J64 | Recall critique evaluation written tests - validity                              |
| J65 | Recall effective communication - basic elements                                  |
| J66 | Recall FOI instructor flight instruction techniques - obstacles to learning      |
| J67 | Recall FOI instructor flight instruction techniques - tell / do method           |
| J68 | Recall FOI instructor techniques - student questions                             |
| J69 | Recall FOI instructor techniques - aeronautical decision making factors          |
| J70 | Recall FOI instructor techniques - integrated flight instruction                 |
| J71 | Recall FOI instructor techniques - lecture                                       |
| J72 | Recall FOI instructor techniques - obstacles to learning                         |
| J73 | Recall FOI instructor techniques - professionalism                               |
| J74 | Recall FOI instructor techniques - responsibilities                              |
| J75 | Recall FOI instructor techniques - student evaluation                            |
| J76 | Recall FOI instructor techniques - student motivation                            |
| J77 | Recall FOI instructor techniques - use of distractions                           |
| J78 | Recall FOI instructor techniques / planning activity - blocks of learning        |
| J79 | Recall FOI instructor techniques / teaching process - barriers to communication  |
| J80 | Recall FOI instructor techniques / teaching process - communication elements     |
| J81 | Recall FOI learning process characteristics of learning - incidental             |
| J82 | Recall FOI learning process educational objective levels - list cognitive domain |

|      |  |
|------|--|
| J83  | Recall FOI learning process elements - problem solving                                 |
| J84  | Recall FOI techniques / human behavior - anxiety / fear                                |
| J85  | Recall FOI techniques / human behavior - assessing stress                              |
| J86  | Recall FOI techniques / human behavior - behavioral traps                              |
| J87  | Recall FOI techniques / human behavior - dangerous tendencies                          |
| J88  | Recall FOI techniques / human behavior - defense mechanisms                            |
| J89  | Recall FOI techniques / human behavior - effects of alcohol                            |
| J90  | Recall FOI techniques / human behavior - hazardous attitude                            |
| J91  | Recall FOI techniques / human behavior - list 4 fundamental risk elements              |
| J92  | Recall FOI techniques / human behavior - macho   |
| J93  | Recall FOI techniques / human behavior - physical                                      |
| J94  | Recall FOI techniques / human behavior - self fulfillment                              |
| J95  | Recall FOI techniques / human behavior - social  |
| J96  | Recall FOI techniques / human behavior - stress  |
| J97  | Recall fundamentals of instruction - lesson plans                                      |
| J98  | Recall fundamentals of instruction lesson plans - 4 steps of teaching                  |
| J99  | Recall fundamentals of instruction lesson plans - arranging lesson material            |
| J100 | Recall fundamentals of instruction lesson plans - building block technique             |
| J101 | Recall fundamentals of instruction lesson plans - characteristics                      |
| J102 | Recall fundamentals of instruction lesson plans - contents                             |
| J103 | Recall fundamentals of instruction lesson plans - flexibility                          |
| J104 | Recall fundamentals of instruction lesson plans - planning instructional activity      |
| J105 | Recall fundamentals of instruction lesson plans - primary purpose                      |
| J106 | Recall fundamentals of instruction lesson plans - training syllabus                    |
| J107 | Recall human behavior defense mechanism - aggression                                   |
| J108 | Recall human behavior defense mechanism - flight                                       |
| J109 | Recall human behavior defense mechanism - physical / mental flight                     |
| J110 | Recall human behavior defense mechanism - rationalization                              |
| J111 | Recall human behavior defense mechanism - resignation                                  |
| J112 | Recall human behavior defense mechanism - stress                                       |
| J113 | Recall instructor responsibilities   |
| J114 | Recall instructor responsibilities - answering student questions                       |
| J115 | Recall instructor responsibilities - appraise student performance                      |
| J116 | Recall instructor responsibilities - standard of performance                           |
| J117 | Recall instructor techniques   |
| J118 | Recall learning process - memory / fact / recall                                       |
| J119 | Recall lesson planning presentation methods - course of training                       |
| J120 | Recall physiological - cause of anemic hypoxia   |
| J121 | Recall physiological - dangers of carbon monoxide                                      |
| J122 | Recall physiological - effects of scuba diving   |
| J123 | Recall physiological - effects of smoking  |
| J124 | Recall physiological / altitude - effects of oxygen                                    |
| J125 | Recall planning instructional activity - blocks of learning                            |
| J126 | Recall principles of learning - primacy characteristics                                |
| J127 | Recall student evaluation testing - characteristics of skill tests for pilot licensing |
| J128 | Recall student evaluation testing - instructor critiques                               |
| J129 | Recall student evaluation testing characteristics - pre test criterion referenced      |
| J130 | Recall student evaluation testing characteristics - test preparation materials         |
| J131 | Recall student evaluation testing instructor responsibilities - student solo           |
| J132 | Recall student evaluation testing levels of learning - cooperative group learning      |

|      |  |
|------|--|
| J133 | Recall student evaluation testing levels of learning - correlation                         |
| J134 | Recall student evaluation testing written tests - characteristics of comprehensive         |
| J135 | Recall student evaluation testing written tests - characteristics of discrimination        |
| J136 | Recall student evaluation testing written tests - characteristics of multiple choice       |
| J137 | Recall student evaluation testing written tests - characteristics of true false / guessing |
| J138 | Recall teaching learning process compatibility - outcome sought                            |
| J139 | Recall teaching methods - demonstration / performance                                      |
| J140 | Recall teaching methods - guided discussion  |
| J141 | Recall teaching methods - heterogeneous groups   |
| J142 | Recall teaching methods - known to unknown   |
| J143 | Recall teaching methods - lecture method   |
| J144 | Recall teaching methods by example   |
| J145 | Recall teaching methods guided discussion - lead off question                              |
| J146 | Recall teaching methods introduction - organizing material                                 |
| J147 | Recall teaching process - motivation   |
| J148 | Recall teaching process - student feelings of insecurity                                   |
| J149 | Recall use of training aids - simplicity / compatibility                                   |
| J150 | Recall use of training aids - usefulness proper sequence                                   |
| J151 | Recall use of training aids - when not to use  |
| J152 | Recall use of training aids usefulness - most common types                                 |
| J153 | Recall use of training aids usefulness - object point to be made                           |
| J154 | Recall use of training aids usefulness - software / interactive video                      |
| J155 | Recall visual scanning - effects of haze   |
| J156 | Understand fundamentals of instruction - training syllabus                                 |
| J157 | Understand human behavior ADM - antiauthority  |
| J158 | Understand human behavior ADM - decide process   |
| J159 | Understand human behavior ADM - risk management  |
| J160 | Understand human behavior ADM - students   |
| J161 | Understand human performance stress - extreme over cooperation                             |
| J162 | Understand human performance stress - reactions  |
| J163 | Understand use of training aids computer based training - advantages                       |
| J164 | Understand use of training aids computer based training - applications                     |
|      | <b>Human Performance</b>   |
| K01  | Define ADM process   |
| K02  | Define concept of risk management in the ADM process                                       |
| K03  | Define human factors - ADM   |
| K04  | Define types / causes of visual illusions  |
| K05  | Describe behavioral traps that interfere with decision making                              |
| K06  | Describe characteristics associated with night vision                                      |
| K07  | Describe characteristics of hyperventilation   |
| K08  | Describe correct procedure in dealing with an emergency                                    |
| K09  | Describe techniques that help with spatial disorientation                                  |
| K10  | Describe the decide model used in decision making  |
| K11  | Describe the effects of hypoxia  |
| K12  | Describe the process of stress management  |
| K13  | Predict ADM hazardous attitude - antiauthority   |
| K14  | Predict ADM hazardous attitude - general   |
| K15  | Predict ADM hazardous attitude - impulsivity   |
| K16  | Predict ADM hazardous attitude - macho   |
| K17  | Predict ADM hazardous attitude - resignation   |

|     |   |
|-----|---|
| K18 | Predict ADM judgment - general                                    |
| K19 | Predict aeromedical factors - carbon monoxide poisoning           |
| K20 | Predict aeromedical factors - fitness for flight                  |
| K21 | Predict aeromedical factors - physiological                       |
| K22 | Predict environmental factors - altitude                          |
| K23 | Predict environmental factors - general                           |
| K24 | Predict human performance - operational pitfalls                  |
| K25 | Predict human performance - risk management                       |
| K26 | Recall causes / sources of inflight illusions                     |
| K27 | Recall human factors-aeromedical                                  |
| K28 | Recall proper scanning methods                                    |
| K29 | Understand effects of alcohol on the body                         |
| K30 | Understand effects of altitude on the body                        |
|     | <b>Instrument Procedures (Operational Procedures)</b>             |
| L01 | Calculate data for a flight plan                                  |
| L02 | Calculate en route data for a flight plan                         |
| L03 | Calculate minimum departure climb rate                            |
| L04 | Calculate required departure climb rate                           |
| L05 | Compute CAS   |
| L06 | Define MEA  |
| L07 | Define MOCA   |
| L08 | Define MRA  |
| L11 | Describe normal IFR climb / descent procedure                     |
| L12 | Describe RNAV waypoint  |
| L13 | Determine minimum altitude for IFR flight from a chart            |
| L14 | Explain physiological - overcome / prevent spatial disorientation |
| L15 | Interpret a departure procedure chart                             |
| L16 | Interpret an instrument approach plate                            |
| L17 | Interpret ATC instructions / terminology                          |
| L18 | Interpret information on an approach / arrival chart              |
| L20 | Recall air traffic control - reporting                            |
| L21 | Recall altimeter setting procedures                               |
| L22 | Recall approach - GPS   |
| L23 | Recall approach - holding   |
| L24 | Recall approach - ILS   |
| L25 | Recall approach - minimums  |
| L26 | Recall approach - missed  |
| L27 | Recall ASR  |
| L28 | Recall attitudes - unusual  |
| L29 | Recall autorotation   |
| L30 | Recall basic instrument flying - airspeed changes                 |
| L31 | Recall basic instrument flying - airspeed indicator               |
| L32 | Recall basic instrument flying - altimeter                        |
| L33 | Recall basic instrument flying - attitude indicator               |
| L34 | Recall basic instrument flying - climb                            |
| L35 | Recall basic instrument flying - descent                          |
| L36 | Recall basic instrument flying - fundamental skills               |
| L37 | Recall basic instrument flying - heading indicator                |
| L39 | Recall basic instrument flying - pitch instruments                |
| L40 | Recall basic instrument flying - power                            |

|     |  |
|-----|--|
| L42 | Recall circling - MAP  |
| L43 | Recall electronic glide slope - failure                      |
| L44 | Recall en route - altimeter settings                         |
| L45 | Recall instrument approach procedures                        |
| L47 | Recall instrument procedures - unusual attitude recovery     |
| L48 | Recall meaning of ATC clearances                             |
| L49 | Recall minimum IFR terrain clearance altitudes               |
| L50 | Recall no gyro   |
| L51 | Recall parallel ILS  |
| L52 | Recall proper procedures / format for filing IFR flight plan |
| L53 | Recall radio - failure                                       |
| L54 | Recall standard approach and ATC procedures                  |
| L55 | Recall standard holding pattern procedures                   |
| L56 | Recall STAR  |
| L57 | Recall visual approach procedures                            |
|     | <b>Instrument Procedures (Aircraft General Knowledge)</b>    |
| L09 | Describe basic principles regarding gyroscopic instruments   |
| L10 | Describe errors inherent in flight instruments               |
| L19 | Interpret instrument readings                                |
| L38 | Recall basic instrument flying - magnetic compass            |
| L41 | Recall basic instrument flying - turn coordinator            |
| L46 | Recall instrument preflight procedures                       |
|     | <b>Meteorology</b>   |
| M01 | Decipher a METAR report                                      |
| M02 | Decipher a pilot observation report                          |
| M03 | Decipher a PIREP   |
| M04 | Decipher a radar summary chart                               |
| M05 | Decipher a radar weather report                              |
| M06 | Decipher a significant weather chart                         |
| M07 | Decipher a surface analysis chart                            |
| M08 | Decipher a weather analysis chart                            |
| M09 | Decipher a weather depiction chart                           |
| M10 | Decipher a weather map                                       |
| M11 | Decipher a winds aloft chart                                 |
| M12 | Decipher a winds aloft weather forecast                      |
| M13 | Decipher an aerodrome forecast report                        |
| M14 | Decipher an aviation weather forecast                        |
| M15 | Decipher constant pressure analysis chart                    |
| M16 | Define a hurricane watch                                     |
| M17 | Define an isobar   |
| M18 | Define atmospheric adiabatic process                         |
| M19 | Define characteristics of an inversion layer                 |
| M20 | Define meteorology - AIRMETS                                 |
| M21 | Define meteorology - ATIS broadcast                          |
| M22 | Define meteorology - ceiling                                 |
| M23 | Define meteorology - HIWAS                                   |
| M24 | Define meteorology - SIGMETS                                 |
| M25 | Define meteorology - Terminal Aerodrome Forecast (TAF)       |
| M26 | Define meteorology - winds and temperatures aloft forecast   |
| M27 | Define parts of the atmosphere                               |

|     |  |
|-----|--|
| M28 | Define standard temperature / pressure values                          |
| M29 | Define the jetstream   |
| M30 | Define troposphere   |
| M31 | Define Virga   |
| M32 | Demonstrate knowledge of weather information sources                   |
| M33 | Describe air circulation principles                                    |
| M34 | Describe characteristics of frontal weather                            |
| M35 | Describe cloud types and their formation                               |
| M36 | Describe conditions for issuance of a SIGMET                           |
| M37 | Describe fog formation   |
| M38 | Describe general processes of weather formation                        |
| M39 | Describe hazards associated with microbursts                           |
| M40 | Describe hazards associated with windshear                             |
| M41 | Describe information found on a constant pressure analysis chart       |
| M42 | Describe information found on a radar summary chart                    |
| M43 | Describe information found on a surface analysis chart                 |
| M44 | Describe information found on a weather depiction chart                |
| M45 | Describe weather associated with frontal activity                      |
| M46 | Describe weather associated with the tropics                           |
| M47 | Explain meteorology - area forecast                                    |
| M48 | Explain meteorology - constant pressure charts                         |
| M49 | Explain meteorology - convective outlook charts                        |
| M50 | Explain meteorology - severe weather watch (WW)                        |
| M51 | Explain meteorology - TWEB broadcast                                   |
| M52 | Explain meteorology TAF - windshear forecast                           |
| M53 | Explain meteorology tropics - trade wind inversion                     |
| M54 | Explain meteorology tropics - cloud types                              |
| M55 | Explain meteorology tropics - diurnal / local effects / sea breeze     |
| M56 | Explain meteorology tropics - easterly wave / tropical wave            |
| M57 | Explain meteorology tropics - hurricane                                |
| M58 | Explain meteorology tropics - Inter Tropical Convergence Zone          |
| M59 | Explain meteorology tropics - The Trades                               |
| M60 | Explain meteorology tropics - tropical circulation                     |
| M61 | Interpret a weather chart  |
| M62 | Interpret meteorology - Convective Outlook chart                       |
| M63 | Interpret meteorology - Low Level Significant Weather Prognostic chart |
| M64 | Interpret meteorology - METAR  |
| M65 | Interpret meteorology - METAR / SPECI                                  |
| M66 | Interpret meteorology - PIREPS   |
| M67 | Interpret meteorology - PIREPS terminology                             |
| M68 | Interpret meteorology - Pseudo-Adiabatic chart                         |
| M69 | Interpret meteorology - radar summary chart                            |
| M70 | Interpret meteorology - SIGMETS  |
| M71 | Interpret meteorology - Significant Weather Prognostic chart           |
| M72 | Interpret meteorology - Winds and Temperatures Aloft chart             |
| M73 | Knowledge of basic concepts of air circulation                         |
| M74 | Knowledge of basic concepts of weather circulation                     |
| M75 | Knowledge of characteristics of frontal weather                        |
| M76 | Knowledge of characteristics of thunderstorms                          |
| M77 | Knowledge of characteristics of wind shear                             |

|      |   |
|------|---|
| M78  | Knowledge of effect of temperature on density altitude        |
| M79  | Knowledge of tropical weather associated with Suriname        |
| M80  | Knowledge of tropical weather characteristics                 |
| M81  | Knowledge of weather hazards associated with thunderstorms    |
| M82  | Knowledge of weather report and forecast types                |
| M83  | Recall aeronautical weather forecast - icing                  |
| M84  | Recall aeronautical weather forecast - METAR                  |
| M85  | Recall aeronautical weather forecast - PIREP                  |
| M86  | Recall aeronautical weather forecast - SIGMETS                |
| M87  | Recall aeronautical weather forecast - TAF                    |
| M88  | Recall aeronautical weather forecast - winds / AIRMETS        |
| M89  | Recall aeronautical weather forecast - winds / ATIS           |
| M90  | Recall air masses   |
| M91  | Recall characteristics / hazards associated with windshear    |
| M92  | Recall charts / maps - area forecasts                         |
| M93  | Recall charts / maps - observed winds aloft                   |
| M94  | Recall Constant Pressure Analysis Chart                       |
| M95  | Recall dynamics of fog formation                              |
| M96  | Recall general dynamics of air circulation / weather creation |
| M97  | Recall general dynamics of cloud formation                    |
| M98  | Recall hazardous weather - icing                              |
| M99  | Recall hazardous weather - microburst                         |
| M100 | Recall hazardous weather - thunderstorms                      |
| M101 | Recall hazardous weather - turbulence                         |
| M102 | Recall hazardous weather - windshear                          |
| M103 | Recall hazards associated with thunderstorms                  |
| M104 | Recall meteorology - air masses                               |
| M105 | Recall meteorology - circulation                              |
| M106 | Recall meteorology - clouds                                   |
| M107 | Recall meteorology - fog                                      |
| M108 | Recall meteorology - fronts                                   |
| M109 | Recall meteorology - moisture                                 |
| M110 | Recall meteorology - pilot weather reports                    |
| M111 | Recall meteorology - precipitation                            |
| M112 | Recall meteorology - pressure                                 |
| M113 | Recall meteorology - solar energy                             |
| M114 | Recall meteorology - squalls                                  |
| M115 | Recall meteorology - stability                                |
| M116 | Recall meteorology - temperature                              |
| M117 | Recall meteorology - thunderstorms                            |
| M118 | Recall meteorology - turbulence                               |
| M119 | Recall meteorology - upper air data                           |
| M120 | Recall meteorology - wind                                     |
| M121 | Recall meteorology area forecast - legend abbreviations       |
| M122 | Recall partitions / characteristics of the earth's atmosphere |
| M123 | Recall Radar Summary Chart                                    |
| M124 | Recall Severe Weather Outlook Chart                           |
| M125 | Recall Significant Weather Prognostic Charts                  |
| M126 | Recall sources of weather forecasts in Suriname               |
| M127 | Recall standard lapse rate to calculate cloud base            |

|      |   |
|------|---|
| M128 | Recall standard lapse rate to calculate temperature at a given altitude |
| M129 | Recall Surface Analysis Chart   |
| M130 | Recall temperature / pressure of a standard atmosphere                  |
| M131 | Recall Temperatures Aloft Forecast (FD)                                 |
| M132 | Recall weather conditions associated with a squall                      |
| M133 | Recall Weather Depiction Chart  |
| M134 | Recall weather forecasts - Aviation Area Forecasts (FA)                 |
| M135 | Recall weather forecasts - convective outlook                           |
| M136 | Recall what conditions can result in turbulence formation               |
| M137 | Recognize indicators of turbulent air                                   |
| M138 | Recognize weather associated with frontal activity / air masses         |
| M139 | Understand meteorology – AIRMETS  |
| M140 | Understand pressure systems   |
| M141 | Understand weather associated with frontal activity / air masses        |
| M142 | Understand what conditions trigger a SIGMET                             |
| M143 | Understand what conditions trigger a SPECI                              |
|      | <b>Navigation</b>   |
| N01  | Calculate bearing to intercept a course                                 |
| N02  | Calculate cross country - course correction                             |
| N03  | Calculate cross country - distance / time to climb                      |
| N04  | Calculate cross country - fuel burn                                     |
| N05  | Calculate cross country - groundspeed / fuel burn                       |
| N06  | Calculate cross country - magnetic heading / groundspeed                |
| N07  | Calculate cross country - time / speed / distance                       |
| N08  | Calculate cross country - wind direction / speed                        |
| N09  | Calculate crosswind / headwind components                               |
| N10  | Calculate density altitude using a computer                             |
| N11  | Calculate distance / bearing from a station using a computer            |
| N12  | Calculate endurance using a flight computer                             |
| N13  | Calculate fuel used and distance / time to climb using a computer       |
| N14  | Calculate fuel used and distance / time to descend using a computer     |
| N15  | Calculate radio VOR - distance to the station                           |
| N16  | Define radio VOR / VOT  |
| N17  | Describe characteristics of an LDA approach                             |
| N18  | Describe characteristics of an SDF approach                             |
| N19  | Describe general GPS system requirements                                |
| N20  | Describe requirements for using LORAN C for navigation                  |
| N21  | Explain cross country - principles of flight diversion                  |
| N22  | Explain navigation - true north / magnetic north                        |
| N23  | Interpret ADF / NDB / ADF - illustration                                |
| N24  | Interpret an airways chart  |
| N25  | Interpret CDI indications   |
| N26  | Interpret cross country - sectional charts                              |
| N27  | Interpret DME chart information - Low Altitude En route                 |
| N28  | Interpret ILS - charts / indications                                    |
| N29  | Interpret ILS - charts / RMI / CDI                                      |
| N30  | Interpret ILS - OBS / GPS / ILS indications                             |
| N31  | Interpret information depicted on approach chart                        |
| N32  | Interpret information displayed on an ADF / VOR card                    |
| N33  | Interpret information from a VOR to calculate an intercept heading      |

|     |   |
|-----|---|
| N34 | Interpret information on a sectional chart                          |
| N35 | Interpret OBS indications   |
| N36 | Interpret radio NDB - OBS indications                               |
| N37 | Interpret radio NDB - RMI indications                               |
| N38 | Predict effects of wind   |
| N39 | Recall cross country flight plan - aircraft / equipment / suffix    |
| N40 | Recall dead reckoning - aeronautical charts                         |
| N41 | Recall dead reckoning - calculations                                |
| N42 | Recall flight plan data   |
| N43 | Recall ILS - marker beacon / indicator lights / codes               |
| N44 | Recall Inertial Navigation System principles                        |
| N45 | Recall navigation principles - GPS / RAIM                           |
| N46 | Recall pilotage - ADF   |
| N47 | Recall pilotage - aeronautical charts                               |
| N48 | Recall pilotage - calculations                                      |
| N49 | Recall principles of ADF / NDB procedures                           |
| N50 | Recall radio - ILS / LOC / middle marker                            |
| N51 | Recall radio - ADF / NDB  |
| N52 | Recall radio - ADF / NDB / compass locator                          |
| N53 | Recall radio - ADF / NDB / middle compass locator                   |
| N54 | Recall radio - ADF / NDB / intercepting a bearing                   |
| N55 | Recall radio - characteristics of DME                               |
| N56 | Recall radio - characteristics of DME Arc                           |
| N57 | Recall radio - characteristics of GPS / RNAV                        |
| N58 | Recall radio - DME slant range distance                             |
| N59 | Recall radio - GPS  |
| N60 | Recall radio - HSI  |
| N61 | Recall radio - ILS  |
| N62 | Recall radio - ILS / compass locator                                |
| N63 | Recall radio - ILS / LDA  |
| N64 | Recall radio - ILS / LOC / inner marker                             |
| N65 | Recall radio - ILS / OBS  |
| N66 | Recall radio - LOC / ILS  |
| N67 | Recall radio - LORAN  |
| N68 | Recall radio - NDB / ADF / RMI                                      |
| N69 | Recall radio - RNAV   |
| N70 | Recall radio - SDF / ILS  |
| N71 | Recall radio - VOR  |
| N72 | Recall radio - VOR / holding pattern entry                          |
| N73 | Recall VOR accuracy check tolerances                                |
| N74 | Understand / Interpret VOR - indications / VOR                      |
| N75 | Understand / Interpret VOR - indications / VOR check                |
| N76 | Understand / Interpret VOR - indications / VOR check airborne       |
| N77 | Understand / Interpret VOR - indications / VOR check ground         |
| N78 | Understand / Interpret VOR - VOR check / publications               |
| N79 | Understand cross country - latitude / longitude                     |
| N80 | Understand cross country - true course / magnetic heading           |
| N81 | Understand cross country - wind triangle                            |
| N82 | Understand cross country sectional charts - true course measurement |
| N83 | Understand ILS - ILS vs LDA   |

|      |   |
|------|---|
| N84  | Understand ILS - indications / CDI                                    |
| N85  | Understand ILS - indications / DME Arc                                |
| N86  | Understand ILS - indications / HSI                                    |
| N87  | Understand ILS - indications / OBS / CDI                              |
| N88  | Understand ILS - indications / RMI                                    |
| N89  | Understand ILS - VOR orientation                                      |
| N90  | Understand principles radio NDB - frequency range                     |
| N91  | Understand principles radio NDB - indications                         |
| N92  | Understand principles radio NDB indications - distance to the station |
| N93  | Understand principles radio VOR - DME                                 |
| N94  | Understand RVR  |
| N95  | Understand VOR - charts / indications / CDI                           |
| N96  | Understand VOR - identification / maintenance                         |
| N97  | Understand VOR - VOR check  |
| N98  | Understand VOR - VOR check airborne                                   |
| N99  | Understand VOR - VOR check comparison                                 |
| N100 | Understand VOR - VOR check ground                                     |
|      | <b>Operational Procedures</b>   |
| P01  | Define classes of NOTAMS  |
| P02  | Define minimum control speed  |
| P03  | Describe approach procedures for a helicopter                         |
| P04  | Describe best visual approach procedures using a PAPI/VASI            |
| P05  | Describe correct aerodrome flight pattern entry procedures            |
| P06  | Describe correct turbulent air procedures                             |
| P07  | Describe crosswind taxi procedures                                    |
| P08  | Describe factors involved in wingtip vortices generation              |
| P09  | Describe helicopter approach - controlling angle of descent           |
| P10  | Describe procedures for landing with antitorque system inoperative    |
| P11  | Describe procedures when flying into windshear on approach            |
| P12  | Describe proper scanning and collision avoidance techniques           |
| P13  | Describe taxi procedures for a tailwheel aircraft                     |
| P14  | Describe what services are available from ATC                         |
| P15  | Determine the correct VFR cruising altitude                           |
| P16  | Interpret Airport Facility Directory (AFD) - aerodrome frequencies    |
| P17  | Interpret Airport Facility Directory (AFD) - nav aids                 |
| P18  | Interpret ATC terminology   |
| P19  | Interpret controller instructions                                     |
| P20  | Interpret information from a PAPI/VASI                                |
| P21  | Interpret information on a sectional chart                            |
| P22  | Interpret meaning of airport signs / runway markings / lighting       |
| P23  | Interpret Standard Instrument Approach Chart - minimums               |
| P24  | Interpret taxiway markings  |
| P25  | Interpret traffic pattern procedures - segmented circle               |
| P26  | Interpret traffic patterns - diagrams / publications                  |
| P27  | Recall aerodrome communications - light gun signals                   |
| P28  | Recall aerodrome communications - radio                               |
| P29  | Recall aerodrome lighting - taxiway                                   |
| P30  | Recall aerodrome markings - displaced threshold                       |
| P31  | Recall aerodrome markings - ILS critical area                         |
| P32  | Recall aerodrome markings - runway                                    |

|     |   |
|-----|---|
| P33 | Recall aerodrome markings - taxiway   |
| P34 | Recall aerodrome markings - visual signals                                    |
| P35 | Recall aerodrome markings lighting - rotating beacon                          |
| P36 | Recall aerodrome markings lighting - VASI                                     |
| P37 | Recall aerodrome operations - ground deicing                                  |
| P38 | Recall aerodrome operations - LAHSO   |
| P39 | Recall aerodrome operations - lighting  |
| P40 | Recall aerodrome operations - markings / signs                                |
| P41 | Recall aerodrome operations - non towered airports                            |
| P42 | Recall aerodrome operations - runway conditions                               |
| P43 | Recall aerodrome operations - tower controlled                                |
| P44 | Recall aerodrome operations - traffic pattern procedures                      |
| P45 | Recall aerodrome operations - wake turbulence                                 |
| P46 | Recall aerodrome operations - wake turbulence avoidance                       |
| P47 | Recall aerodrome operations - wake turbulence characteristics                 |
| P48 | Recall aerodrome operations communications - exiting the runway after landing |
| P49 | Recall aerodrome operations lighting - HIRL / MIRL                            |
| P50 | Recall aerodrome operations lighting - PAPI                                   |
| P51 | Recall aerodrome operations lighting - REIL                                   |
| P52 | Recall aerodrome operations lighting - rotating beacon                        |
| P53 | Recall aerodrome operations lighting - VASI                                   |
| P54 | Recall aerodrome operations runway conditions - hydroplaning                  |
| P55 | Recall aerodrome taxi operations - clearances                                 |
| P56 | Recall aerodrome taxi operations - procedures                                 |
| P57 | Recall aerodrome traffic patterns - departure procedures                      |
| P58 | Recall aerodrome traffic patterns - entry procedures                          |
| P59 | Recall aerodrome traffic patterns - helicopter procedures                     |
| P60 | Recall aerodrome traffic patterns - landing direction indicators              |
| P61 | Recall aeronautical charts - IFR en route                                     |
| P62 | Recall aeronautical charts - terminal procedures                              |
| P63 | Recall airspace - Class A   |
| P64 | Recall airspace - Class D   |
| P65 | Recall airspace - restricted / prohibited                                     |
| P66 | Recall airspace - VFR cruise altitudes  |
| P67 | Recall approach - flight rules  |
| P68 | Recall approach procedures - estimating rate of descent                       |
| P69 | Recall ATC procedures - wake turbulence avoidance                             |
| P70 | Recall basic aircraft preflight requirements                                  |
| P71 | Recall cloud clearance - visibility   |
| P72 | Recall collision avoidance - radar assistance                                 |
| P73 | Recall collision avoidance - scanning techniques                              |
| P74 | Recall collision avoidance / TCAS   |
| P75 | Recall communications - ATIS broadcasts                                       |
| P76 | Recall controlled - clearance   |
| P77 | Recall cruise - range   |
| P78 | Recall emergency approach - landing   |
| P79 | Recall emergency procedures   |
| P80 | Recall emergency procedures - engine failure en route                         |
| P81 | Recall emergency procedures - NMAC reporting                                  |
| P82 | Recall emergency procedures - stall / spin recovery awareness                 |

|      |   |
|------|---|
| P83  | Recall emergency procedures - takeoff                                 |
| P84  | Recall engine out procedures - multiengine aircraft                   |
| P85  | Recall en route procedures - radar services                           |
| P86  | Recall factors in avoiding wake turbulence                            |
| P87  | Recall flight planning general - publications                         |
| P88  | Recall ground reference maneuvers - ground track diagram              |
| P89  | Recall helicopter approach - settling with power                      |
| P90  | Recall helicopter approach - settling with power action               |
| P91  | Recall helicopter climb - manifold pressure vs RPM                    |
| P92  | Recall helicopter emergency procedures - autorotation                 |
| P93  | Recall helicopter maneuvers   |
| P94  | Recall helicopter takeoff - ground resonance action required          |
| P95  | Recall information in an Aerodrome Facility Directory                 |
| P96  | Recall landing - quick stop   |
| P97  | Recall landing - turbulence   |
| P98  | Recall markings / signs - no entry markings                           |
| P99  | Recall markings / signs / lighting - destination signs                |
| P100 | Recall markings / signs / lighting - hold position markings           |
| P101 | Recall markings / signs / lighting - ILS Critical Area                |
| P102 | Recall markings / signs / lighting - PAPI                             |
| P103 | Recall markings / signs / lighting - pilot controlled                 |
| P104 | Recall markings / signs / lighting - rotating beacon                  |
| P105 | Recall markings / signs / lighting - runway                           |
| P106 | Recall markings / signs / lighting - taxiway                          |
| P107 | Recall markings / signs / lighting - VASI                             |
| P108 | Recall minimum flight altitudes along ATS routes                      |
| P109 | Recall normal procedures - altimeter setting                          |
| P110 | Recall normal procedures - flight plan                                |
| P111 | Recall normal procedures - preflight                                  |
| P112 | Recall normal procedures - taxiing                                    |
| P113 | Recall preflight procedures - flight plan                             |
| P114 | Recall preflight procedures - NOTAMS                                  |
| P115 | Recall proper use of controls - taxiing                               |
| P116 | Recall regulatory limits on autopilot usage                           |
| P117 | Recall requirements to operate in classes of airspace                 |
| P118 | Recall rules regarding refueling with passengers onboard              |
| P119 | Recall sterile cockpit procedures                                     |
| P120 | Recall take off - light twin procedures                               |
| P121 | Recall VFR cruising altitudes   |
| P122 | Recall visibility / cloud clearance requirements for airspace classes |
| P123 | Recall visual vs contact approach procedures                          |
| P124 | Recall wake turbulence - vortex characteristics                       |
| P125 | Recall wake turbulence avoidance techniques                           |
| P126 | Recognize conditions for ground resonance to occur                    |
| P127 | Recognize power settling characteristics                              |
| P128 | Recognize signs of impending windshear                                |
| P129 | Recognize signs of retreating blade stall                             |
| P143 | Understand / Apply the right-of-way regulations to a taxi situation   |
| P130 | Understand autorotation procedures                                    |
| P131 | Understand requirements for operating around a controlled aerodrome   |

|      |  |
|------|--|
| P132 | Understand soft field landing techniques                           |
| P133 | Understand techniques for crosswind takeoffs / landings            |
| P134 | Understand techniques for hovering                                 |
| P135 | Understand techniques for landing on a slope                       |
| P136 | Understand techniques for rolling landings                         |
| P137 | Understand techniques for takeoff on a slope                       |
| P138 | Understand techniques for wake turbulence avoidance                |
| P139 | Understand techniques to execute a quick stop                      |
| P140 | Understand transition level / altitudes for Suriname               |
| P141 | Understand VFR cruising altitudes                                  |
| P142 | Understand VFR right-of-way rules                                  |
| P144 | Utilize aerodrome operations - appropriate publications            |
|      | <b>Principles of Flight</b>  |
| R01  | Calculate load factor  |
| R02  | Calculate load factor for given bank angle                         |
| R03  | Calculate load imposed from weight and bank angle                  |
| R04  | Define aerodynamics - maneuverability                              |
| R05  | Define angle of attack   |
| R06  | Define characteristics of static stability                         |
| R07  | Define coning  |
| R08  | Define critical MACH   |
| R09  | Define design maneuvering speed                                    |
| R10  | Define excess power  |
| R11  | Define flight characteristics - longitudinal stability             |
| R12  | Define flight characteristics - maneuverability                    |
| R13  | Define load factor   |
| R14  | Define longitudinal stability                                      |
| R15  | Define MACH speed regimes  |
| R16  | Define principles of flight - angle of attack / drag               |
| R17  | Define retreating blade stall                                      |
| R18  | Define thrust  |
| R19  | Describe aerodynamic forces acting on a rotorcraft                 |
| R20  | Describe aerodynamic forces acting on an aircraft                  |
| R21  | Describe factors affecting stalling speed                          |
| R22  | Describe how a wing produces lift                                  |
| R23  | Describe how air density affects rotorcraft performance            |
| R24  | Describe transonic MACH regime                                     |
| R25  | Determine the L/D ratio using a chart                              |
| R26  | Explain autorotation   |
| R27  | Explain coriolis effect  |
| R28  | Explain effect of propeller rotation on an aeroplane               |
| R29  | Explain effects of changing airspeed during a turn                 |
| R30  | Explain forces acting on aircraft - 3 axis intersect               |
| R31  | Explain forces acting on aircraft - adverse yaw                    |
| R32  | Explain forces acting on aircraft - airfoil / center of pressure   |
| R33  | Explain forces acting on aircraft - airfoil / mean camber line     |
| R34  | Explain forces acting on aircraft - angle of attack / stalls       |
| R35  | Explain forces acting on aircraft - angle of attack from chart     |
| R36  | Explain forces acting on aircraft - angle of climb / excess thrust |
| R37  | Explain forces acting on aircraft - angle of incidence             |

|     |   |
|-----|---|
| R38 | Explain forces acting on aircraft - aspect ratio                      |
| R39 | Explain forces acting on aircraft - Bernoulli's principle             |
| R40 | Explain forces acting on aircraft - center of pressure / gravity      |
| R41 | Explain forces acting on aircraft - CG / load                         |
| R42 | Explain forces acting on aircraft - constant power AS descent         |
| R43 | Explain forces acting on aircraft - flap / drag                       |
| R44 | Explain forces acting on aircraft - induced drag                      |
| R45 | Explain forces acting on aircraft - lift                              |
| R46 | Explain forces acting on aircraft - lift / relative wind              |
| R47 | Explain forces acting on aircraft - max glide / drag                  |
| R48 | Explain forces acting on aircraft - max lift / drag ratio             |
| R49 | Explain forces acting on aircraft - parasitic drag                    |
| R50 | Explain forces acting on aircraft - pressure                          |
| R51 | Explain forces acting on aircraft - profile drag                      |
| R52 | Explain forces acting on aircraft - speed vs lift                     |
| R53 | Explain forces acting on aircraft - stall / spin                      |
| R54 | Explain forces acting on aircraft - stall with rectangular wing       |
| R55 | Explain forces acting on aircraft - stalls                            |
| R56 | Explain forces acting on aircraft - stalls / critical angle of attack |
| R57 | Explain forces acting on aircraft - steady flight                     |
| R58 | Explain forces acting on aircraft - steady state climb                |
| R59 | Explain forces acting on aircraft - steep turns                       |
| R60 | Explain forces acting on aircraft - turns                             |
| R61 | Explain forces acting on aircraft - turns / direction of lift         |
| R62 | Explain forces acting on aircraft - wing positive / negative pressure |
| R63 | Interpret / Calculate load factor                                     |
| R64 | Interpret a load limit chart  |
| R65 | Interpret airspeed calibration / stall speeds from chart              |
| R66 | Interpret drag ratio from charts                                      |
| R67 | Interpret load factor and stall speed from chart                      |
| R68 | Interpret velocity and load factor from chart                         |
| R69 | Recall aircraft performance - ground effect                           |
| R70 | Recall characteristics of high lift devices                           |
| R71 | Recall characteristics of lift  |
| R72 | Recall characteristics of load factor                                 |
| R73 | Recall characteristics of longitudinal instability                    |
| R74 | Recall characteristics of vortex generators                           |
| R75 | Recall dissymmetry of lift  |
| R76 | Recall effect of airspeed change on aircraft L/D                      |
| R77 | Recall effects of bank angle on wing loading                          |
| R78 | Recall effects of controls  |
| R79 | Recall effects of frost - snow on airfoils                            |
| R80 | Recall effects of leading edge flaps                                  |
| R81 | Recall effects of leading edge slats                                  |
| R82 | Recall factors affecting stall speed                                  |
| R83 | Recall flight characteristics - angle of attack                       |
| R84 | Recall flight characteristics - frost                                 |
| R85 | Recall flight characteristics - icing                                 |
| R86 | Recall flight characteristics - propeller                             |
| R87 | Recall flight characteristics - retreating blade stall                |

|      |  |
|------|--|
| R88  | Recall flight characteristics - rotor                              |
| R89  | Recall flight characteristics - translational lift                 |
| R90  | Recall flight characteristics - wing design                        |
| R91  | Recall forces acting on aircraft - turns                           |
| R92  | Recall forces acting on aircraft                                   |
| R93  | Recall forces acting on aircraft - drag                            |
| R94  | Recall forces acting on aircraft - general                         |
| R95  | Recall forces acting on aircraft - identify                        |
| R96  | Recall forces acting on aircraft - lift                            |
| R97  | Recall forces acting on aircraft - lift vs angle of attack         |
| R98  | Recall forces acting on aircraft - lift vs bank angle              |
| R99  | Recall forces acting on aircraft - propeller / torque              |
| R100 | Recall forces acting on aircraft - rotor dynamics                  |
| R101 | Recall forces acting on aircraft - yaw                             |
| R102 | Recall ground effect   |
| R103 | Recall load factor - angle of bank                                 |
| R104 | Recall load factor - effect of airspeed                            |
| R105 | Recall load factor - maneuvering                                   |
| R106 | Recall load factor - maneuvering - stall speed                     |
| R107 | Recall load factor - stalling speed                                |
| R108 | Recall performance - definitions                                   |
| R109 | Recall principles of flight - airspeed vs angle of attack          |
| R110 | Recall principles of flight - climbs                               |
| R111 | Recall principles of flight - critical engine                      |
| R112 | Recall principles of flight - drag                                 |
| R113 | Recall principles of flight - retreating blade stall               |
| R114 | Recall principles of flight - stability / control                  |
| R115 | Recall principles of flight - stalls                               |
| R116 | Recall principles of flight - turns                                |
| R117 | Recall purpose of control tab                                      |
| R118 | Recall safety - risk assessment                                    |
| R119 | Recall stability - control   |
| R120 | Recall stability control - tail rotor                              |
| R121 | Recall stalls / spins - effect of pressure altitude                |
| R122 | Recall stalls / spins - general                                    |
| R123 | Recall subsonic flight   |
| R124 | Recall swept wing design characteristics                           |
| R125 | Recall translating tendency  |
| R126 | Recall transonic flight  |
| R127 | Recall VMC   |
| R128 | Recall vortex generators   |
| R129 | Relate how load factor relates to stall speed                      |
| R130 | State the control inputs required for an over the top spin         |
| R131 | State the relationship between bank angle and load factors         |
| R132 | State the relationship between load factor and stall speed         |
| R133 | Understand aspect ratio of a wing                                  |
| R134 | Understand forces acting on aeroplane - airspeed / CG relationship |
| R135 | Understand forces acting on aeroplane - center of pressure         |
| R136 | Understand forces acting on aeroplane - CG / controllability       |
| R137 | Understand forces acting on aeroplane - CG / critical phase        |

|      |  |
|------|--|
| R138 | Understand forces acting on aeroplane - CG / flight characteristics                |
| R139 | Understand forces acting on aeroplane - CG / stability                             |
| R140 | Understand forces acting on aeroplane - CG / stalling speed                        |
| R141 | Understand forces acting on aeroplane - controllability                            |
| R142 | Understand forces acting on aeroplane - divergent oscillations                     |
| R143 | Understand forces acting on aeroplane - effects of rudder control                  |
| R144 | Understand forces acting on aeroplane - gyroscopic precession                      |
| R145 | Understand forces acting on aeroplane - leading edge devices                       |
| R146 | Understand forces acting on aeroplane - line of thrust / CG                        |
| R147 | Understand forces acting on aeroplane - phugoid oscillations                       |
| R148 | Understand forces acting on aeroplane - stability                                  |
| R149 | Understand how various surfaces affect hover capability                            |
| R150 | Understand load factor   |
| R151 | Understand stall characteristics of wing forms                                     |
| R152 | Understand turbulence / maneuvering speed  |
| R153 | Understanding aerodynamics - drag vs airspeed                                      |
| R154 | Use a chart to compute L/D ratio   |
|      | <b>Radiotelephony</b>  |
| T01  | Recall radiotelephony communications - emergency                                   |
| T02  | Recall radiotelephony communications - failure                                     |
| T03  | Recall radiotelephony communications - general                                     |
| T04  | Recall radiotelephony communications - phraseology                                 |
|      | <b>Weight and Balance</b>  |
| W01  | Calculate CG location - given weight and station                                   |
| W02  | Calculate weight - CG location   |
| W03  | Calculate weight / CG location - based on fuel used                                |
| W04  | Calculate weight and balance - adjust CG   |
| W05  | Calculate weight and balance - adjust fuel   |
| W06  | Calculate weight and balance - adjust weight                                       |
| W07  | Calculate weight and balance - adjust weight / fuel                                |
| W08  | Calculate weight and balance - CG limit  |
| W09  | Calculate weight and balance - CG location   |
| W10  | Calculate weight and balance - limitations   |
| W11  | Calculate weight and balance - fulcrum   |
| W12  | Calculate weight and balance - weight CG   |
| W13  | Calculate weight and balance CG - given Weight / Arm / Moment                      |
| W14  | Explain CG - axis  |
| W15  | Explain weight and balance / aft CG limits exceeded - A/C handling characteristics |
| W16  | Interpret weight and balance - diagram   |
| W17  | Understand weight and Balance - CG formula   |
| W18  | Understand weight and balance - moment vs configuration change                     |