

Part I : Applicant's Information			
Name of Organisation:		ATO certificate no.: <i>FTO-XXXX or ATCO-XXXX or MTO-XXXX</i>	
Title of proposed Training Program: PRIVATE PILOT LICENSE (AEROPLANE) TRAINING COURSE		Date of Submitted: <i>DD – MMM - YY</i> Proposed Course Start Date: <i>DD – MMM - YY</i>	Application No.: <i>(For CAAT)</i>
Type of Submission ☐ Initial ☐ Amendment	No. of Attempt ☐ 1 st attempt ☐ 2 nd attempt ☐ 3 rd attempt	How the training is to be delivered ☐ Classroom Delivery ☐ Virtual Classroom ☐ Flight Training ☐ Simulator Training ☐ Other (specify).....	Training device will be used for this course ☐ Simulator (FSTD/STD) ☐ Actual aircraft..... <i>Aircraft Type/Class</i>
Coordinator Name/ contact: <i>Mr./Ms. XXX YYYY/ email</i>			
The following documents are submitted with this application by applicant: ☐ 1. Intention letter on the applicant's company letterhead specifying the title of the training programme ☐ 2. Checklist for Training Manual Approval ☐ 3. Draft of Manual ☐ 4. Reference of training material/Other relevant documents or required by competent official.....			
Please ensure that • There is a list of effective pages. Every page is identified with a page number, a date and a revision number . • Training materials and Examination Tests, in any format, shall be made accessible for CAAT inspector • Reference in the applicable Training Program should be detail appropriate with training materials • Organisation declaration and signature in the first page must be signed			
Declaration and Signature the information provided in this form is complete and correct and that the documents provided are genuine.			
Signature:		Applicant's Name:	Date:

Part II : Competent Official Use Only			
Check Submitted document			
1 st checked ☐ Complete date..... ☐ Incomplete date..... Signature/Name:	2 nd checked ☐ Complete date..... ☐ Incomplete date..... Signature/Name:	3 rd checked ☐ Complete date..... ☐ Incomplete date..... Signature/Name:	Financial (If applicable) ☐ Invoice No..... Date:..... ☐ Receipt No..... Date:.....
Verification result: ☐ Accept ☐ Reject			
This compliance check form has been verified by:			
Signature:		Name:	
(If applicable) Under supervision of:		Date:	
Signature:		Name:	
Signature:		Date:	
Instructions: 1) ATO is to conduct a self-assessment as part of its compliance check by providing manual references into the ‘Compliance checked by ATO’. 2) Failure to complete this form may result in a delay in approval processing. After 3rd rejected, applicant shall start the new process from the beginning with the new intention letter. 3) Each check list item shall be assessed and given a result either ‘Satisfactory - (S)’, ‘Unsatisfactory - (U)’ or ‘Not applicable - N/A’ a. ‘Satisfactory’ or ‘S’ refers to satisfactory level. It shall be given if the applicant is able to provide or demonstrate adequate of CAAT regulatory compliant evidence, reliable records of implementation and demonstrate a sound knowledge if interview of relevant personnel are performed. Also, all sub-items must be satisfied. b. ‘Unsatisfactory’ or ‘U’ refers to unsatisfactory level. It shall be given if any actions found not to be in compliance with CAAT rules and regulations or not to be conformed to any applicant ’s documentation as well as any actions being done without evidence of records. c. ‘N/A’ shall be given when information in a certain table cell is not provided, because it does not apply to a particular case in question. 4) Remarks column, inspection result information shall be recorded, both satisfactory or unsatisfactory, the information shall be detailed enough to support the inspection result. 5) Signature block: the following shall be filled. a. Name & surname, in capital letters b. Signature c. Signed date in DD Month (e.g. JAN) and year (in C.E.) 6) Provide detail in each subtopic/content of every subjects. 7) Checklist does not address Training Manual requirements as per TCAR PEL Part ORA. Applicant shall provide separate Training Manual checklist for review and approval along with this checklist.			

8) The Theoretical Knowledge Checklist shall be submitted along with this checklist for both initial approvals and amendments affecting theoretical knowledge training

Note: All fields/items shall be completed. In fields/items for which there is no answer or is not used, mark a horizontal straight line or enter “N/A” or shaded with a reason.

Part III : Training Devices (FSTD) and Long Briefing

List of FSTDs used for the course.							
No.	Training Device(s)	Type	FSTD Qualification	Sim Certificate No.	Primary reference document	Serial Number	Expiry Date

Long Briefing			
No.	Subject	Duration	Reference of Documentation

Part IV : Regulatory Requirements

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
	General Requirement									
1	Pre-entry requirement	Applicants for the SPL shall be at least 17 years of age	TCAR PEL PART FCL FCL.080							
		The ATO shall ensure that the students meet all the pre-requisites for training established in applicable Medical regulations, in TCAR PEL Part FCL, and, if applicable, as defined in mandatory parts of operational suitability data established in accordance with EASA Part 21 or equivalent material established in accordance with Type certification regulations acceptable to the CAAT.	TCAR PEL PART ORA ORA.ATO.145							
2	Entry to training	Before being accepted for training an applicant should be informed that the appropriate medical certificate must be obtained before solo flying is permitted.	TCAR PEL PART FCL AMC1 FCL.210.PPL(A)							
3	SPL Privileges and Conditions	(a) The privileges of the holder of an SPL are to participate to Flying training with an instructor or to fly solo under the supervision of an instructor or to fly as authorised by an examiner for the purpose of a skill test. These privileges are restricted to the airspace of the kingdom of Thailand.	TCAR PEL PART FCL FCL.085							
		(b) A student pilot shall not fly solo unless authorised to do so and supervised by a flight instructor.								
		(c) Before his/her first solo flight, a student pilot shall hold a valid license, at least a Student pilot license when no other license is held.								
		The exercise of the privileges granted by a licence shall be dependent upon the validity of the ratings contained therein, if applicable, and of the medical certificate as appropriate to the privileges exercised.	TCAR PEL PART FCL FCL.040							
4	Conditions for PPL Issuance	An applicant for a PPL (A) shall be at least 17 years of age;	TCAR PEL PART FCL FCL.200, FCL.205							
		Applicants for the issue of a PPL shall have fulfilled the requirements for the class or type rating for the aircraft used in the skill test, as established in Subpart H.								
5	PPL Privileges	(a) The privileges of the holder of a PPL(A) are to act without remuneration as PIC or co-pilot on aeroplanes or TMGs engaged in non-commercial operations and to exercise all privileges of holders of an LAPL(A).	TCAR PEL PART FCL FCL.205.A							

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		(b) Notwithstanding the paragraph above, the holder of a PPL(A) with instructor or examiner privileges may receive remuneration for: (1) the provision of flight instruction for the LAPL(A) or PPL(A); (2) the conduct of skill tests and proficiency checks for these licences; (3) the training, testing and checking for the ratings or certificates attached to this licence.								
6	Theoretical Knowledge Examination Requirement	Applicants for a PPL shall demonstrate a level of theoretical knowledge appropriate to the privileges granted through examinations in the following subjects	TCAR PEL PART FCL FCL.215							
		Common Subjects:								
		Air law								
		Human performance								
		Meteorology								
		Communications								
		Navigation								
		Specific subjects concerning the different aircraft categories								
		Principles of flight,								
		Operational procedures,								
		Flight performance and planning; and								
		Aircraft general knowledge.								
7	PPL Skill Test Requirement	Through the completion of a skill test, applicants for a BPL, GPL or PPL shall demonstrate the ability to perform as PIC on the appropriate aircraft category the relevant procedures and maneuvers with the competency appropriate to the privileges granted	TCAR PEL PART FCL FCL.235							
		An applicant for the skill test shall have received flight instruction on the same class or type of aircraft, or in one or more balloons within a group of balloons to be used for the skill test.								
		Pass marks								
		(1) The skill test shall be divided into different sections, representing all the different phases of flight appropriate to the category of aircraft flown.								

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		(2) Failure in any item of a section will cause the applicant to fail the entire section. If the applicant fails only 1 section, he/she they shall repeat only that section. Failure in more than 1 section will cause the applicant to fail the entire test.								
		(3) When the test needs to be repeated in accordance with (2), failure in any section, including those that have been passed on a previous attempt, will cause the applicants to fail the entire test.								
		(4) Failure to achieve a pass in all sections of the test in 2 attempts will require further training.								
8	Aim of PPL(A) Course	A statement of what the student is expected to do as a result of the training.	TCAR PEL PART ORA AMC1 ORA.ATO.230(a)							
		The level of performance that must be obtained after the course.								
		The training constraints to be observed (i.e. time constraint).								
9	Components of PPL(A) Course	The course shall include theoretical knowledge and flight instruction appropriate to the privileges given.	TCAR PEL PART FCL FCL.210							
10	Training Hours Definition	Whenever reference is made to a certain amount of hours of training, this means a full hour. Time not directly assigned to training (such as breaks, etc.) is not to be counted towards the total amount of time that is required.	AMC1 to Appendix 3 (For reference)							
11	Flight Training Requirements and Crediting	(a) Applicants for a PPL(A) shall have completed at least 45 hours of flight instruction in aeroplanes or TMGs, 5 of which may have been completed in an FSTD, including at least:	TCAR PEL PART FCL FCL.210.A							
		(1) 25 hours of dual flight instruction; and								
		(2) 10 hours of supervised solo flight time, including at least 5 hours of solo cross-country flight time with at least 1 cross-country flight of at least 270 km (150 NM), during which full stop landings at 2 aerodromes different from the aerodrome of departure shall be made.								
		(b) Specific requirements for applicants holding an LAPL(A). Applicants for a PPL(A) holding an LAPL(A) shall have completed at least 15 hours of flight time on aeroplanes after the issue of the LAPL(A), of which at least 10 shall be flight instruction completed in a training course at an ATO. This training course shall include at least 4 hours of supervised solo flight time, including at least 2 hours of solo cross-country flight time with at least 1 cross-country flight of at least								

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12		270 km (150 NM), during which full stop landings at 2 aerodromes different from the aerodrome of departure shall be made.								
		(d) Crediting. Applicants holding a pilot licence for another category of aircraft, with the exception of balloons, shall be credited with 10 % of their total flight time as PIC on such aircraft up to a maximum of 10 hours. The amount of credit given shall in any case not include the requirements in (a)(2).								

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Theoretical Knowledge for PPL(A)										
	The following tables contain the syllabi for the courses of theoretical knowledge, as well as for the theoretical knowledge examinations for the PPL(A) and PPL(H). The training and examination should cover aspects related to non-technical skills in an integrated manner, taking into account the particular risks associated to the licence and the activity.									
	The ATO responsible for the training should check if all the appropriate elements of the training course of theoretical knowledge instruction have been completed to a satisfactory standard before recommending the applicant for the examination.									
	The applicable items for each licence are marked with 'x'. An 'x' on the main title of a subject means that all the sub-divisions are applicable.									
13	Syllabus of Theoretical Knowledge for the PPL(A)	AIR LAW AND ATC PROCEDURES	PPL	Bridge course						
		International law: conventions, agreements and organisations								
		The Convention on international civil aviation (Chicago) Doc. 7300/6								
		Part I Air Navigation: relevant parts of the following chapters:								
		(a) general principles and application of the convention;								
		(b) flight over territory of Contracting States;								
		(c) nationality of aircraft;								
		(d) measures to facilitate air navigation;	x							
		(e) conditions to be fulfilled on aircraft;								
		(f) international standards and recommended practices;								
		(g) validity of endorsed certificates and licences;								
		(h) notification of differences.								
		Part II The International Civil Aviation Organisation (ICAO): objectives and composition	x							
		Annex 8: Airworthiness of aircraft								
		Foreword and definitions	x							
		Certificate of airworthiness	x							
		Annex 7: Aircraft nationality and registration marks								
		Foreword and definitions	x							
		Common- and registration marks	x							
		Certificate of registration and aircraft nationality	x							

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		Annex 1: Personnel licensing									
		Definitions	x								
		Relevant parts of Annex 1 connected to TCAR PEL Part ORA, Part FCL and Medical regulations	x								
		Annex 2: Rules of the air									
		Essential definitions, applicability of the rules of the air, general rules (except water operations), visual flight rules, signals and interception of civil aircraft	x								
		Procedures for air navigation: aircraft operations doc. 8168-ops/611, volume 1									
		Altimeter setting procedures (including IACO doc. 7030 – regional supplementary procedures)									
		Basic requirements (except tables), procedures applicable to operators and pilots (except tables)	x								
		Secondary surveillance radar transponder operating procedures (including ICAO Doc. 7030 – regional supplementary procedures)									
		Operation of transponders	x								
		Phraseology	x								
		Annex 11: Doc. 4444 air traffic management									
		Definitions	x								
		General provisions for air traffic services	x								
		Visual separation in the vicinity of aerodromes	x								
		Procedures for aerodrome control services	x								
		Radar services	x								
		Flight information service and alerting service	x								
		Phraseologies	x								
		Procedures related to emergencies, communication failure and contingencies	x								
		Annex 15: Aeronautical information service									

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		Introduction, essential definitions	x									
		AIP, NOTAM, AIRAC and AIC	x									
		Annex 14, volume 1 and 2: Aerodromes										
		Definitions	x									
		Aerodrome data: conditions of the movement area and related facilities	x									
		Visual aids for navigation:	x									
		(a) indicators and signalling devices;										
		(b) markings;										
		(c) lights;										
		(d) signs;										
		(e) markers.										
		Visual aids for denoting obstacles:	x									
		(a) marking of objects;										
		(b) lighting of objects.										
		Visual aids for denoting restricted use of areas	x									
		Emergency and other services:	x									
		(a) rescue and fire fighting;										
		(b) apron management service.										
		Annex 12: Search and rescue										
		Essential definitions	x									
		Operating procedures:	x									
		(a) procedures for PIC at the scene of an accident;										
		(b) procedures for PIC intercepting a distress transmission;										
		(c) search and rescue signals.										
		Search and rescue signals:	x									
		(a) signals with surface craft;										
		(b) ground or air visual signal code;	x									
		(c) air or ground signals.										

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14		Annex 17: Security											
		General: aims and objectives	x										
		Annex 13: Aircraft accident investigation											
		Essential definitions	x										
		Applicability	x										
		National law											
		National law and differences to relevant ICAO Annexes.	x										
		HUMAN PERFORMANCE	PPL	Bridge course									
		Human factors: basic concepts											
		Human factors in aviation											
		Becoming a competent pilot	x										
		Basic aviation physiology and health maintenance											
		The atmosphere:	x										
		(a) composition;											
		(b) gas laws.											
		Respiratory and circulatory systems:	x										
		(a) oxygen requirement of tissues;											
		(b) functional anatomy;											
		(c) main forms of hypoxia (hypoxic and anaemic):											
		(1) sources, effects and counter-measures of carbon monoxide;											
		(2) counter measures and hypoxia;											
		(3) symptoms of hypoxia.											
		(d) hyperventilation;											
		(e) the effects of accelerations on the circulatory system;											
		(f) hypertension and coronary heart disease.											
		Man and environment											
		Central, peripheral and autonomic nervous systems	x										
		Vision:	x										

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	Subject	Description			Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark	
		(a) functional anatomy;											
		(b) visual field, foveal and peripheral vision;											
		(c) binocular and monocular vision;											
		(d) monocular vision cues;											
		(e) night vision;											
		(f) visual scanning and detection techniques and importance of 'look-out';											
		(g) defective vision.											
		Hearing:	x										
		(a) descriptive and functional anatomy;											
		(b) flight related hazards to hearing;											
		(c) hearing loss.											
		Equilibrium:	x										
		(a) functional anatomy;											
		(b) motion and acceleration;											
		(c) motion sickness.											
		Integration of sensory inputs:	x										
		(a) spatial disorientation: forms, recognition and avoidance;											
		(b) illusions: forms, recognition and avoidance:											
		(1) physical origin;											
		(2) physiological origin;											
		(3) psychological origin.											
		(c) approach and landing problems.											
		Health and hygiene											
		Personal hygiene: personal fitness	x										
		Body rhythm and sleep:	x										
		(a) rhythm disturbances;											
		(b) symptoms, effects and management.											
		Problem areas for pilots:	x										

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	Subject	Description	Reference	Reference	Yes	No	N/A	Reference (Section/Chapter/P age/Topic No.)	S	U	Remark
		(a) common minor ailments including cold, influenza and gastro-intestinal upset;									
		(b) entrapped gases and barotrauma, (scuba diving);									
		(c) obesity;									
		(d) food hygiene;									
		(e) infectious diseases;									
		(f) nutrition;									
		(g) various toxic gases and materials.									
		Intoxication:	x								
		(a) prescribed medication;									
		(b) tobacco;									
		(c) alcohol and drugs;									
		(d) caffeine;									
		(e) self-medication.									
		Basic aviation psychology									
		Human information processing									
		Attention and vigilance:	x								
		(a) selectivity of attention;									
		(b) divided attention.									
		Perception:	x								
		(A) perceptual illusions;									
		(B) subjectivity of perception;									
		(C) processes of perception.									
		Memory:	x								
		(a) sensory memory;									
		(b) working or short term memory;									
		(c) long term memory to include motor memory (skills).									
		Human error and reliability									
		Reliability of human behaviour	x								

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		Error generation: social environment (group, organisation)	x								
		Decision making									
		Decision-making concepts:	x								
		(a) structure (phases);									
		(b) limits;									
		(c) risk assessment;									
		(d) practical application.									
		Avoiding and managing errors: cockpit management									
		Safety awareness:	x								
		(a) risk area awareness;									
		(b) situational awareness.									
		Communication: verbal and non-verbal communication	x								
		Human behaviour									
		Personality and attitudes:	x								
		(a) development;									
		(b) environmental influences.									
		Identification of hazardous attitudes (error proneness)	x								
		Human overload and underload									
		Arousal	x								
		Stress:	x								
		(a) definition(s);									
		(b) anxiety and stress;									
		(c) effects of stress.									
		Fatigue and stress management:	x								
		(a) types, causes, and symptoms of fatigue;									
		(b) effects of fatigue;									
		(c) coping strategies;									
		(d) management techniques;									
		(e) health and fitness programmes.									

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15		METEOROLOGY	PPL	Bridge course							
		The atmosphere									
		Composition, extent and vertical division									
		Structure of the atmosphere	x								
		Troposphere	x								
		Air temperature									
		Definition and units	x								
		Vertical distribution of temperature	x								
		Transfer of heat	x								
		Lapse rates, stability and instability	x								
		Development of inversions and types of inversions	x								
		Temperature near the earth's surface, surface effects, diurnal and seasonal variation, effect of clouds and effect of wind	x								
		Atmospheric pressure									
		Barometric pressure and isobars	x								
		Pressure variation with height	x								
		Reduction of pressure to mean sea level	x								
		Relationship between surface pressure centres and pressure centres aloft	x								
		Air density									
		Relationship between pressure, temperature and density	x								
		ISA									
		ICAO standard atmosphere	x								
		Altimetry									
		Terminology and definitions	x								
		Altimeter and altimeter settings	x								
		Calculations	x								
		Effect of accelerated airflow due to topography	x								

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		Wind											
		Definition and measurement of wind											
		Definition and measurement	x										
		Primary cause of wind											
		Primary cause of wind, pressure gradient, coriolis force and gradient wind	x										
		Variation of wind in the friction layer	x										
		Effects of convergence and divergence	x										
		General global circulation											
		General circulation around the globe	x										
		Local winds											
		Anabatic and katabatic winds, mountain and valley winds, Venturi effects, land and sea breezes	x										
		Mountain waves (standing waves, lee waves)											
		Origin and characteristics	x										
		Turbulence											
		Description and types of turbulence	x										
		Formation and location of turbulence	x										
		THERMODYNAMICS											
		Humidity											
		Water vapour in the atmosphere	x										
		Mixing ratio	x										
		Temperature/dew point, relative humidity	x										
		Change of state of aggregation											
		Condensation, evaporation, sublimation, freezing and melting, latent heat	x										
		Adiabatic processes											
		Adiabatic processes, stability of the atmosphere	x										
		CLOUDS AND FOG											

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		Cloud formation and description									
		Cooling by adiabatic expansion and by advection	x								
		Cloud types and cloud classification	x								
		Influence of inversions on cloud development	x								
		Fog, mist, haze									
		General aspects	x								
		Radiation fog	x								
		Advection fog	x								
		Steaming fog	x								
		Frontal fog	x								
		Orographic fog (hill fog)	x								
		PRECIPITATION									
		Development of precipitation									
		Processes of development of precipitation	x								
		Types of precipitation									
		Types of precipitation, relationship with cloud types	x								
		AIR MASSES AND FRONTS									
		Air masses									
		Description, classification and source regions of air masses	x								
		Modifications of air masses	x								
		Fronts									
		General aspects	x								
		Warm front, associated clouds, and weather	x								
		Cold front, associated clouds, and weather	x								
		Warm sector, associated clouds, and weather	x								
		Weather behind the cold front	x								
		Occlusions, associated clouds, and weather	x								
		Stationary front, associated clouds, and weather	x								
		Movement of fronts and pressure systems, life cycle	x								

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		Changes of meteorological elements at a frontal wave	x								
		PRESSURE SYSTEMS									
		Anticyclone									
		Anticyclones, types, general properties, cold and warm anticyclones, ridges and wedges, subsidence	x								
		Non-frontal depressions									
		Thermal, orographic and polar depressions, troughs	x								
		CLIMATOLOGY									
		Climatic zones									
		General seasonal circulation in the troposphere	x								
		Typical weather situations in the mid-latitudes									
		Westerly situation	x								
		High-pressure area	x								
		Flat-pressure pattern	x								
		Local winds and associated weather									
		e.g. Foehn	x								
		FLIGHT HAZARDS									
		Icing									
		Conditions for ice accretion	x								
		Types of ice accretion	x								
		Hazards of ice accretion, avoidance	x								
		Turbulence									
		Effects on flight, avoidance	x								
		Wind shear									
		Definition of wind shear	x								
		Weather conditions for wind shear	x								
		Effects on flight, avoidance	x								
		Thunderstorms									

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		Conditions for, and process of, development, forecast, location, type specification	x								
		Structure of thunderstorms, life cycle, squall lines, electricity in the atmosphere, static charges	x								
		Electrical discharges	x								
		Development and effects of downbursts	x								
		Thunderstorm avoidance	x								
		Inversions									
		Influence on aircraft performance	x								
		Hazards in mountainous areas									
		Influence of terrain on clouds and precipitation, frontal passage	x								
		Vertical movements, mountain waves, wind shear, turbulence, ice accretion	x								
		Development and effect of valley inversions	x								
		Visibility-reducing phenomena									
		Reduction of visibility caused by precipitation and obscuration	x								
		Reduction of visibility caused by other phenomena	x								
		METEOROLOGICAL INFORMATION									
		Observation									
		Surface observations	x								
		Radiosonde observations	x								
		Satellite observations	x								
		Weather radar observations	x								
		Aircraft observations and reporting	x								
		Weather charts									
		Significant weather charts	x								
		Surface charts	x								
		Information for flight planning									
		Aviation weather messages	x								

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/P age/Topic No.)	S	U	Remark
16		Meteorological broadcasts for aviation	x								
		Use of meteorological documents	x								
		Meteorological warnings	x								
		Meteorological services									
		World area forecast system (WAFS) and meteorological offices	x								
		COMMUNICATIONS	PPL	Bridge course							
		VFR COMMUNICATIONS									
		Definitions									
		Meanings and significance of associated terms	x								
		ATS abbreviations	x								
		Q-code groups commonly used in RTF air-ground communications	x								
		Categories of messages	x								
		General operating procedures									
		Transmission of letters	x								
		Transmission of numbers (including level information)	x								
		Transmission of time	x								
		Transmission technique	x								
		Standard words and phrases (relevant RTF phraseology included)	x								
		R/T call signs for aeronautical stations including use of abbreviated call signs	x								
		R/T call signs for aircraft including use of abbreviated call signs	x								
		Transfer of communication	x								
		Test procedures including readability scale	x								
		Read back and acknowledgement requirements	x								
		Relevant weather information terms (VFR)									
		Aerodrome weather	x								
		Weather broadcast	x								
		Action required to be taken in case of communication failure	x								

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/P age/Topic No.)	S	U	Remark
		Distress and urgency procedures									
		Distress (definition, frequencies, watch of distress frequencies, distress signal and distress message)	x								
		Urgency (definition, frequencies, urgency signal and urgency message)	x								
		General principles of VHF propagation and allocation of frequencies	x								
17		PRINCIPLES OF FLIGHT	PPL	Bridge course							
17.1		PRINCIPLES OF FLIGHT: AEROPLANE									
		Subsonic aerodynamics									
		Basics concepts, laws and definitions									
		Laws and definitions: (a) conversion of units; (b) Newton's laws; (c) Bernoulli's equation and venture; (d) static pressure, dynamic pressure and total pressure; (e) density; (f) IAS and TAS.	x	x							
		Basics about airflow: (a) streamline; (b) two-dimensional airflow; (c) three-dimensional airflow.	x	x							
		Aerodynamic forces on surfaces: (a) resulting air force; (b) lift; (c) drag; (d) angle of attack.	x	x							
		Shape of an aerofoil section: (a) thickness to chord ratio; (b) chord line;	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		(c) camber line; (d) camber; (e) angle of attack.									
		The wing shape: (a) aspect ratio; (b) root chord; (c) tip chord; (d) tapered wings; (e) wing planform.	x	x							
		The two-dimensional airflow about an aerofoil									
		Streamline pattern	x	x							
		Stagnation point	x	x							
		Pressure distribution	x	x							
		Centre of pressure	x	x							
		Influence of angle of attack	x	x							
		Flow separation at high angles of attack	x	x							
		The lift – α graph	x	x							
		The coefficients									
		The lift coefficient C_L : the lift formula	x	x							
		The drag coefficient C_d : the drag formula	x	x							
		The three-dimensional airflow round a wing and a fuselage									
		Streamline pattern: (a) span-wise flow and causes; (b) tip vortices and angle of attack; (c) upwash and downwash due to tip vortices; (d) wake turbulence behind an aeroplane (causes, distribution and duration of the phenomenon).	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		Induced drag: (a) influence of tip vortices on the angle of attack; (b) the induced local α ; (c) influence of induced angle of attack on the direction of the lift vector; (d) induced drag and angle of attack.	x	x							
		Drag									
		The parasite drag: (a) pressure drag; (b) interference drag; (c) friction drag.	x	x							
		The parasite drag and speed	x	x							
		The induced drag and speed	x	x							
		The total drag	x	x							
		The ground effect									
		Effect on take off and landing characteristics of an aeroplane	x	x							
		The stall									
		Flow separation at increasing angles of attack: (a) the boundary layer: (1) laminar layer; (2) turbulent layer; (3) transition. (b) separation point; (c) influence of angle of attack; (d) influence on: (1) pressure distribution; (2) location of centre of pressure; (3) CL; (4) CD;	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		(5) pitch moments. (e) buffet; (f) use of controls.									
		The stall speed: (a) in the lift formula; (b) 1g stall speed; (c) influence of: (1) the centre of gravity; (2) power setting; (3) altitude (IAS); (4) wing loading; (5) load factor n: (i) definition; (ii) turns; (iii) forces.	x	x							
		The initial stall in span-wise direction: (a) influence of planform; (b) geometric twist (wash out); (c) use of ailerons.	x	x							
		Stall warning: (a) importance of stall warning; (b) speed margin; (c) buffet; (d) stall strip; (e) flapper switch; (f) recovery from stall.	x	x							
		Special phenomena of stall: (a) the power-on stall; (b) climbing and descending turns; (c) t-tailed aeroplane;	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		(d) avoidance of spins: (1) spin development; (2) spin recognition; (3) spin recovery. (e) ice (in stagnation point and on surface): (1) absence of stall warning; (2) abnormal behaviour of the aircraft during stall.									
		CL augmentation									
		Trailing edge flaps and the reasons for use in take-off and landing: (a) influence on CL - α -graph; (b) different types of flaps; (c) flap asymmetry; (d) influence on pitch movement.	x	x							
		Leading edge devices and the reasons for use in take-off and landing	x	x							
		The boundary layer									
		Different types: (a) laminar; (b) turbulent.	x	x							
		Special circumstances									
		Ice and other contamination: (a) ice in stagnation point; (b) ice on the surface (frost, snow and clear ice); (c) rain; (d) contamination of the leading edge; (e) effects on stall; (f) effects on loss of controllability; (g) effects on control surface moment; (h) influence on high lift devices during take-off, landing and low speeds.	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/P age/Topic No.)	S	U	Remark
		Stability									
		Condition of equilibrium in steady horizontal flight									
		Precondition for static stability	x	x							
		Equilibrium: (a) lift and weight; (b) drag and thrust.	x	x							
		Methods of achieving balance									
		Wing and empennage (tail and canard)	x	x							
		Control surfaces	x	x							
		Ballast or weight trim	x	x							
		Static and dynamic longitudinal stability									
		Basics and definitions: (a) static stability, positive, neutral and negative; (b) precondition for dynamic stability; (c) dynamic stability, positive, neutral and negative.	x	x							
		Location of centre of gravity: (a) aft limit and minimum stability margin; (b) forward position; (c) effects on static and dynamic stability.	x	x							
		Dynamic lateral or directional stability									
		Spiral dive and corrective actions	x	x							
		Control									
		General									
		Basics, the three planes and three axis	x	x							
		Angle of attack change	x	x							
		Pitch control									
		Elevator	x	x							
		Downwash effects	x	x							
		Location of centre of gravity	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		Yaw control									
		Pedal or rudder	x	x							
		Roll control									
		Ailerons: function in different phases of flight	x	x							
		Adverse yaw	x	x							
		Means to avoid adverse yaw: (a) frise ailerons; (b) differential ailerons deflection.	x	x							
		Means to reduce control forces									
		Aerodynamic balance: (a) balance tab and anti-balance tab; (b) servo tab.	x	x							
		Mass balance									
		Reasons to balance: means	x	x							
		Trimming									
		Reasons to trim	x	x							
		Trim tabs	x	x							
		Limitations									
		Operating limitations									
		Flutter	x	x							
		vfe	x	x							
		vno, vne	x	x							
		Manoeuvring envelope									
		Manoeuvring load diagram: (a) load factor; (b) accelerated stall speed; (c) va; (d) manoeuvring limit load factor or certification category.	x	x							
		Contribution of mass	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/P age/Topic No.)	S	U	Remark
		Gust envelope									
		Gust load diagram	x	x							
		Factors contributing to gust loads	x	x							
		Propellers									
		Conversion of engine torque to thrust									
		Meaning of pitch	x	x							
		Blade twist	x	x							
		Effects of ice on propeller	x	x							
		Engine failure or engine stop									
		Windmilling drag	x	x							
		Moments due to propeller operation									
		Torque reaction	x	x							
		Asymmetric slipstream effect	x	x							
		Asymmetric blade effect	x	x							
		Flight mechanics									
		Forces acting on an aeroplane									
		Straight horizontal steady flight	x	x							
		Straight steady climb	x	x							
		Straight steady descent	x	x							
		Straight steady glide	x	x							
		Steady coordinated turn: (a) bank angle; (b) load factor; (c) turn radius; (d) rate one turn.	x	x							
18		OPERATIONAL PROCEDURES	PPL	Bridge course							
		General									

No.	Regulatory Requirement(s)					Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description			Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		Operation of aircraft: ICAO Annex 6, General requirements										
		Definitions	x	x								
		Applicability	x	x								
		Special operational procedures and hazards (general aspects)	x	x								
		Noise abatement										
		Noise abatement procedures	x	x								
		Influence of the flight procedure (departure, cruise and approach)	x	x								
		Runway incursion awareness (meaning of surface markings and signals)	x	x								
		Fire or smoke										
		Carburettor fire	x	x								
		Engine fire	x	x								
		Fire in the cabin and cockpit, (choice of extinguishing agents according to fire classification and use of the extinguishers)	x	x								
		Smoke in the cockpit and (effects and action to be taken) and smoke in the cockpit and cabin (effects and actions taken)	x	x								
		Windshear and microburst										
		Effects and recognition during departure and approach	x	x								
		Actions to avoid and actions taken during encounter	x	x								
		Wake turbulence										
		Cause	x	x								
		List of relevant parameters	x	x								
		Actions taken when crossing traffic, during take-off and landing	x	x								
		Emergency and precautionary landings										
		Definition	x	x								
		Cause	x	x								
		Passenger information	x	x								
		Evacuation	x	x								
		Action after landing	x	x								

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
19		Contaminated runways									
		Kinds of contamination	x	x							
19.1		Estimated surface friction and friction coefficient	x	x							
		FLIGHT PERFORMANCE AND PLANNING	PPL	Bridge course							
		MASS AND BALANCE: AEROPLANES OR HELICOPTERS									
		Purpose of mass and balance considerations									
		Mass limitations									
		Importance in regard to structural limitations	x	x							
		Importance in regard to performance limitations	x	x							
		CG limitations									
		Importance in regard to stability and controllability	x	x							
		Importance in regard to performance	x	x							
		Loading									
		Terminology									
		Mass terms	x	x							
		Load terms (including fuel terms)	x	x							
		Mass limits									
		Structural limitations	x	x							
		Performance limitations	x	x							
		Baggage compartment limitations	x	x							
		Mass calculations									
		Maximum masses for take-off and landing	x	x							
		Use of standard masses for passengers, baggage and crew	x	x							
		Fundamentals of CG calculations									
		Definition of centre of gravity	x	x							
		Conditions of equilibrium (balance of forces and balance of moments)	x	x							
		Basic calculations of CG	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
19.2		Mass and balance details of aircraft									
		Contents of mass and balance documentation									
		Datum and moment arm	x	x							
		CG position as distance from datum	x	x							
		Extraction of basic mass and balance data from aircraft documentation									
		BEM	x	x							
		CG position or moment at BEM	x	x							
		Deviations from standard configuration	x	x							
		Determination of CG position									
		Methods									
		Arithmetic method	x	x							
		Graphic method	x	x							
		Load and trim sheet									
		General considerations	x	x							
		Load sheet and CG envelope for light aeroplanes and for helicopters	x	x							
		PERFORMANCE: AEROPLANES									
		Introduction									
		Performance classes	x	x							
		Stages of flight	x	x							
		Effect of aeroplane mass, wind, altitude, runway slope and runway conditions	x	x							
		Gradients	x	x							
		SE aeroplanes									
		Definitions of terms and speeds	x	x							
		Take-off and landing performance									
		Use of aeroplane flight manual data	x	x							
		Climb and cruise performance									
		Use of aeroplane flight data	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
19.3		Effect of density altitude and aeroplane mass	x	x							
		Endurance and the effects of the different recommended power or thrust settings	x	x							
		Still air range with various power or thrust settings	x	x							
		FLIGHT PLANNING AND FLIGHT MONITORING									
		Flight planning for VFR flights									
		VFR navigation plan									
		Routes, airfields, heights and altitudes from VFR charts	x	x							
		Courses and distances from VFR charts	x	x							
		Aerodrome charts and aerodrome directory	x	x							
		Communications and radio navigation planning data	x	x							
		Completion of navigation plan	x	x							
		Fuel planning									
		General knowledge	x	x							
		Pre-flight calculation of fuel required									
		Calculation of extra fuel	x	x							
		Completion of the fuel section of the navigation plan (fuel log) and calculation of total fuel	x	x							
		Pre-flight preparation									
		AIP and NOTAM briefing									
		Ground facilities and services	x	x							
		Departure, destination and alternate aerodromes	x	x							
		Airway routings and airspace structure	x	x							
		Meteorological briefing									
		Extraction and analysis of relevant data from meteorological documents	x	x							
		ICAO flight plan (ATS flight plan)									
		Individual flight plan									
		Format of flight plan	x	x							

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	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/P age/Topic No.)	S	U	Remark
		Completion of the flight plan	x	x							
		Submission of the flight plan	x	x							
		Flight monitoring and in-flight replanning									
		Flight monitoring									
		Monitoring of track and time	x	x							
		In-flight fuel management	x	x							
		In-flight re-planning in case of deviation from planned data	x	x							
20		AIRCRAFT GENERAL KNOWLEDGE	PPL	Bridge course							
20.1		AIRFRAME AND SYSTEMS, ELECTRICS, POWERPLANT AND EMERGENCY EQUIPMENT									
		System design, loads, stresses, maintenance	x	x							
		Loads and combination loadings applied to an aircraft's structure	x	x							
		Airframe									
		Wings, tail surfaces and control surfaces									
		Design and constructions	x	x							
		Structural components and materials	x	x							
		Stresses	x	x							
		Structural limitations	x	x							
		Fuselage, doors, floor, wind-screen and windows									
		Design and constructions	x	x							
		Structural components and materials	x	x							
		Stresses	x	x							
		Structural limitations	x	x							
		Hydraulics									
		Hydromechanics: basic principles	x	x							
		Hydraulic systems	x	x							
		Hydraulic fluids: types and characteristics, limitations	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description		Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		System components: design, operation, degraded modes of operation, indications and warnings	x	x							
		Landing gear, wheels, tyres and brakes									
		Landing gear									
		Types and materials	x	x							
		Nose wheel steering: design and operation	x	x							
		Brakes									
		Types and materials	x	x							
		System components: design, operation, indications and warnings	x	x							
		Wheels and tyres									
		Types and operational limitations	x	x							
		Helicopter equipments									
		Flight controls									
		Mechanical or powered	x	x							
		Control systems and mechanical	x	x							
		System components: design, operation, indications and warnings, degraded modes of operation and jamming	x	x							
		Secondary flight controls									
		System components: design, operation, degraded modes of operation, indications and warnings	x	x							
		Anti-icing systems									
		Types and operation (pitot and windshield)	x	x							
		Fuel system									
		Piston engine									
		System components: design, operation, degraded modes of operation, indications and warnings	x	x							
		Electrics									
		Electrics: general and definitions									

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	Subject	Description			Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		Direct current: voltage, current, resistance, conductivity, Ohm’s law, power and work	x	x								
		Alternating current: voltage, current, amplitude, phase, frequency and resistance	x	x								
		Circuits: series and parallel	x	x								
		Magnetic field: effects in an electrical circuit	x	x								
		Batteries										
		Types, characteristics and limitations	x	x								
		Battery chargers, characteristics and limitations	x	x								
		Static electricity: general										
		Basic principles	x	x								
		Static dischargers	x	x								
		Protection against interference	x	x								
		Lightning effects	x	x								
		Generation: production, distribution and use										
		DC generation: types, design, operation, degraded modes of operation, indications and warnings	x	x								
		AC generation: types, design, operation, degraded modes of operation, indications and warnings	x	x								
		Electric components										
		Basic elements: basic principles of switches, circuit-breakers and relays	x	x								
		Distribution										
		General: (a) bus bar, common earth and priority; (b) AC and DC comparison.	x	x								
		Piston engines										
		General										
		Types of internal combustion engine: basic principles and definitions	x	x								

No.	Regulatory Requirement(s)					Compliance checked by ATO				CAAT Officials Use Only			
	Subject	Description			Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark	
		Engine: design, operation, components and materials	x	x									
		Fuel											
		Types, grades, characteristics and limitations	x	x									
		Alternate fuel: characteristics and limitations	x	x									
		Carburettor or injection system											
		Carburettor: design, operation, degraded modes of operation, indications and warnings	x	x									
		Injection: design, operation, degraded modes of operation, indications and warnings	x	x									
		Icing	x	x									
		Air cooling systems											
		Design, operation, degraded modes of operation, indications and warnings	x	x									
		Lubrication systems											
		Lubricants: types, characteristics and limitations	x	x									
		Design, operation, degraded modes of operation, indications and warnings	x	x									
		Ignition circuits											
		Design, operation, degraded modes of operation	x	x									
		Mixture											
		Definition, characteristic mixtures, control instruments, associated control levers and indications	x	x									
		Propellers											
		Definitions and general: (a) aerodynamic parameters; (b) types; (c) operating modes.	x	x									
		Constant speed propeller: design, operation and system components	x	x									

No.	Regulatory Requirement(s)					Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description			Reference	Yes	No	N/A	Reference (Section/Chapter/P age/Topic No.)	S	U	Remark
20.2		Propeller handling: associated control levers, degraded modes of operation, indications and warnings	x	x								
		Performance and engine handling										
		Performance: influence of engine parameters, influence of atmospheric conditions, limitations and power augmentation systems	x	x								
		Engine handling: power and mixture settings during various flight phases and operational limitations	x	x								
		INSTRUMENTATION										
		Instrument and indication systems										
		Pressure gauge										
		Different types, design, operation, characteristics and accuracy	x	x								
		Temperature sensing										
		Different types, design, operation, characteristics and accuracy	x	x								
		Fuel gauge										
		Different types, design, operation, characteristics and accuracy	x	x								
		Flow meter										
		Different types, design, operation, characteristics and accuracy	x	x								
		Position transmitter										
		Different types, design, operation, characteristics and accuracy	x	x								
		Tachometer										
		Design, operation, characteristics and accuracy	x	x								
		Measurement of aerodynamic parameters										
		Pressure measurement										
		Static pressure, dynamic pressure, density and definitions	x	x								
		Design, operation, errors and accuracy	x	x								
		Temperature measurement: aeroplane										
		Design, operation, errors and accuracy	x	x								
		Displays	x	x								
		Altimeter										

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		Standard atmosphere	x	x							
		The different barometric references (QNH, QFE and 1013.25)	x	x							
		Height, indicated altitude, true altitude, pressure altitude and density altitude	x	x							
		Design, operation, errors and accuracy	x	x							
		Displays	x	x							
		Vertical speed indicator									
		Design, operation, errors and accuracy	x	x							
		Displays	x	x							
		Air speed indicator									
		The different speeds IAS, CAS, TAS: definition, usage and relationships	x	x							
		Design, operation, errors and accuracy	x	x							
		Displays	x	x							
		Magnetism: direct reading compass									
		Earth magnetic field	x	x							
		Direct reading compass									
		Design, operation, data processing, accuracy and deviation	x	x							
		Turning and acceleration errors	x	x							
		Gyroscopic instruments									
		Gyroscope: basic principles									
		Definitions and design	x	x							
		Fundamental properties	x	x							
		Drifts	x	x							
		Turn and bank indicator									
		Design, operation and errors	x	x							
		Attitude indicator									
		Design, operation, errors and accuracy	x	x							
		Directional gyroscope									
		Design, operation, errors and accuracy	x	x							

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference		Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		Communication systems									
		Transmission modes: VHF, HF and SATCOM									
		Principles, bandwidth, operational limitations and use	x	x							
		Voice communication									
		Definitions, general and applications	x	x							
		Alerting systems and proximity systems									
		Flight warning systems									
		Design, operation, indications and alarms	x	x							
		Stall warning									
		Design, operation, indications and alarms	x	x							
		Radio-altimeter									
		Design, operation, errors, accuracy and indications	x	x							
		Integrated instruments: electronic displays									
		Display units									
21		Design, different technologies and limitations	x	x							
		NAVIGATION	PPL	Bridge course							
21.1		GENERAL NAVIGATION									
		Basics of navigation									
		The solar system									
		Seasonal and apparent movements of the sun	x								
		The earth									
		Great circle, small circle and rhumb line	x								
		Latitude and difference of latitude	x								
		Longitude and difference of longitude	x								
		Use of latitude and longitude co-ordinates to locate any specific position	x								
		Time and time conversions									
		Apparent time	x								

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only				
	Subject	Description			Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark	
		UTC	x										
		LMT	x										
		Standard times	x										
		Dateline	x										
		Definition of sunrise, sunset and civil twilight	x										
		Directions											
		True north, magnetic north and compass north	x										
		Compass deviation	x										
		Magnetic poles, isogonals, relationship between true and magnetic	x										
		Distance											
		Units of distance and height used in navigation: nautical miles, statute miles, kilometres, metres and ft	x										
		Conversion from one unit to another	x										
		Relationship between nautical miles and minutes of latitude and minutes of longitude	x										
		Magnetism and compasses											
		General principles											
		Terrestrial magnetism	x										
		Resolution of the earth's total magnetic force into vertical and horizontal components	x										
		Variation-annual change	x										
		Aircraft magnetism											
		The resulting magnetic fields	x										
		Keeping magnetic materials clear of the compass	x										
		Charts											
		General properties of miscellaneous types of projections											
		Direct Mercator	x										
		Lambert conformal conic	x										

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description		Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		The representation of meridians, parallels, great circles and rhumb lines									
		Direct Mercator	x								
		Lambert conformal conic	x								
		The use of current aeronautical charts									
		Plotting positions	x								
		Methods of indicating scale and relief (ICAO topographical chart)	x								
		Conventional signs	x								
		Measuring tracks and distances	x								
		Plotting bearings and distances	x								
		DR navigation									
		Basis of DR									
		Track	x								
		Heading (compass, magnetic and true)	x								
		Wind velocity	x								
		Air speed (IAS, CAS and TAS)	x								
		Groundspeed	x								
		ETA	x								
		Drift and wind correction angle	x								
		DR position fix	x								
		Use of the navigational computer									
		Speed	x								
		Time	x								
		Distance	x								
		Fuel consumption	x								
		Conversions	x								
		Air speed	x								
		Wind velocity	x								
		True altitude	x								

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
21.2		The triangle of velocities									
		Heading	x								
		Ground speed	x								
		Wind velocity	x								
		Track and drift angle	x								
		Measurement of DR elements									
		Calculation of altitude	x								
		Determination of appropriate speed	x								
		In-flight navigation									
		Use of visual observations and application to in-flight navigation	x								
		Navigation in cruising flight, use of fixes to revise navigation data	x								
		Ground speed revision	x								
		Off-track corrections	x								
		Calculation of wind speed and direction	x								
		ETA revisions	x								
		Flight log	x								
		RADIO NAVIGATION									
		Basic radio propagation theory									
		Antennas									
		Characteristics	x								
		Wave propagation									
		Propagation with the frequency bands	x								
		Radio aids									
		Ground DF									
		Principles	x								
		Presentation and interpretation	x								
		Coverage	x								
		Range	x								
		Errors and accuracy	x								

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Reference	Yes	No	N/A	Reference (Section/Chapter/Para/Topic No.)	S	U	Remark
		Factors affecting range and accuracy	x								
		NDB/ADF									
		Principles	x								
		Presentation and interpretation	x								
		Coverage	x								
		Range	x								
		Errors and accuracy	x								
		Factors affecting range and accuracy	x								
		VOR									
		Principles	x								
		Presentation and interpretation	x								
		Coverage	x								
		Range	x								
		Errors and accuracy	x								
		Factors affecting range and accuracy	x								
		DME									
		Principles	x								
		Presentation and interpretation	x								
		Coverage	x								
		Range	x								
		Errors and accuracy	x								
		Factors affecting range and accuracy	x								
		Radar									
		Ground radar									
		Principles	x								
		Presentation and interpretation	x								
		Coverage	x								
		Range	x								
		Errors and accuracy	x								

No.	Regulatory Requirement(s)					Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description			Reference	Yes	No	N/A	Reference (Section/Chapter/P age/Topic No.)	S	U	Remark
		Factors affecting range and accuracy	x									
		Secondary surveillance radar and transponder										
		Principles	x									
		Presentation and interpretation	x									
		Modes and codes	x									
		GNSS										
		GPS, GLONASS OR GALILEO										
		Principles	x									
		Operation	x									
		Errors and accuracy	x									
		Factors affecting accuracy	x									

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
Flight Training for PPL(A)										
22	Flight Instruction for the PPL(A)	The PPL(A) flight instruction syllabus takes into account the principles of threat and error management and also covers:	TCAR PEL PART FCL AMC1 FCL.210.PPL(A)							
		(i) pre-flight operations, including mass and balance determination, aircraft inspection and servicing;								
		(ii) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;								
		(iii) control of the aircraft by external visual reference;								
		(iv) flight at critically low air speeds, recognition of, and recovery from, incipient and full stalls;								
		(v) flight at critically high air speeds, recognition of, and recovery from, spiral dive;								
		(vi) normal and crosswind take-offs and landings;								
		(vii) maximum performance (short field and obstacle clearance) take-offs, short-field landings;								
		(viii) flight by reference solely to instruments, including the completion of a level 180 ° turn;								
		(ix) cross-country flying using visual reference, dead reckoning and radio navigation aids;								
		(x) emergency operations, including simulated aeroplane equipment malfunctions;								
		(xi) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, communication procedures and phraseology.								
23	Syllabus of Flight Instruction for the PPL(A)	Before allowing applicants for a PPL(A) to undertake their first solo flight, the FI should ensure that the applicant can use R/T communication and can operate the required systems and equipment	TCAR PEL PART FCL AMC1 FCL.210.PPL(A)							
		The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide; therefore the demonstrations and practices								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:								
		(i) The applicant's progress and ability;								
		(ii) The weather conditions affecting the flight;								
		(iii) The flight time available;								
		(iv) instructional technique considerations;								
		(v) the local operating environment;								
		(vi) applicability of the exercises to the aeroplane.								
		Each of the exercises involves the need for the applicant to be aware of the needs of good airmanship and look-out, which should be emphasised at all times.								
		(i) Exercise 1a: Familiarisation with the aeroplane:								
		(A) characteristics of the aeroplane;								
		(B) cockpit layout;								
		(C) systems;								
		(D) checklists, drills and controls.								
		(iii) Exercise 1b: Emergency drills:								
		(A) action if fire on the ground and in the air;								
		(B) engine cabin and electrical system fire;								
		(C) systems failure;								
		(D) escape drills, location and use of emergency equipment and exits.								
		(iv) Exercise 2: Preparation for and action after flight:								
		(A) flight authorisation and aeroplane acceptance;								
		(B) serviceability documents;								
		(C) equipment required, maps, etc.;								
		(D) external checks;								
		(E) internal checks;								
		(F) harness, seat or rudder panel adjustments;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(G) starting and warm-up checks;								
		(H) power checks;								
		(I) running down system checks and switching off the engine;								
		(J) parking, security and picketing (for example tie down);								
		(K) completion of authorisation sheet and serviceability documents.								
		(v) Exercise 3: Air experience: flight exercise.								
		(vi) Exercise 4: Effects of controls:								
		(A) primary effects when laterally level and when banked;								
		(B) further effects of aileron and rudder;								
		(C) effects of:								
		(a) air speed;								
		(b) slipstream;								
		(c) power;								
		(d) trimming controls;								
		(e) flaps;								
		(f) other controls, as applicable.								
		(D) operation of:								
		(a) mixture control;								
		(b) carburettor heat;								
		(c) cabin heating or ventilation.								
		(vii) Exercise 5a: Taxiing:								
		(A) pre-taxi checks;								
		(B) starting, control of speed and stopping;								
		(C) engine handling;								
		(D) control of direction and turning;								
		(E) turning in confined spaces;								
		(F) parking area procedure and precautions;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(G) effects of wind and use of flying controls;								
		(H) effects of ground surface;								
		(I) freedom of rudder movement;								
		(J) marshalling signals;								
		(K) instrument checks;								
		(L) air traffic control procedures.								
		(viii) Exercise 5b: Emergencies: brake and steering failure.								
		(ix) Exercise 6: Straight and level:								
		(A) at normal cruising power, attaining and maintaining straight and level flight;								
		(B) flight at critically high air speeds;								
		(C) demonstration of inherent stability;								
		(D) control in pitch, including use of trim;								
		(E) lateral level, direction and balance and trim;								
		(F) at selected air speeds (use of power);								
		(G) during speed and configuration changes;								
		(H) use of instruments for precision.								
		(x) Exercise 7: Climbing:								
		(A) entry, maintaining the normal and max rate climb and levelling off;								
		(B) levelling off at selected altitudes;								
		(C) en-route climb (cruise climb);								
		(D) climbing with flap down;								
		(E) recovery to normal climb;								
		(F) maximum angle of climb;								
		(G) use of instruments for precision.								
		(xi) Exercise 8: Descending:								
		(A) entry, maintaining and levelling off;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(B) levelling off at selected altitudes;								
		(C) glide, powered and cruise descent (including effect of power and air speed);								
		(D) side slipping (on suitable types);								
		(E) use of instruments for precision flight.								
		(xii) Exercise 9: Turning:								
		(A) entry and maintaining medium level turns;								
		(B) resuming straight flight;								
		(C) faults in the turn (for example in correct pitch, bank and balance);								
		(D) climbing turns;								
		(E) descending turns;								
		(F) faults in the turns (slipping and skidding on suitable types);								
		(G) turns onto selected headings, use of gyro heading indicator and compass;								
		(H) use of instruments for precision.								
		(xiii) Exercise 10a: Slow flight:								
		Note: the objective is to improve the student's ability to recognise inadvertent flight at critically low speeds and provide practice in maintaining the aeroplane in balance while returning to normal air speed.								
		(A) safety checks;								
		(B) introduction to slow flight;								
		(C) controlled flight down to critically slow air speed;								
		(D) application of full power with correct attitude and balance to achieve normal climb speed.								
		(xiv) Exercise 10b: Stalling:								
		(A) safety checks;								
		(B) symptoms;								
		(C) recognition;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(D) clean stall and recovery without power and with power;								
		(E) recovery when a wing drops;								
		(F) approach to stall in the approach and in the landing configurations, with and without power and recovery at the incipient stage.								
		(xv) Exercise 11: Spin avoidance:								
		(A) safety checks;								
		(B) stalling and recovery at the incipient spin stage (stall with excessive wing drop, about 45 °);								
		(C) instructor induced distractions during the stall.								
		Note 1: at least two hours of stall awareness and spin avoidance flight training should be completed during the course.								
		Note 2: consideration of manoeuvre limitations and the need to refer to the aeroplane manual and mass and balance calculations.								
		(xvi) Exercise 12: Take-off and climb to downwind position:								
		(A) pre-take-off checks;								
		(B) into wind take-off;								
		(C) safeguarding the nose wheel;								
		(D) crosswind take-off;								
		(E) drills during and after take-off;								
		(F) short take-off and soft field procedure/techniques including performance calculations;								
		(G) noise abatement procedures.								
		(xvii) Exercise 13: Circuit, approach and landing:								
		(A) circuit procedures, downwind and base leg;								
		(B) powered approach and landing;								
		(C) safeguarding the nose wheel;								
		(D) effect of wind on approach and touchdown speeds and use of flaps;								
		(E) crosswind approach and landing;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(F) glide approach and landing;								
		(G) short landing and soft field procedures or techniques;								
		(H) flapless approach and landing;								
		(I) wheel landing (tail wheel aeroplanes);								
		(J) missed approach and go-around;								
		(K) noise abatement procedures.								
		(xviii) Exercise 12/13: Emergencies:								
		(A) abandoned take-off;								
		(B) engine failure after take-off;								
		(C) mislanding and go-around;								
		(D) missed approach.								
		Note: in the interests of safety it will be necessary for pilots trained on nose wheel aeroplanes to undergo dual conversion training before flying tail wheel aeroplanes, and vice-versa.								
		(xix) Exercise 14: First solo:								
		(A) instructor's briefing, observation of flight and de-briefing;								
		Note: during flights immediately following the solo circuit consolidation the following should be revised:								
		(B) procedures for leaving and rejoining the circuit;								
		(C) the local area, restrictions, map reading;								
		(D) use of radio aids for homing;								
		(E) turns using magnetic compass, compass errors.								
		(xx) Exercise 15: Advanced turning:								
		(A) steep turns (45 °), level and descending;								
		(B) stalling in the turn and recovery;								
		(C) recoveries from unusual attitudes, including spiral dives.								
		(xxi) Exercise 16: Forced landing without power:								
		(A) forced landing procedure;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(B) choice of landing area, provision for change of plan;								
		(C) gliding distance;								
		(D) descent plan;								
		(E) key positions;								
		(F) engine cooling;								
		(G) engine failure checks;								
		(H) use of radio;								
		(I) base leg;								
		(J) final approach;								
		(K) landing;								
		(L) actions after landing.								
		(xxii) Exercise 17: Precautionary landing:								
		(A) full procedure away from aerodrome to break-off height;								
		(B) occasions necessitating;								
		(C) in-flight conditions;								
		(D) landing area selection:								
		(a) normal aerodrome;								
		(b) disused aerodrome;								
		(c) ordinary field.								
		(E) circuit and approach;								
		(F) actions after landing.								
		(xxiii) Exercise 18a: Navigation:								
		(A) flight planning:								
		(a) weather forecast and actuals;								
		(b) map selection and preparation:								
		(1) choice of route;								
		(2) controlled airspace;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(3) danger, prohibited and restricted areas;								
		(4) safety altitudes.								
		(c) calculations:								
		(1) magnetic heading(s) and time(s) en-route;								
		(2) fuel consumption;								
		(3) mass and balance;								
		(4) mass and performance.								
		(d) flight information:								
		(1) NOTAMs etc.;								
		(2) radio frequencies;								
		(3) selection of alternate aerodromes.								
		(e) aeroplane documentation;								
		(f) notification of the flight:								
		(1) pre-flight administrative procedures;								
		(2) flight plan form.								
		(B) departure:								
		(a) organisation of cockpit workload;								
		(b) departure procedures:								
		(1) altimeter settings;								
		(2) ATC liaison in controlled or regulated airspace;								
		(3) setting heading procedure;								
		(4) noting of ETAs.								
		(c) maintenance of altitude and heading;								
		(d) revisions of ETA and heading;								
		(e) log keeping;								
		(f) use of radio;								
		(g) use of nav aids;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(h) minimum weather conditions for continuation of flight;								
		(i) in-flight decisions;								
		(j) transiting controlled or regulated airspace;								
		(k) diversion procedures;								
		(l) uncertainty of position procedure;								
		(m) lost procedure.								
		(C) arrival and aerodrome joining procedure:								
		(a) ATC liaison in controlled or regulated airspace;								
		(b) altimeter setting;								
		(c) entering the traffic pattern;								
		(d) circuit procedures;								
		(e) parking;								
		(f) security of aeroplane;								
		(g) refuelling;								
		(h) closing of flight plan, if appropriate;								
		(i) post-flight administrative procedures.								
		(xxiv) Exercise 18b: Navigation problems at lower levels and in reduced visibility:								
		(A) actions before descending;								
		(B) hazards (for example obstacles and terrain);								
		(C) difficulties of map reading;								
		(D) effects of wind and turbulence;								
		(E) vertical situational awareness (avoidance of controlled flight into terrain);								
		(F) avoidance of noise sensitive areas;								
		(G) joining the circuit;								
		(H) bad weather circuit and landing.								
		(xxv) Exercise 18c: Radio navigation:								
		(A) use of GNSS:								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(a) selection of waypoints;								
		(b) to or from indications and orientation;								
		(c) error messages.								
		(B) use of VHF omni range:								
		(a) availability, AIP and frequencies;								
		(b) selection and identification;								
		(c) OBS;								
		(d) to or from indications and orientation;								
		(e) CDI;								
		(f) determination of radial;								
		(g) intercepting and maintaining a radial;								
		(h) VOR passage;								
		(i) obtaining a fix from two VORs.								
		(C) use of ADF equipment: NDBs:								
		(a) availability, AIP and frequencies;								
		(b) selection and identification;								
		(c) orientation relative to the beacon;								
		(d) homing.								
		(D) use of VHF/DF:								
		(a) availability, AIP, frequencies;								
		(b) R/T procedures and ATC liaison;								
		(c) obtaining a QDM and homing.								
		(E) use of en-route or terminal radar:								
		(a) availability and AIP;								
		(b) procedures and ATC liaison;								
		(c) pilot's responsibilities;								
		(d) secondary surveillance radar:								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(1) transponders;								
		(2) code selection;								
		(3) interrogation and reply.								
		(F) use of DME:								
		(a) station selection and identification;								
		(b) modes of operation: distance, groundspeed and time to run.								
		(xxvi) Exercise 19: Basic instrument flight:								
		(A) physiological sensations;								
		(B) instrument appreciation; attitude instrument flight;								
		(C) instrument limitations;								
		(D) basic manoeuvres:								
		(a) straight and level at various air speeds and configurations;								
		(b) climbing and descending;								
		(c) standard rate turns, climbing and descending, onto selected headings;								
		(d) recoveries from climbing and descending turns.								
		BITD								
		(1) A BITD may be used for flight training for:								
		(i) flight by reference solely to instruments;								
		(ii) navigation using radio navigation aids;								
		(iii) basic instrument flight.								
		(2) The use of the BITD should be subject to the following:								
		(i) the training should be complemented by exercises on an aeroplane;								
		(ii) the record of the parameters of the flight must be available;								
		(iii) A FI(A) or STI(A) should conduct the instruction.								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
	SE Training (single-pilot single-engine aeroplanes) (If Applicable)									
24	Flight Training Requirement for Skill Test (SE)	1. Departure	TCAR PEL PART FCL APPENDIX 9, B							
		1.1 Preflight including: Documentation, Mass and balance, Weather briefing, NOTAM								
		1.2 Pre-start Checks: 1.2.1 External, 1.2.2 Internal								
		1.3 Engine Starting: Normal malfunctions								
		1.4 Taxiing								
		1.5 Pre-departure Checks: Engine run-up (if applicable)								
		1.6 Take-off Procedure: Normal with flight manual flap settings, Crosswind (if conditions are available)								
		1.7 Climbing: Vx/Vy, Turns onto headings, Level off								
		1.8 ATC Liaison—Compliance, R/T procedures								
		2. Airwork (VMC)								
		2.1 Straight and Level Flight at various airspeeds including flight at critically low airspeed with and without flaps (including approach to V _{mc} when applicable)								
		2.2 Steep Turns (360° left and right at 45° bank)								
		2.3 Stalls and Recovery: Clean stall, Approach to stall in various configurations								
		2.4 Handling Using Autopilot and Flight Director (if applicable)								
		2.5 ATC Liaison — Compliance, R/T procedures								
		3A. En Route Procedures VFR								
		3A.1 Flight Plan, Dead Reckoning, and Map Reading								
		3A.2 Maintenance of Altitude, Heading and Speed								
		3A.3 Orientation, Timing and Revision of ETAs								
		3A.4 Use of Radio Navigation Aids (if applicable)								
		3A.5 Flight Management (flight log, routine checks including fuel, systems, and icing)								
		3A.6 ATC Liaison—Compliance, R/T procedures								
		3B. Instrument Flight								
		3B.1 Includes Departure IFR, En Route IFR, Holding Procedures, 3D and 2D Operations, Flight Exercises, Failure of Localiser or Glideslope, ATC Liaison								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		4. Arrival and Landings								
		4.1 Aerodrome Arrival Procedure								
		4.2 Normal Landing								
		4.3 Flapless Landing								
		4.4 Crosswind Landing (if suitable conditions)								
		4.5 Approach and Landing with Idle Power from up to 2,000 ft above the runway (single-engine aeroplanes only)								
		4.6 Go-Around from Minimum Height								
		4.7 Night Go-Around and Landing (if applicable)								
		4.8 ATC Liaison Compliance, R/T Procedures								
		5. Abnormal and Emergency Procedures								
		5.1 Rejected Take-Off at a reasonable speed								
		5.2 Simulated Engine Failure after take-off (single-engine aeroplanes only)								
		5.3 Simulated Forced Landing without power (single-engine aeroplanes only)								
		5.4 Simulated Emergencies: Fire or smoke in flight, Systems' malfunctions as appropriate								
		5.6 ATC Liaison — Compliance, R/T procedures								
		6. UPRT								
		7.1 Flight Manoeuvres and Procedures: Manual flight with and without flight directors, at different speeds and altitudes, steep turns using 45° bank, 180° to 360° left and right, turns with and without spoilers, procedural instrument flying and manoeuvring including instrument departure and arrival, and visual approach								
		7.2 Upset Recovery Training: Recovery from stall events in various configurations, recovery from nose-high and nose-low at various bank angles								
		7.3 Go-around with engines operating from various stages during an instrument approach								
		7.4 Rejected landing with all engines operating from various heights below DH/MDH, 15 m (50 ft) above the runway threshold, after touchdown								
25	Syllabus of Theoretical Knowledge for Class or	Detailed listing for aeroplane structure and equipment, normal operation of systems and malfunctions:	AMC1 FCL.725(a)							

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
	Type Ratings – SE Aeroplanes	(5) dimensions: minimum required runway width for 180 ° turn.								
		(6) engine including auxiliary power unit:								
		(i) type of engine or engines;								
		(ii) in general, function of the following systems or components:								
		1. engine;								
		2. auxiliary power unit;								
		3. oil system;								
		4. fuel system;								
		5. ignition system;								
		6. starting system;								
		7. fire warning and extinguishing system;								
		8. generators and generator drives;								
		9. power indication;								
		10. reverse thrust;								
		11. water injection.								
		(iii) on piston or turbine-propeller engines additionally:								
		1. propeller system;								
		2. feathering system.								
		(iv) engine controls (including starter), engine instruments and indications in the cockpit, their function, interrelation and interpretation;								
		(v) engine operation, including APU, during engine start, start and engine malfunctions, procedures for normal operation in the correct sequence.								
		(7) fuel system:								
		(i) location of the fuel tanks, fuel pumps, fuel lines to the engines, tank capacities, valves and measuring;								
		(ii) location of the following systems:								
		1. filtering;								
		2. heating;								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		3. fueling and defueling;								
		4. dumping;								
		5. venting.								
		(iii) in the cockpit:								
		1. the monitors and indicators of the fuel system;								
		2. quantity and flow indication, interpretation.								
		(iv) procedures:								
		1. fuel procedures distribution into the various tanks;								
		2. fuel supply, temperature control and fuel dumping.								
		(8) pressurisation and air conditioning:								
		(i) components of the system and protection devices;								
		(ii) cockpit monitors and indicators;								
		(iii) interpretation about the operational condition;								
		(iv) normal operation of the system during start, cruise, approach and landing, air conditioning airflow and temperature control.								
		(9) ice and rain protection, windshield wipers and rain repellent:								
		(i) ice protected components of the aeroplane including engines, heat sources, controls and indications;								
		(ii) operation of the anti-icing or de-icing system during take-off, climb, cruise and descent, conditions requiring the use of the protection systems;								
		(iii) controls and indications of the windshield wipers and rain repellent systems operation.								
		(10)hydraulic system:								
		(i) components of the hydraulic system(s), quantities and system pressure, hydraulically actuated components associated to the respective hydraulic system;								
		(ii) controls, monitors and indicators in the cockpit, function and interrelation and interpretation of indications.								
		(11)landing gear:								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(i) main components of the:								
		1. main landing gear;								
		2. nose gear;								
		3. gear steering;								
		4. wheel brake system, including anti-skid.								
		(ii) gear retraction and extension (including changes in trim and drag caused by gear operation);								
		(iii) required tyre pressure, or location of the relevant placard;								
		(iv) controls and indicators including warning indicators in the cockpit in relation to the retraction or extension condition of the landing gear and brakes;								
		(v) components of the emergency extension system.								
		(12) flight controls and high lift devices:								
		(i)								
		1. aileron system;								
		2. elevator system;								
		3. rudder system;								
		4. trim system;								
		5. spoiler system;								
		6. lift devices;								
		7. stall warning system;								
		8. take-off configuration warning system.								
		(ii) flight control system from the cockpit controls to the flight control or surfaces;								
		(iii) controls, monitors and indicators including warning indicators of the systems mentioned under (8) (i), interrelation and dependencies.								
		(13) electrical power supply:								
		(i) number, power, voltage, frequency and location of the main power system (AC or DC), auxiliary power system location and external power system;								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(ii) location of the controls, monitors and indicators in the cockpit;								
		(iii) flight instruments, communication and navigation systems, main and back-up power sources;								
		(iv) location of vital circuit breakers;								
		(v) generator operation and monitoring procedures of the electrical power supply.								
		(14) flight instruments, communication, radar and navigation equipment, autoflight and flight data recorders:								
		(i) visible antennae;								
		(ii) controls and instruments of the following equipment in the cockpit during normal operation:								
		1. flight instruments;								
		2. flight management systems;								
		3. radar equipment, including radio altimeter;								
		4. communication and navigation systems;								
		5. autopilot;								
		6. flight data recorder, cockpit voice recorder and data-link communication recording function;								
		7. TAWS;								
		8. collision avoidance system;								
		9. warning systems; and.								
		10. weather radar system, best practices for optimum use, interpretation of displayed information.								
		(15) cockpit, cabin and cargo compartment:								
		(i) operation of the exterior, cockpit, cabin and cargo compartment lighting and the emergency lighting;								
		(ii) operation of the cabin and cargo doors, stairs, windows and emergency exits;								
		(iii) main components of the oxygen system and their location, oxygen masks and operation of the oxygen systems for the								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		crew and passengers, required amount of oxygen by means of a table or diagram.								
		(16) emergency equipment operation and correct application of the following emergency equipment in the aeroplane:								
		(i) portable fire extinguisher;								
		(ii) first-aid kits;								
		(iii) portable oxygen equipment;								
		(iv) emergency ropes;								
		(v) life-jacket;								
		(vi) life rafts;								
		(vii) emergency transmitters;								
		(viii) crash axes;								
		(ix) megaphones;								
		(x) emergency signals.								
		(17) pneumatic system:								
		(i) components of the pneumatic system, pressure source and actuated components;								
		(ii) controls, monitors and indicators in the cockpit and function of the system;								
		(iii) vacuum system.								
		Limitations:								
		(1) general limitations:								
		(i) certification of the aeroplane, category of operation, noise certification and maximum and minimum performance data for all flight profiles, conditions and aircraft systems:								
		1. maximum tail and crosswind-components at take-off and landing;								
		2. maximum speeds for flap extension v_{fo} ;								
		3. at various flap settings v_{fe} ;								
		4. for landing gear operation v_{lo} , M_{lo} ;								
		5. for extended landing gear v_{le} , M_{le} ;								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		6. for maximum rudder deflection v_a , M_a ;								
		7. for tyres;								
		8. one propeller feathered.								
		(ii)								
		1. minimum control speed air v_{mca} ;								
		2. minimum control speed ground v_{mcg} ;								
		3. stall speed under various conditions v_{so} , v_{s1} ;								
		4. maximum speed v_{ne} , M_{ne} ;								
		5. maximum speed for normal operation v_{mo} , M_{mo} ;								
		6. altitude and temperature limitations;								
		7. stick shaker activation.								
		(iii)								
		1. maximum airport pressure altitude, runway slope;								
		2. maximum taxi mass;								
		3. maximum take-off mass;								
		4. maximum lift off mass;								
		5. maximum landing mass;								
		6. zero fuel mass;								
		7. maximum dumping speed v_{dco} , M_{dco} , v_{dce} , M_{dce} ;								
		8. maximum load factor during operation;								
		9. certificated range of centre of gravity.								
		(2) engine limitations:								
		(i) operating data of the engines:								
		1. time limits and maximum temperatures;								
		2. minimum RPMs and temperatures;								
		3. torque;								
		4. maximum power for take-off and go-around on pressure altitude or flight altitude and temperature;								
		5. piston engines: certified range of mixture;								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		6. minimum and maximum oil temperature and pressure;								
		7. maximum starter time and required cooling;								
		8. time between two start attempts for engines and auxiliary power unit;								
		9. for propeller: maximum RPM of propeller triggering of automatic feathering device.								
		(ii) certified oil grades.								
		(3) systems limitations:								
		(i) operating data of the following systems:								
		1. pressurisation, air conditioning maximum pressures;								
		2. electrical power supply, maximum load of main power system (AC or DC);								
		3. maximum time of power supply by battery in case of emergency;								
		4. Mach trim system and yaw damper speed limits;								
		5. autopilot limitations of various modes;								
		6. ice protection;								
		7. speed and temperature limits of window heat;								
		8. temperature limits of engine and wing anti-ice.								
		(ii) fuel system: certified fuel specifications, minimum and maximum pressures and temperature of the fuel.								
		(4) minimum equipment list.								
		Performance, flight planning and monitoring:								
		(5) performance calculation about speeds, gradients, masses in all conditions for take-off, en-route, approach and landing according to the documentation available (for example for take-off V_1 , V_{mbe} , V_r , V_{lof} , V_2 , take-off distance, maximum take-off mass and the required stop distance) on the following factors:								
		(i) accelerate or stop distance;								
		(ii) take-off run and distance available (TORA, TODA);								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(iii) ground temperature, pressure altitude, slope, wind;								
		(iv) maximum load and maximum mass (for example ZFM);								
		(v) minimum climb gradient after engine failure;								
		(vi) influence of snow, slush, moisture and standing water on the runway;								
		(vii) possible single or dual engine failure during cruise flight;								
		(viii) use of anti-icing systems;								
		(ix) failure of water injection system or antiskid system;								
		(x) speeds at reduced thrust, V_1 , V_{1red} , V_{mbe} , V_{MU} , V_r , V_{lof} , V_2 ;								
		(xi) safe approach speed V_{ref} , on V_{MCA} and turbulent conditions;								
		(xii) effects of excessive approach speed and abnormal glideslope on the landing distance;								
		(xiii) minimum climb gradient during approach and landing;								
		(xiv) limiting values for a go-around with minimum fuel;								
		(xv) maximum allowable landing mass and the landing distance for the destination and alternate aerodrome on the following factors:								
		1. available landing distance;								
		2. ground temperature, pressure altitude, runway slope and wind;								
		3. fuel consumption to destination or alternate aerodrome;								
		4. influence of moisture on the runway, snow, slush and standing water;								
		5. failure of the water injection system or the anti-skid system;								
		6. influence of thrust reverser and spoilers.								
		(6) flight planning for normal and abnormal conditions:								
		(i) optimum or maximum flight level;								
		(ii) minimum required flight altitude;								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(iii) drift down procedure after an engine failure during cruise flight;								
		(iv) power setting of the engines during climb, cruise and holding under various circumstances, as well as the most economic cruising flight level;								
		(v) calculation of a short range or long range flight plan;								
		(vi) optimum and maximum flight level and power setting of the engines after engine failure.								
		(7) flight monitoring.								
		Load and balance and servicing:								
		(1) load and balance:								
		(i) load and trim sheet on the maximum masses for take-off and landing;								
		(ii) centre of gravity limits;								
		(iii) influence of fuel consumption on the centre of gravity;								
		(iv) lashing points, load clamping, maximum ground load.								
		(2) servicing on ground, servicing connections for:								
		(i) fuel;								
		(ii) oil;								
		(iii) water;								
		(iv) hydraulic;								
		(v) oxygen;								
		(vi) nitrogen;								
		(vii) conditioned air;								
		(viii) electric power;								
		(ix) start air;								
		(x) toilet and safety regulations.								
		Emergency procedures:								
		(1) recognition of the situation as well as immediate memory actions in correct sequence and for those conditions recognised as emergencies by the manufacturer and the CAAT for certification:								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(i) engine failure during take-off before and after v_1 , as well as in-flight;								
		(ii) malfunctions of the propeller system;								
		(iii) engine overheat, engine fire on ground and in-flight;								
		(iv) wheel well fire;								
		(v) electrical smoke or fire;								
		(vi) rapid decompression and emergency descent;								
		(vii) air-conditioning overheat, anti-ice system overheat;								
		(viii) fuel pump failure;								
		(ix) fuel freezing overheat;								
		(x) electric power failure;								
		(xi) equipment cooling failure;								
		(xii) flight instrument failure;								
		(xiii) partial or total hydraulic failure;								
		(xiv) failures at the lift devices and flight controls including boosters;								
		(xv) cargo compartment smoke or fire.								
		(2) actions according to the approved abnormal and emergency checklist:								
		(i) engine restart in-flight;								
		(ii) landing gear emergency extension;								
		(iii) application of the emergency brake system;								
		(iv) emergency extension of lift devices;								
		(v) fuel dumping;								
		(vi) emergency descent.								
		Special requirements for 'glass cockpit' aeroplanes with EFIS								
		Additional learning objectives:								
		(1) general rules of aeroplanes computer hardware and software design;								
		(2) logic of all crew information and alerting systems and their limitations;								
		(3) interaction of the different aeroplane computer systems, their limitations, the possibilities of computer fault recognition and the actions to be performed on computer failures;								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(4) normal procedures including all crew coordination duties;								
		(5) aeroplane operation with different computer degradations (basic flying).								
		Flight management systems.								
ME Training (single-pilot multi-engine aeroplanes) (If Applicable)										
26	General Requirement	Unless otherwise determined in the operational suitability data established in accordance with EASA Part 21 or any equivalent material established in accordance with Type certification regulations acceptable to the CAAT	TCAR PEL PART FCL FCL.725.A							
		For single-pilot multi-engine aeroplanes								
		(1) The theoretical knowledge course for a single-pilot multi-engine class rating shall include at least 7 hours of instruction in multi-engine aeroplane operations, and								
		(2) The flight training course for a single-pilot multi-engine class or type rating shall include at least 2 hours and 30 minutes of dual flight instruction under normal conditions of multi-engine aeroplane operations, and not less than 3 hours 30 minutes of dual flight instruction in engine failure procedures and asymmetric flight techniques.								
27	Flight Training Requirement for Skill Test (ME)	1. Departure	TCAR PEL PART FCL, APPENDIX 9, B							
		1.1 Preflight including: Documentation, Mass and balance, Weather briefing, NOTAM								
		1.2 Pre-start Checks: 1.2.1 External, 1.2.2 Internal								
		1.3 Engine Starting: Normal malfunctions								
		1.4 Taxiing								
		1.5 Pre-departure Checks: Engine run-up (if applicable)								
		1.6 Take-off Procedure: Normal with flight manual flap settings, Crosswind (if conditions are available)								
		1.7 Climbing: Vx/Vy, Turns onto headings, Level off								
		1.8 ATC Liaison—Compliance, R/T procedures								
		2. Airwork (VMC)								
		2.1 Straight and Level Flight at various airspeeds including flight at critically low airspeed with and without flaps (including approach to Vmca when applicable)								

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description		Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		2.2	Steep Turns (360° left and right at 45° bank)								
		2.3	Stalls and Recovery: Clean stall, Approach to stall in various configurations								
		2.4	Handling Using Autopilot and Flight Director (if applicable)								
		2.5	ATC Liaison — Compliance, R/T procedures								
		3A. En Route Procedures VFR									
		3A.1	Flight Plan, Dead Reckoning, and Map Reading								
		3A.2	Maintenance of Altitude, Heading and Speed								
		3A.3	Orientation, Timing and Revision of ETAs								
		3A.4	Use of Radio Navigation Aids (if applicable)								
		3A.5	Flight Management (flight log, routine checks including fuel, systems, and icing)								
		3A.6	ATC Liaison—Compliance, R/T procedures								
		3B. Instrument Flight									
		3B.1	Includes Departure IFR, En Route IFR, Holding Procedures, 3D and 2D Operations, Flight Exercises, Failure of Localiser or Glideslope, ATC Liaison								
		4. Arrival and Landings									
		4.1	Aerodrome Arrival Procedure								
		4.2	Normal Landing								
		4.3	Flapless Landing								
		4.4	Crosswind Landing (if suitable conditions)								
		4.5	Approach and Landing with Idle Power from up to 2,000 ft above the runway (single-engine aeroplanes only)								
		4.6	Go-Around from Minimum Height								
		4.7	Night Go-Around and Landing (if applicable)								
		4.8	ATC Liaison Compliance, R/T Procedures								
		5. Abnormal and Emergency Procedures									
		5.1	Rejected Take-Off at a reasonable speed								
		5.2	Simulated Engine Failure after take-off (single-engine aeroplanes only)								
		5.3	Simulated Forced Landing without power (single-engine aeroplanes only)								
		5.4	Simulated Emergencies: Fire or smoke in flight, Systems' malfunctions as appropriate								

No.	Regulatory Requirement(s)				Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description		Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		5.5	ME aeroplanes and TMG training only: engine shutdown and restart (at a safe altitude if performed in the aircraft)								
		5.6	ATC Liaison — Compliance, R/T procedures								
		6. Simulated Asymmetric Flight									
		6.1	Simulated engine failure during take-off (at a safe altitude unless carried out in an FFS or an FNPT II)								
		6.2	Asymmetric approach and go-around								
		6.3	Asymmetric approach and full-stop landing								
		6.4	ATC Liaison—Compliance, R/T procedures								
		7. UPRT									
		7.1	Flight Manoeuvres and Procedures: Manual flight with and without flight directors, at different speeds and altitudes, steep turns using 45° bank, 180° to 360° left and right, turns with and without spoilers, procedural instrument flying and manoeuvring including instrument departure and arrival, and visual approach								
		7.2	Upset Recovery Training: Recovery from stall events in various configurations, recovery from nose-high and nose-low at various bank angles								
		7.3	Go-around with engines operating from various stages during an instrument approach								
		7.4	Rejected landing with all engines operating from various heights below DH/MDH, 15 m (50 ft) above the runway threshold, after touchdown								
28	Syllabus of Theoretical Knowledge for Class or Type Ratings – ME Aeroplanes	Detailed listing for aeroplane structure and equipment, normal operation of systems and malfunctions:		AMC1 FCL.725(a)							
		(1) dimensions: minimum required runway width for 180 ° turn.									
		(2) engine including auxiliary power unit:									
		(i) type of engine or engines;									
		(ii) in general, function of the following systems or components:									
		1. engine;									
		2. auxiliary power unit;									
		3. oil system;									
		4. fuel system;									

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		5. ignition system;								
		6. starting system;								
		7. fire warning and extinguishing system;								
		8. generators and generator drives;								
		9. power indication;								
		10. reverse thrust;								
		11. water injection.								
		(iii) on piston or turbine-propeller engines additionally:								
		1. propeller system;								
		2. feathering system.								
		(iv) engine controls (including starter), engine instruments and indications in the cockpit, their function, interrelation and interpretation;								
		(v) engine operation, including APU, during engine start, start and engine malfunctions, procedures for normal operation in the correct sequence.								
		(3) fuel system:								
		(i) location of the fuel tanks, fuel pumps, fuel lines to the engines, tank capacities, valves and measuring;								
		(ii) location of the following systems:								
		1. filtering;								
		2. heating;								
		3. fueling and defueling;								
		4. dumping;								
		5. venting.								
		(iii) in the cockpit:								
		1. the monitors and indicators of the fuel system;								
		2. quantity and flow indication, interpretation.								
		(iv) procedures:								
		1. fuel procedures distribution into the various tanks;								
		2. fuel supply, temperature control and fuel dumping.								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(4) pressurisation and air conditioning:								
		(i) components of the system and protection devices;								
		(ii) cockpit monitors and indicators;								
		(iii) interpretation about the operational condition;								
		(iv) normal operation of the system during start, cruise, approach and landing, air conditioning airflow and temperature control.								
		(5) ice and rain protection, windshield wipers and rain repellent:								
		(i) ice protected components of the aeroplane including engines, heat sources, controls and indications;								
		(ii) operation of the anti-icing or de-icing system during take-off, climb, cruise and descent, conditions requiring the use of the protection systems;								
		(iii) controls and indications of the windshield wipers and rain repellent systems operation.								
		(6) hydraulic system:								
		(i) components of the hydraulic system(s), quantities and system pressure, hydraulically actuated components associated to the respective hydraulic system;								
		(ii) controls, monitors and indicators in the cockpit, function and interrelation and interpretation of indications.								
		(7) landing gear:								
		(i) main components of the:								
		1. main landing gear;								
		2. nose gear;								
		3. gear steering;								
		4. wheel brake system, including anti-skid.								
		(ii) gear retraction and extension (including changes in trim and drag caused by gear operation);								
		(iii) required tyre pressure, or location of the relevant placard;								

No.	Regulatory Requirement(s)			Compliance checked by ATO				CAAT Officials Use Only		
	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(iv) controls and indicators including warning indicators in the cockpit in relation to the retraction or extension condition of the landing gear and brakes;								
		(v) components of the emergency extension system.								
		(8) flight controls and high lift devices:								
		(i)								
		1. aileron system;								
		2. elevator system;								
		3. rudder system;								
		4. trim system;								
		5. spoiler system;								
		6. lift devices;								
		7. stall warning system;								
		8. take-off configuration warning system.								
		(ii) flight control system from the cockpit controls to the flight control or surfaces;								
		(iii) controls, monitors and indicators including warning indicators of the systems mentioned under (8) (i), interrelation and dependencies.								
		(9) electrical power supply:								
		(i) number, power, voltage, frequency and location of the main power system (AC or DC), auxiliary power system location and external power system;								
		(ii) location of the controls, monitors and indicators in the cockpit;								
		(iii) flight instruments, communication and navigation systems, main and back-up power sources;								
		(iv) location of vital circuit breakers;								
		(v) generator operation and monitoring procedures of the electrical power supply.								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(10) flight instruments, communication, radar and navigation equipment, autoflight and flight data recorders:								
		(i) visible antennae;								
		(ii) controls and instruments of the following equipment in the cockpit during normal operation:								
		1. flight instruments;								
		2. flight management systems;								
		3. radar equipment, including radio altimeter;								
		4. communication and navigation systems;								
		5. autopilot;								
		6. flight data recorder, cockpit voice recorder and data-link communication recording function;								
		7. TAWS;								
		8. collision avoidance system;								
		9. warning systems; and.								
		10. weather radar system, best practices for optimum use, interpretation of displayed information.								
		(11) cockpit, cabin and cargo compartment:								
		(i) operation of the exterior, cockpit, cabin and cargo compartment lighting and the emergency lighting;								
		(ii) operation of the cabin and cargo doors, stairs, windows and emergency exits;								
		(iii) main components of the oxygen system and their location, oxygen masks and operation of the oxygen systems for the crew and passengers, required amount of oxygen by means of a table or diagram.								
		(12) emergency equipment operation and correct application of the following emergency equipment in the aeroplane:								
		(i) portable fire extinguisher;								
		(ii) first-aid kits;								
		(iii) portable oxygen equipment;								

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		(iv) emergency ropes;								
		(v) life-jacket;								
		(vi) life rafts;								
		(vii) emergency transmitters;								
		(viii) crash axes;								
		(ix) megaphones;								
		(x) emergency signals.								
		(13) pneumatic system:								
		(i) components of the pneumatic system, pressure source and actuated components;								
		(ii) controls, monitors and indicators in the cockpit and function of the system;								
		(iii) vacuum system.								
		Limitations:								
		(14) general limitations:								
		(i) certification of the aeroplane, category of operation, noise certification and maximum and minimum performance data for all flight profiles, conditions and aircraft systems:								
		1. maximum tail and crosswind-components at take-off and landing;								
		2. maximum speeds for flap extension v_{fo} ;								
		3. at various flap settings v_{fe} ;								
		4. for landing gear operation v_{lo} , M_{lo} ;								
		5. for extended landing gear v_{le} , M_{le} ;								
		6. for maximum rudder deflection v_a , M_a ;								
		7. for tyres;								
		8. one propeller feathered.								
		(ii)								
		1. minimum control speed air v_{mca} ;								
		2. minimum control speed ground v_{mcg} ;								
		3. stall speed under various conditions v_{so} , v_{s1} ;								

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		4. maximum speed vne, Mne;								
		5. maximum speed for normal operation vmo, Mmo;								
		6. altitude and temperature limitations;								
		7. stick shaker activation.								
		(iii)								
		1. maximum airport pressure altitude, runway slope;								
		2. maximum taxi mass;								
		3. maximum take-off mass;								
		4. maximum lift off mass;								
		5. maximum landing mass;								
		6. zero fuel mass;								
		7. maximum dumping speed vdco, Mdco, vdce, Mdce;								
		8. maximum load factor during operation;								
		9. certificated range of centre of gravity.								
		(15) engine limitations:								
		(i) operating data of the engines:								
		1. time limits and maximum temperatures;								
		2. minimum RPMs and temperatures;								
		3. torque;								
		4. maximum power for take-off and go-around on pressure altitude or flight altitude and temperature;								
		5. piston engines: certified range of mixture;								
		6. minimum and maximum oil temperature and pressure;								
		7. maximum starter time and required cooling;								
		8. time between two start attempts for engines and auxiliary power unit;								
		9. for propeller: maximum RPM of propeller triggering of automatic feathering device.								

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		(ii) certified oil grades.								
		(16) systems limitations:								
		(i) operating data of the following systems:								
		1. pressurisation, air conditioning maximum pressures;								
		2. electrical power supply, maximum load of main power system (AC or DC);								
		3. maximum time of power supply by battery in case of emergency;								
		4. Mach trim system and yaw damper speed limits;								
		5. autopilot limitations of various modes;								
		6. ice protection;								
		7. speed and temperature limits of window heat;								
		8. temperature limits of engine and wing anti-ice.								
		(ii) fuel system: certified fuel specifications, minimum and maximum pressures and temperature of the fuel.								
		(17) minimum equipment list.								
		Performance, flight planning and monitoring:								
		(18) performance calculation about speeds, gradients, masses in all conditions for take-off, en-route, approach and landing according to the documentation available (for example for take-off V_1 , V_{mbe} , V_r , V_{lof} , V_2 , take-off distance, maximum take-off mass and the required stop distance) on the following factors:								
		(i) accelerate or stop distance;								
		(ii) take-off run and distance available (TORA, TODA);								
		(iii) ground temperature, pressure altitude, slope, wind;								
		(iv) maximum load and maximum mass (for example ZFM);								
		(v) minimum climb gradient after engine failure;								
		(vi) influence of snow, slush, moisture and standing water on the runway;								
		(vii) possible single or dual engine failure during cruise flight;								
		(viii) use of anti-icing systems;								

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		(ix) failure of water injection system or antiskid system;								
		(x) speeds at reduced thrust, V_1 , V_{1red} , V_{mbe} , V_{mu} , V_r , V_{lof} , V_2 ;								
		(xi) safe approach speed V_{ref} , on V_{mca} and turbulent conditions;								
		(xii) effects of excessive approach speed and abnormal glideslope on the landing distance;								
		(xiii) minimum climb gradient during approach and landing;								
		(xiv) limiting values for a go-around with minimum fuel;								
		(xv) maximum allowable landing mass and the landing distance for the destination and alternate aerodrome on the following factors:								
		1. available landing distance;								
		2. ground temperature, pressure altitude, runway slope and wind;								
		3. fuel consumption to destination or alternate aerodrome;								
		4. influence of moisture on the runway, snow, slush and standing water;								
		5. failure of the water injection system or the anti-skid system;								
		6. influence of thrust reverser and spoilers.								
		(19) flight planning for normal and abnormal conditions:								
		(i) optimum or maximum flight level;								
		(ii) minimum required flight altitude;								
		(iii) drift down procedure after an engine failure during cruise flight;								
		(iv) power setting of the engines during climb, cruise and holding under various circumstances, as well as the most economic cruising flight level;								
		(v) calculation of a short range or long range flight plan;								

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	Subject	Description	Reference	Yes	No	N/A	Reference (Section/Chapter/ Page/Topic No.)	S	U	Remark
		(vi) optimum and maximum flight level and power setting of the engines after engine failure.								
		(20) flight monitoring.								
		Load and balance and servicing:								
		(21) load and balance:								
		(i) load and trim sheet on the maximum masses for take-off and landing;								
		(ii) centre of gravity limits;								
		(iii) influence of fuel consumption on the centre of gravity;								
		(iv) lashing points, load clamping, maximum ground load.								
		(22) servicing on ground, servicing connections for:								
		(i) fuel;								
		(ii) oil;								
		(iii) water;								
		(iv) hydraulic;								
		(v) oxygen;								
		(vi) nitrogen;								
		(vii) conditioned air;								
		(viii) electric power;								
		(ix) start air;								
		(x) toilet and safety regulations.								
		Emergency procedures:								
		(23) recognition of the situation as well as immediate memory actions in correct sequence and for those conditions recognised as emergencies by the manufacturer and the CAAT for certification:								
		(i) engine failure during take-off before and after v_1 , as well as in-flight;								
		(ii) malfunctions of the propeller system;								
		(iii) engine overheat, engine fire on ground and in-flight;								
		(iv) wheel well fire;								
		(v) electrical smoke or fire;								

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		(vi) rapid decompression and emergency descent;								
		(vii) air-conditioning overheat, anti-ice system overheat;								
		(viii) fuel pump failure;								
		(ix) fuel freezing overheat;								
		(x) electric power failure;								
		(xi) equipment cooling failure;								
		(xii) flight instrument failure;								
		(xiii) partial or total hydraulic failure;								
		(xiv) failures at the lift devices and flight controls including boosters;								
		(xv) cargo compartment smoke or fire.								
		(24) actions according to the approved abnormal and emergency checklist:								
		(i) engine restart in-flight;								
		(ii) landing gear emergency extension;								
		(iii) application of the emergency brake system;								
		(iv) emergency extension of lift devices;								
		(v) fuel dumping;								
		(vi) emergency descent.								
		Special requirements for 'glass cockpit' aeroplanes with EFIS								
		Additional learning objectives:								
		(1) general rules of aeroplanes computer hardware and software design;								
		(2) logic of all crew information and alerting systems and their limitations;								
		(3) interaction of the different aeroplane computer systems, their limitations, the possibilities of computer fault recognition and the actions to be performed on computer failures;								
		(4) normal procedures including all crew coordination duties;								
		(5) aeroplane operation with different computer degradations (basic flying).								
		Flight management systems.								

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	Class Rating Theoretical Knowledge Examination Requirement									
29	Theoretical knowledge Examination Requirement	The applicant for a class or type rating shall pass a theoretical knowledge examination organised by the ATO to demonstrate the level of theoretical knowledge required for the safe operation of the applicable aircraft class or type.	TCAR PEL PART FCL FCL.725							
		For single-engine aircraft, the theoretical knowledge examination shall be conducted verbally by the examiner during the skill test to determine whether or not a satisfactory level of knowledge has been achieved.								
	Skill Test Requirement									
30	PPL(A) Skill Test Requirement	Before a skill test for the issue of a licence, rating or certificate is taken, the applicant applicants shall have passed the required theoretical knowledge examination, except in the case of applicants undergoing a course of integrated flying training. In any case, the theoretical knowledge instruction shall always have been completed before the skill tests are taken.	TCAR PEL PART FCL FCL.030							
		Except for the issue of an airline transport pilot licence, the applicant applicants for a skill test shall be recommended for the test by the organisation ATO, DTO or person responsible for the training, once the training is completed. The training records shall be made available to the examiner.								
31	Skill Test Requirement for Class Rating	An applicant for the issue of a class or type rating shall pass a skill test in accordance with Appendix 9 to this Part regulation to demonstrate the skill required for the safe operation of the applicable class or type of aircraft.	TCAR PEL PART FCL FCL.725							