

What This Chapter Covers

1. ICAO Annex 6 & Applicability
2. General Requirements & Carriage of Persons
3. Documents to be Carried on Board
4. Information Retained on Ground & Power to Inspect
5. Operator Certification (AOC)
6. Aerodrome Operating Minima & Approach Ban
7. Instrument & Safety Equipment
8. Flight Recorders
9. Oxygen Supply & Protective Breathing Equipment
10. Emergency & Survival Equipment
11. Communication & Navigation Equipment
12. Minimum Fuel Requirements
13. Flight Crew & Flight Duty Time Limitations (FDTL)
14. Practice Questions & Answer Key

This chapter explains how an airline operation is run safely and legally — who may sit where, what paperwork must fly with you, how much fuel and oxygen you must carry, what survival gear is mandatory, and how long a crew may legally work before fatigue makes them unsafe. Every number here is examinable: learn the exact figures.

SECTION 01

ICAO Annex 6 & Applicability

ICAO Annex 6 is titled "Operation of Aircraft". It contains the international **Standards and Recommended Practices (SARPs)** that tell operators how aircraft must be flown safely. It is split into three Parts, and each Part became applicable on a different date.

DEFINITION — THE THREE PARTS OF ANNEX 6

- **Part I — International Commercial Air Transport — Aeroplanes.** Applies to the operation of aeroplanes by operators authorised to conduct **international commercial air transport operations**.
- **Part II — International General Aviation — Aeroplanes.** Deals exclusively with international general aviation. Became applicable in **September 1969**.
- **Part III — International Operations — Helicopters.** Deals with all international helicopter operations. Became applicable in **November 1986**.

Memory Aid

Think "1-6-9 / 8-6" — General Aviation Part came in '69, Helicopters in '86. Part I (the big airline part) is the original core. Helicopters were added *last* because the rules for them matured later.

STRUCTURE OF ICAO ANNEX 6

```
graph TD
    A["ICAO ANNEX 6  
Operation of Aircraft"] --> B["PART I  
International Commercial  
Air Transport – Aeroplanes"]
    A --> C["PART II  
International General  
Aviation – Aeroplanes  
(applicable Sep 1969)"]
    A --> D["PART III  
International Operations –  
Helicopters  
(applicable Nov 1986)"]

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SECTION 02

General Requirements & Carriage of Persons

2.1 Quality System

Every operator must run a structured, self-checking organisation rather than relying on chance.

STANDARD REQUIREMENT

An operator shall establish **one quality system** and designate **one quality manager** to monitor compliance with — and the adequacy of — procedures required to ensure safe operational practices and airworthy aeroplanes.

Compliance monitoring must include a **feed-back system to the accountable manager** to ensure corrective action is taken as necessary.

In Plain Language

"One system, one manager, one feedback loop." The quality manager *watches* the operation; the accountable manager has the *authority and money* to fix what the quality manager finds. Without the feedback loop, problems would never reach the person who can correct them.

2.2 Methods of Carriage of Persons

People must not be carried in unsafe parts of the aircraft.

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STRICT LIMITATION

An operator shall take all reasonable measures to ensure that **no person is in any part of an aeroplane in flight which is not designed for the accommodation of persons**, unless temporary access has been granted by the commander to any part of the aeroplane in the following cases:

- For the purpose of taking action necessary for the **safety** of the aeroplane, or of any person, animal or goods therein; or
- A part in which **cargo or stores are carried**, being a part designed to enable a person to have access thereto while the aeroplane is in flight.

2.3 Admission to the Flight Deck

The flight deck is a restricted area. Only specific categories of person may be admitted.

STRICT LIMITATION — FLIGHT DECK ACCESS

An operator must ensure that **no person, other than a flight crew member assigned to a flight**, is admitted to or carried in the flight deck unless that person is:

- An **operating crew member**;
- A **representative of the Authority** responsible for certification, licensing or inspection, if this is required for the performance of his official duties; or
- Permitted by, and carried in accordance with, instructions contained in the **Operations Manual**.

STANDARD PROCEDURE — WHO DECIDES

The **final decision** regarding admission to the flight deck shall be the responsibility of the **commander**.

2.4 Unauthorized Carriage

STRICT LIMITATION

An operator shall take all reasonable measures to ensure that **no person secretes himself, or secretes cargo, on board an aeroplane** (i.e. stowaways and hidden/undeclared cargo are prohibited).

2.5 Portable Electronic Devices (PEDs)

STRICT LIMITATION

An operator shall **not permit any person to use**, and shall take all reasonable measures to ensure that no person does use, on board an aeroplane, a **portable electronic device that can adversely affect the performance of the aeroplane's systems and equipment**.

Why It Matters

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The rule does not ban every device outright — it bans devices that *can adversely affect* aircraft systems. The concern is electromagnetic interference with navigation and communication equipment, especially during critical phases of flight.

SECTION 03

Documents to be Carried on Board

*No person in charge of any aircraft shall allow that aircraft to be flown unless the following valid documents — as applicable — are carried on board, in **original or attested copies**.*

GHOST AVIATOR

Ghost Aviator

GHOST AVIATOR

DEFINITION — THE MANDATORY DOCUMENT SET

1. Certificate of Registration
2. Certificate of Airworthiness (C of A)
3. Airworthiness Review Certificate (ARC)
4. A document attesting **Noise Certification** of the aeroplane / helicopter
5. Air Operator's Permit (AOP)
6. **Appropriate Licences** for each member of the flight crew
7. **Aeromobile Radio operation Licence** for the Radio Communication apparatus
8. **Journey Log Book** or equivalent documents approved by the DGCA
9. **Operations Manual**
10. **Minimum Equipment List (MEL)**
11. **Flight Manual**
12. **Cabin Crew Manual**
13. **Cockpit and Emergency Check List** — unless these form part of the Flight Manual carried on board
14. **Aeroplane / Helicopter search procedure checklist**
15. **Maintenance Release / Certificate to Release to Service (CRS)**
16. **LOPA** — Layout of Passenger Arrangement
17. **Emergency and Safety Equipment Layout**
18. **Route guides**
19. **Current and suitable navigation charts / maps** for the planned route and all other routes along which the flight may reasonably be expected to be diverted
20. **Weight Schedule**
21. **Load and Trim Sheet**
22. If carrying passengers — a **list of passenger names** and their places of embarkation and destination
23. If carrying cargo — a **cargo manifest** and detailed declarations of the cargo
24. If carrying dangerous goods — a **list of such goods** (this list must be specifically brought to the notice of the Pilot-in-Command before the flight)
25. **Current comprehensive insurance policy** covering passengers and their baggage, crew, third party risks and hull loss

STANDARD PROCEDURE — CHECKLIST DISPLAY

Checklists for the **take-off, cruise and landing phases** shall be **displayed in the cockpit**, unless the lists form a part of the Flight Manual carried on board.

STANDARD PROCEDURE — PASSENGER SAFETY BRIEFING CARD

All operators of passenger aircraft shall provide a **passenger safety information briefing card at every passenger seat location**. Such a card shall make use of **symbolology** to convey the instructions in a clear and concise manner.

Exam Focus

Two favourite exam traps: (1) the **dangerous goods list** must be *personally shown to the PIC before flight* — not merely carried; (2) the Flight Manual is carried by **all aircraft** only *if the C of A states so* — the C of A determines the requirement.

SECTION 04

Information Retained on Ground & Power to Inspect

4.1 Information Retained on Ground

So that an investigation is always possible, key flight information must be safely preserved off the aircraft.

STANDARD REQUIREMENT

An operator shall ensure that — **at least for the duration of each flight or series of flights**:

- Information relevant to the flight and appropriate for the type of operation is **preserved on the ground**; and
- The information is **retained until it has been duplicated** at the place at which it will be stored in accordance with the rules; **or**, if this is impracticable,
- The same information is carried in a **fireproof container** in the aeroplane.

In Plain Language

The aircraft can be lost — so a ground copy must exist. Until that ground copy is safely duplicated at the storage location, you must keep a protected copy. If keeping a ground copy is genuinely impracticable, the on-board copy must be inside a **fireproof container** so it can survive an accident.

4.2 Power to Inspect

STANDARD REQUIREMENT

An operator shall ensure that any person **authorised by the Authority** is permitted **at any time** to board and fly in any aeroplane operated under an AOC issued by that Authority, and to **enter and remain on the flight deck**.

THE COMMANDER'S OVERRIDE

The commander **may refuse access to the flight deck** if, in his opinion, the safety of the aeroplane would thereby be endangered. Safety always outranks the inspection right.

SECTION 05

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Operator Certification (AOC)

Before an airline may sell tickets, it must prove to the State that it is capable of operating safely. That proof is the **Air Operator Certificate**.

DEFINITION — AIR OPERATOR PERMIT / CERTIFICATE (AOC)

A Permit / Certificate authorising an operator to carry out specified commercial air transport operations.

DEFINITION — STATE OF THE OPERATOR

The State in which the operator's **principal place of business** is located or, if there is no such place of business, the operator's **permanent residence**.

5.1 Mutual Recognition

STANDARD REQUIREMENT

Contracting States shall **recognise as valid** an AOC issued by another Contracting State, provided that the requirements under which the certificate was issued are **at least equal to the applicable Standards specified in Annex 6**.

5.2 Issue of an AOC

STANDARD REQUIREMENT — CONDITIONS OF ISSUE

The issuance of an AOC is **dependent upon the operator demonstrating** to the State that the following are **adequate** for the nature and extent of operations to be conducted:

- Its **organisation**;
- Its **training policy and programmes**;
- Its **flight operations**;
- Its **ground handling arrangements**; and
- Its **maintenance arrangements**.

The certification process involves the State's evaluation of each operator and a determination that the operator is capable of conducting **safe operations** before initial issue of an AOC, or before the addition of any subsequent authorizations to an AOC.

5.3 Validity of an AOC

CONTINUING OBLIGATION

The validity of an AOC shall depend upon the operator **maintaining the original certification standards** under the supervision of the State of the Operator. This supervision requires that a system of **continued surveillance** be established to ensure the required standards of operations are maintained.

AOC — FROM APPLICATION TO CONTINUED VALIDITY

```
graph LR
    A["Operator applies"] --> B["Demonstrate adequacy:  
Organisation • Training •  
Flight Ops • Ground Handling •  
Maintenance"]
    B --> C["State evaluates &  
determines capability  
for safe operations"]
    C --> D["AOC ISSUED"]
    D --> E["Operator maintains  
original standards"]
    E --> F["State conducts  
continued surveillance"]
    F --> G["AOC remains VALID"]

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SECTION 06

Aerodrome Operating Minima & Approach Ban

6.1 Restricted Aerodrome Operating Minima (AOM)

When an aerodrome's normal minima are made stricter, "additives" are applied to the published Normal AOM.

STRICT LIMITATION — THE ADDITIVE FORMULA

Restricted Aerodrome Operating Minima shall be based on additives applied to the Normal AOM as below:

Restricted AOM = Normal AOM DA(H)/MDA(H) **+ 100 ft** **AND** Normal AOM Visibility/RVR **+ 400 m**

Memory Aid

"One hundred up, four hundred out." Add **100 ft** to the decision/minimum descent height and **400 m** to the required visibility/RVR. Both additives apply together.

6.2 Commencement & Continuation of Approach — The "Approach Ban Policy"

STRICT LIMITATION — COMMENCING AN APPROACH

The PIC shall **not** commence an instrument approach if the reported RVR/Visibility is **below the applicable minimum**.

STRICT LIMITATION — DISCONTINUING AN APPROACH

If, *after commencing* an instrument approach, the reported RVR/Visibility falls below the applicable minimum, the approach **shall not be continued**:

- (a) below **1 000 ft** above the aerodrome; or
- (b) into the **final approach segment (FAS)**.

STANDARD PROCEDURE — ONCE PAST THE GATE

Where RVR is not available, RVR values may be derived by **converting the reported visibility**.

If, **after entering the final approach segment** or descending below **1 000 ft** above aerodrome elevation, the reported RVR/visibility falls below the applicable minimum — the approach **may be continued to DA/H or MDA/H**.

The approach may be continued **below DA/H or MDA/H**, and the landing may be completed, **provided that the required visual reference is established at the DA/H or MDA/H and is maintained**.

APPROACH BAN DECISION LOGIC

```
graph TD
    A["Reported RVR/Vis  
BELOW minimum?"] -->|"Yes – before  
commencing"| B["DO NOT commence  
the approach"]
    A -->|"No"| C["Commence approach"]
    C --> D["RVR/Vis drops below  
minimum during approach"]
    D -->|"Before 1000 ft AGL  
OR before FAS"| E["Approach must  
NOT be continued"]
    D -->|"After entering FAS or  
below 1000 ft AGL"| F["May continue to  
DA/H or MDA/H"]
    F --> G["Required visual  
reference at DA/H-MDA/H?"]
    G -->|"Established & maintained"| H["May continue below  
minima & LAND"]
    G -->|"Not established"| I["Go-around /  
Missed approach"]

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6.3 Controlling RVR — Touch-down, Mid-point & Stop-end

DEFINITION — WHICH RVR CONTROLS?

The touch-down zone (TDZ) RVR is always controlling. If reported and relevant, the mid-point and stop-end RVR are also controlling.

Table 6.1 — Minimum RVR Values by Runway Segment

Runway Segment	Minimum RVR Value	Special Case
Touch-down zone (TDZ)	Always controlling	The primary reference
Mid-point	125 m	...or the RVR required for the TDZ if that is less. With a stop-end (roll-out) guidance or control system, the mid-point minimum is 50 m .
Stop-end	50 m	Controlling when reported and relevant

DEFINITION — "RELEVANT"

In this context, "relevant" means that part of the runway used during the **high-speed phase of the landing down to a speed of approximately 60 knots**.

Worked Example

Filed minima 300 m; TDZ RVR 400 m; mid-point RVR 100 m; stop-end RVR 300 m. The mid-point reads only 100 m, which is *below the 125 m minimum* — so the runway is **below minima**. A single segment failing the minimum makes the whole runway unusable.

6.4 VFR Operating Minima

STRICT LIMITATION

An operator is to ensure that VFR flights are conducted in accordance with the **Visual Flight Rules and in VMC**. **Special VFR flights are NOT permitted** for commercial air transport aeroplanes.

SECTION 07

Instrument & Safety Equipment

7.1 Circuit Protection Devices

STRICT LIMITATION — SPARE FUSES

An operator shall not operate an aeroplane in which **fuses are used** unless spare fuses are available for use in flight equal to **at least 10% of the number of fuses of each rating, OR three of each rating — whichever is the greater**.

Memory Aid

"10% or 3 — take the bigger." If 10% of a rating works out to less than 3, you must still carry 3 of that rating.

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7.2 Windshield Wipers

STRICT LIMITATION

An operator shall not operate an aeroplane with a maximum certificated take-off mass of **more than 5,700 kg** unless it is equipped at **each pilot station** with a windshield wiper or equivalent means to maintain a clear portion of the windshield during precipitation.

7.3 Airborne Weather Radar Equipment

STANDARD REQUIREMENT

Pressurised aeroplanes carrying passengers should be equipped with **operative weather radar** whenever such aeroplanes are operated in areas where thunderstorms or other potentially hazardous weather conditions — regarded as detectable with airborne weather radar — may be expected to exist along the route, either **at night** or under Instrument Meteorological Conditions (IMC).

7.4 Pressure Altitude Data Source

STRICT REQUIREMENT

All aeroplanes shall be equipped with a data source that provides **pressure altitude information** with a resolution of **7.62 m (25 ft)** or better.

7.5 Microphones

STANDARD PROCEDURE

All flight crew members required to be on flight deck duty shall communicate through **boom or throat microphones** below the transition level / altitude.

7.6 Wind Shear Warning System & GPWS (Turbo-jet Aeroplanes)

STANDARD REQUIREMENT

All **turbo-jet aeroplanes** of a maximum certificated take-off mass in excess of **5,700 kg**, OR authorized to carry more than **9 passengers**, should be equipped with:

- A forward-looking wind shear warning system; and
- A Ground Proximity Warning System (GPWS) which has a forward-looking terrain avoidance function.

7.7 ACAS II

STRICT REQUIREMENT

All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of **5,700 kg**, OR authorized to carry more than **19 passengers**, shall be equipped with an Airborne Collision Avoidance System (ACAS II).

Exam Trap — Don't Confuse the Two

Both thresholds use **5,700 kg** — but the passenger figure differs. **Wind shear/GPWS** = turbo-jet, >9 pax. **ACAS II** = turbine-engined, >19 pax. Remember: *collision avoidance needs more seats (19) before it bites*.

7.8 Security of the Flight Crew Compartment

STRICT REQUIREMENT

All passenger-carrying aeroplanes of a maximum certificated take-off mass in excess of **45,500 kg**, OR with a passenger seating capacity greater than **60**, shall be equipped with an approved flight crew compartment door that is designed to:

- Resist penetration by **small arms fire and grenade shrapnel**; and
- Resist **forcible intrusions** by unauthorized persons.

This door shall be capable of being **locked and unlocked from either pilot's station**.

7.9 First Aid Kits

First-aid kits are carried for use by **cabin crew** in managing incidents of ill health. The number required scales with passengers carried.

Table 7.1 — First Aid Kits Required

Passengers	First Aid Kits
0 – 100	1
101 – 199	2
200 – 299	3
300 or more	4

Exam Trap

An aircraft carrying **250 passengers** falls in the 200–299 band — answer is **3 kits**. Watch the band boundaries carefully.

7.10 Emergency Medical Kit

STANDARD REQUIREMENT — MEDICAL SUPPLIES

Universal Precaution Kit: For aeroplanes required to carry cabin crew as part of the operating crew — **one universal precaution kit** (two for aeroplanes authorized to carry more than **250 passengers**) for use by cabin crew in managing incidents of ill health associated with a suspected communicable disease, or illness involving contact with body fluids.

Medical Kit: For aeroplanes authorized to carry more than **100 passengers**, on a **sector length of more than 2 hours** — a medical kit for use by medical doctors or other qualified persons in treating in-flight medical emergencies.

SECTION 08

Flight Recorders

*Flight recorders capture what the aircraft and crew did. They fall into two families — **crash-protected** recorders (heavy, survivable) and **lightweight** recorders.*

DEFINITION — CRASH-PROTECTED FLIGHT RECORDERS

Comprise **one or more** of the following systems:

- **FDR** — Flight Data Recorder
- **CVR** — Cockpit Voice Recorder
- **AIR** — Airborne Image Recorder
- **DLR** — Data Link Recorder

Image and data link information may be recorded on **either the CVR or the FDR**.

DEFINITION — LIGHTWEIGHT FLIGHT RECORDERS

Comprise **one or more** of the following systems:

- **ADRS** — Aircraft Data Recording System
- **CARS** — Cockpit Audio Recording System
- **AIRS** — Airborne Image Recording System
- **DLRS** — Data Link Recording System

Image and data link information may be recorded on **either the CARS or the ADRS**.

8.1 Combination Recorders

STRICT REQUIREMENT

All aeroplanes of a maximum certificated take-off mass of over **15,000 kg**, which are required to be equipped with both a CVR and an FDR, shall be equipped with **two combination recorders (FDR/CVR)**.

One recorder shall be located **as close to the cockpit as practicable**, and the other recorder located **as far aft as practicable**.

Why Two, Far Apart?

Putting one recorder forward and one aft maximises the chance that at least one survives an accident — a fire or impact that destroys one location may spare the other.

8.2 Recording Duration Requirements

Table 8.1 — Minimum Recording Retention Periods

Recorder	Minimum Retention	Applicability
FDR (all)	Last 25 hours	All FDRs
CVR & Data Link Recorders	Last 2 hours	General requirement
CVRs / CARS	Last 2 hours	All CVRs/CARS retain at least last 2 hours
CVR (large new aircraft)	Last 25 hours	Aeroplanes of MCTOM over 27,000 kg for which the individual C of A is first issued on or after 1 January 2022

STANDARD PROCEDURE — CVR / CARS OPERATION

The CVR or a Cockpit Audio Recording System (CARS) shall **start recording before the aircraft moves under its own power**, and shall **continuously record until the aircraft is no longer capable of moving under its own power**.

CVR/CARS shall **NOT use magnetic tape or wire** for recording.

Exam Focus — The 25 / 2 / 25 Pattern

FDR = **25 h**. Standard CVR & data link = **2 h**. But a new CVR on a heavy aircraft (>27,000 kg, C of A on/after 1 Jan 2022) = **25 h**. A common question pairs "FDR 25, CVR 2, data link 2" — that is the correct combination.

SECTION 09

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15 / 37

Oxygen Supply & Protective Breathing Equipment

As an aeroplane climbs, the air thins. Oxygen rules are written around **absolute pressure values**, which correspond to standard-atmosphere altitudes.

Table 9.1 — Pressure / Altitude Equivalents (Standard Atmosphere)

Absolute Pressure	Metres	Feet
700 hPa	3 000 m	10 000 ft
620 hPa	4 000 m	13 000 ft
376 hPa	7 600 m	25 000 ft

9.1 Oxygen Supply — Flights at Altitude

STRICT LIMITATION — PRESSURE BELOW 700 HPA

A flight to be operated at a flight altitude at which the atmospheric pressure in personnel compartments will be **less than 700 hPa** shall **not be commenced** unless sufficient stored breathing oxygen is carried to supply:

- (a) **All crew members and 10% of passengers** — for any period in excess of **30 minutes** that the pressure in the compartment occupied by them will be **between 700 hPa and 620 hPa**; and
- (b) **The crew and passengers** — for any period that the atmospheric pressure in compartments occupied by them will be **less than 620 hPa**.

9.2 Oxygen Supply — Pressurised Aeroplanes

STRICT LIMITATION — LOSS OF PRESSURISATION

A flight to be operated with a **pressurised aeroplane** shall **not be commenced** unless a sufficient quantity of stored breathing oxygen is carried to supply all crew members and passengers — as appropriate to the circumstances of the flight — in the event of **loss of pressurisation**, for any period that the atmospheric pressure in any compartment occupied by them would be **less than 700 hPa**.

In addition, when an aeroplane is operated at flight altitudes at which the atmospheric pressure is **less than 376 hPa** — OR which, if operated at altitudes where the pressure is more than 376 hPa, **cannot descend safely within 4 minutes** to a flight altitude where the atmospheric pressure equals 620 hPa — there shall be **no less than a 10-minute supply** for the occupants of the passenger compartment.

STANDARD REQUIREMENT — PRESSURISATION WARNING DEVICE

Pressurised aeroplanes intended to be operated at flight altitudes where the atmospheric pressure would be **less than 376 hPa** shall be equipped with a device to provide **positive warning to the flight crew of any dangerous loss of pressurisation**.

9.3 Crew Protective Breathing Equipment (PBE)

STRICT REQUIREMENT

An operator shall not operate a **pressurised aeroplane**, OR an **unpressurised aeroplane** with a **MCTOM exceeding 5,700 kg** or having a **maximum approved seating configuration of more than 19 seats**, unless:

1. It has equipment to protect the **eyes, nose and mouth** of each flight crew member while on flight deck duty, and to provide oxygen for a period of **not less than 15 minutes**. The supply for PBE may be provided by the supplemental oxygen required. In addition, when the flight crew is **more than one and a cabin crew member is not carried**, portable PBE must be carried to protect the eyes, nose and mouth of **one member of the flight crew** and to provide breathing gas for not less than **15 minutes**; and
2. It has **sufficient portable PBE** to protect the eyes, nose and mouth of **all required cabin crew members** and to provide breathing gas for a period of **not less than 15 minutes**.

Memory Aid

PBE protects the "**three openings**" — eyes, nose, mouth — for at least **15 minutes**. The 15-minute figure applies to *both* flight crew and cabin crew PBE.

SECTION 10

Emergency & Survival Equipment

10.1 Hand Fire Extinguishers

STANDARD REQUIREMENT

Portable fire extinguishers provided shall be of a type which, when discharged, **will not cause dangerous contamination of the air** within the aeroplane. At least one shall be located in:

- The **pilot's compartment**; and
- Each **passenger compartment** that is separate from the pilot's compartment and that is not readily accessible to the flight crew.

Any portable fire extinguisher fitted in accordance with the Certificate of Airworthiness of the aeroplane may count as one prescribed.

10.2 Crash Axes and Crowbars

STRICT REQUIREMENT

An operator shall not operate an aeroplane with a MCTOM exceeding **5,700 kg**, OR having a maximum approved passenger seating configuration of **more than 9 seats**, unless it is equipped with **at least one crash axe or crowbar located on the flight deck**.

If the maximum approved passenger seating configuration is **more than 200**, an **additional** crash axe or crowbar must be carried and located in or near the **most rearward galley area**.

10.3 Marking of Break-in Points

STANDARD REQUIREMENT

Areas of the fuselage suitable for break-in by rescue crews in an emergency are marked on an aeroplane. The colour of the markings shall be **red or yellow**, and if necessary they shall be **outlined in white** to contrast with the background.

10.4 Means for Emergency Evacuation

STANDARD REQUIREMENT

An operator shall, **for each type of aeroplane**, assign to all flight crew members the necessary functions they are to perform in an emergency or in a situation requiring emergency evacuation. **Annual training** in accomplishing these functions shall be contained in the operator's training programme and shall include instruction in the use of all emergency and lifesaving equipment required to be carried, and drills in the emergency evacuation of the aeroplane.

10.5 Megaphones

STRICT REQUIREMENT

An operator shall not operate an aeroplane with a maximum approved passenger seating configuration of **more than 60** and carrying one or more passengers, unless it is equipped with portable battery-powered megaphones readily accessible for use by crew members during an emergency evacuation, to the following scales:

Table 10.1 — Megaphones Required

Passenger Seating Configuration	Number of Megaphones Required
61 to 99	1
100 or more	2

10.6 Emergency Lighting

STRICT REQUIREMENT

An operator shall not operate a passenger-carrying aeroplane which has a maximum approved passenger seating configuration of **more than 9**, unless it is provided with an **emergency lighting system having an independent power supply** to facilitate the evacuation of the aeroplane.

10.7 Automatic Emergency Locator Transmitter (ELT)

STRICT REQUIREMENT

All aeroplanes shall carry an automatic ELT.

All aeroplanes authorized to carry **more than 19 passengers** shall be equipped with **at least two ELTs**, one of which shall be automatic.

10.8 Life Jackets — Passenger Familiarisation

STANDARD REQUIREMENT

An operator shall ensure that passengers are made **familiar with the location and use of**:

- Seat belts;
- Emergency exits;
- Life jackets, if the carriage of life jackets is prescribed;
- Oxygen dispensing equipment, if the provision of oxygen for passengers is prescribed; and
- Other emergency equipment provided for individual use, including the **passenger emergency briefing card**.

10.9 Life Rafts & Survival ELTs for Extended Over-Water Flights

STRICT REQUIREMENT

On over-water flights, an operator shall not operate an aeroplane at a distance away from land suitable for making an emergency landing without **sufficient life-rafts to carry all persons on board**.

Unless excess rafts of enough capacity are provided, the buoyancy and seating capacity beyond the rated capacity of the rafts must accommodate **all occupants of the aeroplane in the event of a loss of one raft of the largest rated capacity**. The life-rafts shall be equipped with:

- A **survivor locator light**; and
- **Life-saving equipment**, including means of sustaining life as appropriate to the flight, and **at least two survival Emergency Locator Transmitters [ELT(S)]** capable of transmitting on the distress frequencies.

10.10 Survival Equipment — Information for Rescue Coordination Centres

STANDARD REQUIREMENT

Operators shall at all times have available for **immediate communication to rescue coordination centres** lists containing information on the emergency and survival equipment carried on board any of their aeroplanes engaged in international air navigation. The information shall include, as applicable:

- The **number, colour and type** of life rafts and pyrotechnics;
- Details of **emergency medical supplies** and **water supplies**; and
- The **type and frequencies** of the emergency portable radio equipment.

SECTION 11

Communication & Navigation Equipment

11.1 Communication Equipment

STANDARD REQUIREMENT

An aeroplane shall be provided with **radio communication equipment** capable of:

- Conducting **two-way communication for aerodrome control** purposes;
- **Receiving meteorological information** at any time during flight; and
- Conducting **two-way communication at any time during flight** with at least one aeronautical station, and with such other aeronautical stations and on such frequencies as may be prescribed by the appropriate authority.

The radio communication equipment shall provide for communications on the **aeronautical emergency frequency** **121.5 MHz**.

STANDARD REQUIREMENT — RCP-TYPE AIRSPACE

For flights in defined portions of airspace, or on routes where an **RCP (Required Communication Performance)** type has been prescribed, an aeroplane shall:

- Be provided with communication equipment which will enable it to operate in accordance with the prescribed RCP type(s); and
- Be **authorized by the State of the Operator** for operations in such airspace.

11.2 Navigation Equipment

STANDARD REQUIREMENT

An aeroplane shall be provided with navigation equipment which will enable it to proceed:

- In accordance with its **operational flight plan**; and
- In accordance with the **requirements of air traffic services** — except when navigation for flights under the visual flight rules is accomplished by visual reference to landmarks.

STANDARD REQUIREMENT — PBN OPERATIONS

For operations where a **navigation specification for PBN (Performance-Based Navigation)** has been prescribed, an aeroplane shall:

- Be provided with navigation equipment which will enable it to operate in accordance with the prescribed navigation specification(s); and
- Be **authorized by DGCA** for such operations.

DEFINITION — NAT HLA (FORMERLY MNPSA)

The airspace formerly known as the "**North Atlantic Minimum Navigational Specifications Airspace**" (MNPSA) — **FL285–420 inclusive** — is re-designated as the "**North Atlantic High Level Airspace**" (NAT HLA). The re-designation from MNPS to HLA is in keeping with the transition from capability-based navigation (MNPS) to **Performance-Based Navigation (PBN)** in this segment of the NAT airspace.

11.3 Radio Equipment (Survival Radio)

STRICT REQUIREMENT

An aeroplane operated across land areas designated by AAI as areas in which search and rescue would be especially difficult shall be equipped with at least **one survival radio equipment**, stowed so as to facilitate its ready use in an emergency, which:

- Operates on **VHF**;
- Is **portable**;
- Is **not dependent for operation upon the aircraft power supply**; and
- Is **capable of being operated by unskilled persons**.

The aeroplane shall also be equipped with such **signaling devices and life-saving equipment** (including means of sustaining life) as may be appropriate to the area overflown.

11.4 Audio Selector Panel

STRICT REQUIREMENT

An operator shall not operate an aeroplane **under IFR** unless it is equipped with an **audio selector panel accessible to each required flight crew member**.

SECTION 12

Minimum Fuel Requirements

For all aeroplanes (except helicopters), fuel planning is built up from defined "blocks". You must understand each block and the exact rules attached to it.

12.1 Basis of Fuel Calculation

STANDARD REQUIREMENT

The amount of usable fuel carried shall, as a minimum, be based on:

- Current aeroplane-specific data derived from a **fuel consumption monitoring system**, if available; or, if not available, data provided by the **aeroplane manufacturer**; and
- The **operating conditions** for the planned flight — including anticipated aeroplane mass, NOTAMs, current meteorological reports/forecasts, ATS procedures, restrictions and anticipated delays, and the effects of deferred maintenance items and/or configuration deviations.

12.2 The Fuel Blocks

DEFINITION — (A) TAXI FUEL

The amount of fuel expected to be consumed **before take-off**, taking into account local conditions at the departure aerodrome and **APU fuel consumption**.

DEFINITION — (B) TRIP FUEL

The amount of fuel required to enable the aeroplane to fly from take-off (or the point of in-flight re-planning) **until landing at the destination aerodrome**, taking into account the operating conditions.

DEFINITION — (C) CONTINGENCY FUEL

The amount of fuel required to **compensate for unforeseen factors**. It shall be **5% of the planned trip fuel** (or of the fuel required from the point of in-flight re-planning, based on the consumption rate used to plan the trip fuel) — but in **no case** shall it be lower than the amount required to fly for **5 minutes at holding speed at 450 m (1 500 ft)** above the destination aerodrome in standard conditions.

Note — Unforeseen Factors

"Unforeseen factors" are those which could influence fuel consumption to the destination — deviations of an individual aeroplane from expected fuel data, deviations from forecast weather, extended delays, and deviations from planned routings and/or cruising levels.

(d) Destination Alternate Fuel

DEFINITION — (D) DESTINATION ALTERNATE FUEL

1) **Where a destination alternate aerodrome is required** — the amount of fuel required to enable the aeroplane to:

- i) perform a **missed approach** at the destination aerodrome;
- ii) **climb** to the expected cruising altitude;
- iii) **fly** the expected routing;
- iv) **descend** to the point where the expected approach is initiated; and
- v) conduct the **approach and landing** at the destination alternate aerodrome.

2) **Where two destination alternate aerodromes are required** — the amount of fuel required to enable the aeroplane to proceed to the destination alternate aerodrome which requires the **greater amount of alternate fuel**.

3) **Where a flight is operated without a destination alternate aerodrome** — the amount of fuel required to fly for **15 minutes at holding speed at 450 m (1 500 ft)** above destination aerodrome elevation in standard conditions.

4) **Where the aerodrome of intended landing is an isolated aerodrome:**

- vi) for a **reciprocating engine aeroplane** — fuel to fly for **45 minutes plus 15% of the flight time** planned to be spent at cruising level (including final reserve fuel), **or two hours, whichever is less**;
- vii) for a **turbine-engine aeroplane** — fuel to fly for **two hours at normal cruise consumption** above the destination aerodrome (including final reserve fuel).

(e) Final Reserve Fuel

DEFINITION — (E) FINAL RESERVE FUEL

The amount of fuel calculated using the estimated mass on arrival at the destination alternate aerodrome (or the destination aerodrome when no destination alternate is required):

- For a **reciprocating engine aeroplane** — fuel to fly for **45 minutes**, under speed and altitude conditions specified by the State of the Operator;
- For a **turbine-engine aeroplane** — fuel to fly for **30 minutes at holding speed at 450 m (1 500 ft)** above aerodrome elevation in standard conditions.

(f) Additional Fuel

DEFINITION — (F) ADDITIONAL FUEL

The supplementary amount of fuel required if the minimum fuel calculated is not sufficient to:

- Allow the aeroplane to descend as necessary and proceed to an alternate aerodrome in the event of **engine failure or loss of pressurisation** — whichever requires the greater amount of fuel — based on the assumption that such a failure occurs at the **most critical point along the route**; then
- Fly for **15 minutes at holding speed at 450 m (1 500 ft)** above aerodrome elevation in standard conditions; and
- Make an approach and landing.

It must also allow an aeroplane engaged in **EDTO** to comply with the EDTO critical fuel scenario as established by the State of the Operator, and meet additional requirements not covered above.

DEFINITION — EXTENDED DIVERSION TIME OPERATIONS (EDTO)

Any operation by an aeroplane with **two or more turbine engines** where the diversion time to an en-route alternate aerodrome is **greater than the threshold time** established by the State of the Operator.

(g) Discretionary Fuel

DEFINITION — (G) DISCRETIONARY FUEL

The extra amount of fuel to be carried at the discretion of the pilot-in-command.

BUILD-UP OF USABLE FUEL REQUIRED

```
graph TD
    A["TAXI FUEL  
before take-off + APU"] --> B["TRIP FUEL  
take-off to destination"]
    B --> C["CONTINGENCY FUEL  
5% of trip fuel – min 5 min  
holding at 1500 ft"]
    C --> D["DESTINATION ALTERNATE FUEL  
missed approach + climb + cruise  
+ descent + approach & land"]
    D --> E["FINAL RESERVE FUEL  
Turbine: 30 min holding at 1500 ft  
Recip: 45 min"]
    E --> F["ADDITIONAL FUEL  
engine-out / depressurisation  
+ EDTO critical scenario"]
    F --> G["DISCRETIONARY FUEL  
extra – PIC's discretion"]
```

style A fill:#e8f1fb,stroke:#1f5fa8,color:#0d2a4a
style C fill:#fdecec,stroke:#c0392b,color:#0d2a4a
style E fill:#fdecec,stroke:#c0392b,color:#0d2a4a
style G fill:#1e7d34,color:#fff,stroke:#1e7d34

Exam Focus — Key Fuel Numbers

Contingency = 5% of trip fuel (floor: 5 min holding). Final reserve — **turbine 30 min, recip 45 min**. No-alternate destination fuel = **15 min holding**. Holding height in every case = **450 m / 1 500 ft**.

SECTION 13

Flight Crew & Flight Duty Time Limitations (FDTL)

Fatigue is a flight-safety hazard. FDTL rules set the maximum a crew may legally work and the minimum rest they must receive. Every figure below is examinable.

13.1 The Governing Regulation

DEFINITION — CAR SECTION 7, SERIES J

Civil Aviation Requirement Section 7 — Flight Crew Standards, Training and Licensing, Series J (in three parts) prescribes the **maximum limits of Flight Time, Flight Duty Period, Duty Period** and the **minimum Rest Period** applicable to all flight crew and cabin crew of **Scheduled, Non-Scheduled, General Aviation and Scheduled Commuter** Air Transport Services.

RULE 42A OF THE AIRCRAFT RULES, 1937 — FATIGUE MANAGEMENT

1. Taking into account the likely impact of fatigue on alertness, the **maximum limits of flight time, flight duty period and duty period** of flight and cabin crew, and the **minimum rest periods**, may be specified by the Director-General.
2. **No flight or cabin crew member** of a flying machine registered in India, or wet-leased by an Indian operator, shall **contravene the limitations stipulated by the Director-General**.
3. Every Indian operator shall establish a scheme of flight and duty time limitations and minimum rest periods in accordance with the stipulations made by the Director-General, submit it for approval, and — after approval — such scheme shall form part of the **Operations Manual** of the operator.

Reference Note

The figures that follow are highlights of **CAR Series J, Part III, Issue III, Rev 2, dated 26 Mar 2024**, for flight crew engaged in Scheduled Air Transport Operations. For other operations, refer to Series J Parts I, II and IV.

13.2 Crew Member Categories

DEFINITION — CABIN CREW MEMBER

Crew who perform duties in the interest of the safety of passengers, and duties assigned by the operator and the pilot-in-command — but who **shall not act as a flight crew member**.

DEFINITION — FLIGHT CREW MEMBER

A **licensed** crew member charged with duties **essential to the operation of an aircraft** during a flight duty period.

DEFINITION — SCHEDULED COMMUTER OPERATORS

Operators permitted to operate aircraft weighing **up to 40,000 kg**. They are permitted to operate commercial flights between two or more local destinations, **except the Category I cities**, which include: Mumbai Int'l, Kolkata Int'l, Delhi Int'l, Bangalore Int'l, Hyderabad Int'l, Thiruvananthapuram and Chennai.

13.3 FDTL Definitions — Essential Vocabulary

DEFINITION — ACCLIMATIZED

A state in which a crew member's **circadian biological clock** is **synchronised** to the time zone where the crew member is. A crew member is considered acclimatized to a **3-hour-wide time zone** surrounding the local time at the point of departure. When the local time at the place where a flight duty commences differs by **more than 3 hours** from the local time where the next duty starts, the crew member — for calculating the maximum daily FDP — is considered acclimatized to the **departure time zone for the first 48 hours**. After 48 hours, the crew member is considered acclimatized to the local time where they start the next duty.

DEFINITION — ACCOMMODATION

For the purpose of standby and split duty — a **quiet and comfortable place not open to the public**, with the ability to control light and temperature, equipped with adequate furniture providing a crew member with the possibility to sleep, with enough capacity to accommodate all crew members present, and with access to food and drink.

DEFINITION — SUITABLE ACCOMMODATION

For the purpose of standby, split duty and rest — a **separate room for each crew member** located in a quiet environment, equipped with a **bed**, sufficiently ventilated, with a device for regulating temperature and light intensity, and with access to food and drink.

DEFINITION — AUGMENTED FLIGHT CREW

A flight crew which comprises **more than the minimum number required** to operate the aircraft, allowing each flight crew member to leave the assigned post for the purpose of **in-flight rest** and to be replaced by another flight crew member of **equal or higher qualification**.

DEFINITION — DUTY

Any task that flight crew members are required by the operator to perform — including flight duty, administrative work, training, positioning and standby when it is likely to induce fatigue.

DEFINITION — DUTY PERIOD

A period which **starts when a flight crew member is required by an operator to report for, or to commence, a duty** and **ends when that person is free from all duties**.

DEFINITION — FLIGHT DUTY PERIOD (FDP)

A period intended to cover a continuous period of duty that **always includes a flight or series of flights**. It **commences when a flight crew member is required to report for duty** and **finishes at engine(s) off at the end of the last flight** on which he/she is a flight crew member.

DEFINITION — FLIGHT TIME

The total time from the moment an aeroplane **first moves for the purpose of taking off** until the moment it **finally comes to rest at the end of the flight**. *Note:* "Flight time" is synonymous with "**block-to-block**" or "**chocks-to-chocks**" time.

DEFINITION — MIXED DUTY

When a crew member is required to report for a duty **in advance of the stipulated reporting time**, for a scheduled flight or series of flights, to carry out a duty at the behest of the operator — the time spent on that duty shall be **part of the subsequent FDP**.

DEFINITION — FATIGUE

A **physiological state of reduced mental or physical performance capability** resulting from sleep loss or extended wakefulness, circadian phase, or workload, that can impair a crew member's alertness and ability to safely operate an aircraft or perform safety-related duties.

DEFINITION — HOME BASE

The location nominated by the operator, having a **high degree of permanence**, from which the crew member normally starts and ends a flight duty or a series of flight duty periods.

DEFINITION — TEMPORARY HOME BASE

The place of posting by the operator where the crew operates and starts a series of Duty Cycles, and which is **not the same as Home Base**.

DEFINITION — LOCAL DAY

A 24-hour period commencing at **00:00 local time**.

DEFINITION — LOCAL NIGHT

A period of **8 hours** falling between **2200 hours and 0800 hours** local time.

DEFINITION — NIGHT DUTY

Any Duty Period encroaching upon any portion of the time period between **0000 hrs and 0600 hrs** in the time zone to which the crew is acclimatized.

DEFINITION — OPERATING CREW MEMBER

A crew member **carrying out duties in an aircraft during a sector**.

DEFINITION — POSITIONING

The transferring of a **non-operating** flight crew member from place to place at the behest of the operator. *Note:* "Positioning" is synonymous with "**Deadheading**".

DEFINITION — REPORTING TIME

The time at which a flight crew member is required by an operator to **report for duty**.

DEFINITION — REST PERIOD

A **continuous, uninterrupted and defined period of time**, subsequent to or prior to duty, during which a flight crew member is **free from all duties, standby and reserve**.

DEFINITION — REST FACILITY

A **bunk or seat with leg and foot support** suitable for crew members' sleeping on board an aircraft.

DEFINITION — ROSTER

A list provided by an operator of the times when a flight crew member is required to undertake duties. *Note:* "Roster" is synonymous with "**Schedule**", "**Line of Time**", "**Pattern**" and "**Rotation**".

DEFINITION — STANDBY

A defined period of time during which a flight crew member is required by the operator to be **available to receive an assignment** for a specific duty **without an intervening rest period**.

DEFINITION — SECTOR

The segment of a Flight Duty Period between an aircraft **first moving for the purpose of taking off until it comes to rest after landing** on the designated parking position.

DEFINITION — TIME ZONE

A defined region of the earth with a uniform local time which differs by **one hour, or part of one hour**, from the uniform local time of an adjoining region — irrespective of season.

DEFINITION — TRAINING FLIGHTS

Flights for the purpose of **Base Training, Familiarization, and Conducting Aircraft Training and Checks** (Skill Test / IR / PPC).

DEFINITION — UNFORESEEN OPERATIONAL CIRCUMSTANCE

An **unplanned event** — such as unforeseen weather, natural calamity, medical emergency, national requirement for relief and rescue operations (mission oriented), equipment malfunction, runway closure, passenger or aircraft security, etc. — that is **beyond the control of the operator**.

DEFINITION — ULTRA LONG RANGE (ULR) OPERATIONS

Continuous non-stop flights between a specific city pair, involving any sector having a **flight time of over 14 hours** — and flight duty periods of up to **22 hours** — at any time during a calendar year, taking into account the mean and seasonal wind changes. ULR operations apply to **both sectors** of a city pair.

DEFINITION — IN-FLIGHT REST PERIOD

A period of time within a flight duty time which is given to a crew member to **rest before recommencing duty**.

DEFINITION — WINDOW OF CIRCADIAN LOW (WOCL)

A period between **0200h and 0600h** in the time zone to which a crew member is acclimatized. This window is calculated from scientific data on the circadian low of performance, alertness (peak fatigue) and body temperature.

13.4 Operator's Responsibility

STANDARD REQUIREMENT

- Every operator shall establish a **scheme** for complying with the limitations for Flight Time, FDP, Duty Periods and Rest Periods specified in the CAR.
- Each operator shall prepare the Flight Crew **Roster sufficiently in advance**. The roster should be published **at least for a 7-day period**, and the **weekly rest shall be printed** on the published roster.
- Every operator shall assign a **Home Base / Temporary Home Base** to each flight crew member — **minimum duration 7 days, maximum recommended 28 days**.

13.5 Responsibility of the Flight Crew Member

CREW MEMBER'S DUTY

- No flight crew member may **accept an assignment which exceeds the prescribed limitation**.
- Flight crew members shall make best use of the facilities and opportunities provided for **rest and meals**, and shall plan and use rest periods to ensure they are fully rested.
- A flight crew member **shall not perform flight crew duties** on a flight if it is known or suspected that the crew member is **fatigued to the extent that the safety of flight may be adversely affected**.

13.6 Flight Time & FDP Limits — Two-Pilot Operation

The maximum flight time and maximum flight duty period during any 24 hours for a two-pilot crew:

Table 13.1 — FT & FDP Limits: Two-Pilot Operation

Maximum Flight Time	Maximum Flight Duty Period (Hours)	Maximum Number of Landings
8 Hrs	11:00	6
	11:30	5
	12:00	4
	12:30	3
9 Hrs	13:00	2
10 Hrs	13:00	1
For Operations Encroaching Upon Night		
8 Hrs	10:00	2

Reading the Table

For a 2-crew international scheduled flight, the basic entry is **FDP 11:00 hrs, Flight Time 8 hrs, 6 landings**. As you trade FDP for more flying, landings drop — more flying hours allowed means fewer landings permitted. Operations encroaching on night are stricter: FDP capped at **10:00 hrs** with only **2 landings**.

13.7 Flight Time & FDP Limits — Augmented Crew

An augmented crew carries extra pilots so each can take in-flight rest. This permits longer limits:

Table 13.2 — FT & FDP Limits: Augmented Crew (any 24 hrs)

Crew	Max Flight Time	Max FDP — Bunk	Max FDP — Isolated Rest Seat	Max FDP — Basic Rest Seat	Max Landings
3 Crew Operations	12 Hrs	16 Hrs	15 Hrs	14 Hrs	2
4 Crew Operations	14 Hrs	18 Hrs	16 Hrs	NA	1
Above 14 hrs (ULR) — 4 Crew Operations	17 Hrs	21 Hrs	NA	NA	1

Memory Aid

Join live classes for guided practice and doubt clearing.

Better rest facility = longer FDP allowed. A **Bunk** (lie-flat) always permits the highest FDP; an **Isolated Rest Seat** is next; a **Basic Rest Seat** the least — and is **not available (NA)** for 4-crew or ULR operations.

13.8 Maximum Cumulative Flight Time & Duty Period Limitations

Table 13.3 — Cumulative FT & Duty Period Limits

Period	Maximum Flight Time (Hours)	Maximum Cumulative Duty Period
In 7 consecutive days	35	60
In 14 consecutive days	65	100
In 28 consecutive days	100	190
In 90 consecutive days	300	600
In 365 consecutive days	1000	1800

Exam Focus — Lock These In

Flight Time: 7 days → 35 h, 28 days → 100 h, 90 days → 300 h, 365 days → 1000 h. A pilot can fly 100 hrs in 28 consecutive days and 1000 hrs in 365 consecutive days — both are classic MCQ answers.

13.9 Unforeseen Operational Circumstances — Extensions

"Flight Time", "Flight Duty Period", "Landing" and "Consecutive Night" may be extended due to unforeseen operational circumstances as follows:

STRICT LIMITATION — PERMITTED EXTENSIONS

- (a) Flight Time — by a maximum of **01 hour**.
- (b) FDP — by a maximum of **02 hours**.
- (c) Only **one extra landing** may be carried out in the event of a diversion to complete the flight, including a consecutive night for completion of the flight.
- (d) The above is subject to a cumulative limit of maximum **04 hours** (Flight Time) and maximum **08 hours** (FDP) during any period of **28 consecutive days**.
- (e) In the event of FDP extension up to 01 hour, OR Flight Time extension up to 30 minutes — the **rest shall increase by 02 hours**.
- (f) In the event of FDP extension beyond 01 hour, OR Flight Time extension beyond 30 minutes — the **rest shall increase by 04 hours**.
- (g) Extension of the maximum basic FDP **shall not be combined with split duty** in the same duty period.
- (h) If no flight time is utilized after commencement of FDP (reporting), the crew can be utilized after a minimum of **twice the time period spent after reporting**, subject to a minimum limit of **12 hours of rest**.

STANDARD PROCEDURE — CONSENT & REPORTING

The PIC, in consultation with the other flight crew members, will convey their willingness or consent to the Head of Operations for operating the flight. The Head of Operations will submit a **quarterly report to the DGCA** on all extensions granted. Cumulative Flight Time and Duty Time Limitations can be increased — as per (a) and (b) above — for the 7, 14, 28 and 90 consecutive-day maximums specified.

13.10 Records

STRICT REQUIREMENT

Records shall be kept for **18 months** of the duties performed and the rest periods provided, so as to facilitate inspection by the operator's authorized personnel and surveillance/audit by DGCA officers. The records may be made available to flight crew on request.

SECTION 14

Practice Questions & Answer Key

Attempt each question before checking the answer key. These are the exact questions from the chapter — use them to confirm you have retained the regulatory numbers.

1. Flight Duty Period and Flight Time Limit for a 2-crew international scheduled flight is ____ hrs, ____ hrs and ____ landings.

- A) 11, 8 and 6.
- B) 12, 8 and 5.
- C) 13, 8 and 4.

2. Route guides are required to be carried in

- A) All aircraft
- B) All private aircraft
- C) Aircraft involved in scheduled transport services

3. The duty time of the trainee pilot:

- A) Is calculated as per the Flight Time and Flight Duty Period Limit
- B) Is not affected by the Flight Duty Period and Flight Time Limit
- C) Is the time calculated from take-off to landing

4. A pilot can fly in 28 consecutive days

- A) 100 hrs PIC & 50 hrs as Co-pilot
- B) 100 hrs
- C) 120 hrs

5. Flight Manual is to be carried by

- A) All aircraft
- B) Scheduled aircraft only
- C) If C of A states so

6. A pvt. aircraft from Chennai to Colombo is required to carry on board.

- A) Journey log book.
- B) Route Guide
- C) All of the above

7. The maximum duty time limit per day extension for a scheduled flight is

- A) 1.5 hrs
- B) 2 hrs
- C) 3 hrs

8. Max flying hours for a flight crew in 90 consecutive days is:

- A) 200 hrs.
- B) 300 hrs
- C) 330 hrs

9. With regard to flight time limitations, "flight time" means:

- A) The total time from when an aircraft first moves under its own power for the purpose of taking off until it comes to rest after the flight
- B) The time between take-off and landing
- C) The time between an aircraft starting to move and coming to a complete stop plus one and a half hours

10. The maximum permitted flight time for flight crew is:

- A) 81 hours in the 27 days prior to the flight
- B) 120 hours in the 27 days before the current flight
- C) 1000 hours in 365 consecutive days

11. A flight to be operated with a pressurized aeroplane will not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply:

- A) All crew members
- B) All crew members and passengers
- C) All crew members and passengers, when the atmospheric pressure in any compartment occupied by them is less than 700 hPa

12. Emergency and cockpit check list is to be carried by

- A) All a/c
- B) Scheduled a/c
- C) Non-scheduled a/c

13. Number of first aid kits to be carried on board an aircraft carrying 250 passengers is:

- A) 1
- B) 2
- C) 3

14. No person, other than a flight crew member assigned to a flight, is admitted to, or carried in, the flight deck unless that person is:

- A) A security staff
- B) An operating crew member
- C) Representative of the Operator

15. Low Visibility Procedures (LVP) are applied at an aerodrome for the purpose of ensuring safe operations during

- A) Category I, Category II and III approaches
- B) Low Visibility Take-offs
- C) Severe thunder showers

16. For an unplanned event, such as unforecast weather, equipment malfunction, or air traffic delay that is beyond the control of the operator, 'Flight Time' and 'Flight Duty Period' for scheduled operations may be extended as follows:

- A) Flight Time by max 2 hours and FDP by max 4 hours, subject to a cumulative limit of max 8 hours and max 16 hours respectively in 30 consecutive days.
- B) Flight Time by max 4 hours and FDP by max 8 hours.
- C) Flight Time by max 1 hour and FDP by max 2 hours

17. Minimum trip fuel required shall be the amount of fuel required to enable the aeroplane to fly from take-off or the point of in-flight re-planning,

- A) until landing at the destination aerodrome taking into account the operating conditions.
- B) until overhead the destination aerodrome taking into account the operating conditions.
- C) until overhead the destination aerodrome taking into account the fuel required to go to a diversion.

18. Scheduled operators may be authorized LVTO minima of up to:

- A) 400 m
- B) 200 m
- C) 125 m

19. If, after commencing an instrument approach, the reported RVR/Visibility falls below the applicable minimum, the approach shall not be continued:

- A) below MDA/DA, as applicable
- B) below AOM published for the aerodrome.
- C) below 1 000 ft above the aerodrome.

20. All FDRs shall be capable of retaining the information recorded during at least the last ____ hours of their operation. CVRs at least ____ hrs and Data link recorders shall be capable of retaining the information recorded during at least the last ____ hours of their operation.

- A) 24, 2, 4
- B) 25, 2, 2
- C) 25, 3, 2

21. Filed minima is 300 m. Touch down zone RVR is 400 m. Relevant mid-point RVR is 100 m and stop-end RVR 300 m. The runway is:

- A) Below minima
- B) Within minima
- C) Equal to minima.

22. CARS is a:

- A) Light weight voice recorder.
- B) Heavy weight flight recorder.
- C) Crash protected flight recorder.

Answer Key

Table 14.1 — Answers (Questions 1–14)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	A	A	B	A	C	B	B	A	C	C	A	C	B

Table 14.2 — Answers (Questions 15–22)

15	16	17	18	19	20	21	22
B	C	A	C	C	B	A	A

Reasoning Behind Tricky Answers

Q1 (A): Basic 2-crew FDP entry — 11 hrs FDP, 8 hrs FT, 6 landings. Q7 / Q16 (C): Unforeseen circumstances allow FT +1 hr, FDP +2 hrs. Q13 (C): 250 pax sits in the 200–299 band → 3 kits. Q20 (B): FDR 25 h, CVR 2 h, data link 2 h. Q21 (A): mid-point 100 m is below the 125 m minimum → runway below minima. Q22 (A): CARS = Cockpit Audio Recording System, a *lightweight* recorder.