1 All aeroplanes which individual certificates of airworthiness were issued after 1 January 1989 must be fitted with a flight data recorder when their maximum certificated take-off mass is greater than:

A 20 000 kg
B 27 000 kg
C 5 700 kg
D 14 000 kg

2 The operator shall include in the operations manual a minimum equipment list which shall be approved by the authority of:

A None, no approval is required.
B The country where the aircraft is operated.
C The country where the aircraft was manufactured.
D The country of the operator.

3 At the alternate aerodrome, the commander of a turbojet engine aeroplane should have a fuel quantity (final reserve) sufficient for flying during:

A 30 minutes at holding flight speed at 1500 ft
B 45 minutes at holding flight speed at 1500 ft
C 30 minutes at cruising speed
D 45 minutes at cruising speed

4 JAR OPS 1.465 (VFR Operating minima), establishes that, the operator shall ensure about VFR flights, that:

A for conducted VFR flights in airspace F, vertical distance from clouds is 250 m at least
B for conducted VFR flights in airspace E, flight visibility at and above 3 050 m. (10 000 ft) is 5 km at least (clear of cloud)
C special VFR flights are not commenced when visibility is less than 3 km
D for conducted VFR flights in airspace B, horizontal distance from clouds is 1 000 m at least

5 A category D aeroplane can carry out a circling approach only if the meteorological visibility is higher than or equal to:

A 1500 m
B 1600 m
C 2400 m
D 3600 m

6 A public transport aircraft is intended to be operated at FL 390. The total number of oxygen masks (dispensing units and outlets) in the cabin must be at least the same as the total number of:

A seats exceeded by 10%.
B seats.
C passengers.
D passengers exceeded by 10%.

7 In accordance with JAR-OPS, for a pressurised aeroplane, the minimum requirement for supplemental oxygen needed to supply 100 % of the passengers following a cabin pressurisation failure, is:

- **A** the entire flight time where the cabin pressure altitude exceeds 15000 ft, but in no case less than 10 minutes.
- **B** 30 minutes.
- **C** the entire flight time when the cabin pressure altitude exceeds 13000 ft.
- **D** the entire flight time after 30 minutes at pressure altitude greater than 10000 ft but not exceeding 13000ft.

8 An aeroplane whose maximum approved passenger seating configuration is 7 to 30 seats must be equipped with at least:

- **A** 1 hand fire-extinguisher conveniently located in the passenger compartment.
- **B** 2 hand fire-extinguishers conveniently located in the passenger compartment.
- **C** 3 hand fire-extinguishers conveniently located in the passenger compartment.
- **D** 4 hand fire-extinguishers conveniently located in the passenger compartment.

9 The recent experience conditions of a commander assigned to a flight on an aircraft by an operator must not be less than:

- **A** 6 take-offs and 6 landings as pilot flying on the same type of aircraft or approved simulator
- **B** 3 take-offs and 3 landings as pilot flying on the same type of aircraft or approved simulator in the preceding 90 days
- **C** 3 take-offs and 3 landings on this type of aircraft during the last 6 months
- **D** 6 take-offs and 6 landings during the last 6 months

10 Posit:

g, the longitude difference
Lm, the average latitude
Lo, the latitude of the tangent

The correct formula of the conversion angle applied, during a transoceanic and polar navigation, is equal to:

- **A** g/2.sin Lm
- **B** 15°/h.sin Lm
- **C** g.sin Lm
- **D** g.(sin Lm-sin Lo)

11 Astronomic precession:

- **A** causes the gyro axis to spin to the right in the Northern hemisphere
- **B** causes the gyro axis to spin to the left in the Northern hemisphere
- **C** is zero at the North pole
- **D** is zero at the South pole

12 The frequency designated for VHF air to air communications when out of range of VHF ground stations in NAT region is:

A 118.5 MHz.
B 243 MHz.
C 121.5 MHz.
D 123.45 MHz.

13 In the Airspace where the MNPS is applicable, the vertical separation that can be applied between FL 290 and FL410 inclusive is:

A 500 ft
B 1 000 ft
C 1 500 ft
D 2000ft

14 Minimum Navigation Performance Specification (MNPS) airspace of the North Atlantic is defined within:

A flight levels 270 and 400 from the equator to the pole
B flight levels 285 and 420 from the 27° North to the pole
C flight levels 280 and 475 from 27° North to the pole
D sea level and FL660 from 27° North to the pole

15 The minimum equipment list (MEL) gives the equipment which can be inoperative when undertaking a flight and the additional procedures to be observed accordingly. This list is prepared by:

A the operator, and it is inserted in the operations manual
B the manufacturer, and it is inserted in the operations manual
C the operator, and it is appended to the flight manual
D the manufacturer, and it is appended to the flight manual

16 When taking-off, in winter conditions, the wing contamination by ice or frost will cause the following effects:

1 - an increase in the take-off distance
2 - a decrease of the take-off run
3 - an increase in the stalling speed
4 - a decrease of the stalling speed
5 - a decrease of the climb gradient

The combination regrouping all the correct statements is:

A 1, 3, 5
B 2, 4, 5
C 1, 2, 3
D 2, 3, 5

17 In accordance with JAR OPS, the noise abatement procedures specified by the operator should be:

A for all aeroplane types, the same for a specific aerodrome.
B for an aeroplane type, the same for all aerodromes.
C different according to aerodromes and aeroplane types.
D for all aeroplane types, the same for all aerodromes.

18 You will use a CO2 fire-extinguisher for:

1. a paper fire
2. a plastic fire
3. a hydrocarbon fire
4. an electrical fire

The combination regrouping all the correct statements is:

A 3,4
B 1,2,3,4
C 2,3
D 1,2,3

19 A fire occurs in a wheel and immediate action is required to extinguish it. The safest extinguishant to use is:

A dry powder
B water
C CO2 (carbon dioxide)
D foam

20 An aeroplane suffers an explosive decompression at an altitude of 31000 ft . What is the initial action by the operating crew ?

A to put on oxygen masks
B disconnect the autopilot
C transmit a MAYDAY message
D place the seat belts sign to ON

21 An aircraft which experiences a headwind of 40 kt while making its way towards the centre of a microburst may expect, when crossing the microburst, to face a windshear of:

A 20 kt.
B 60 kt.
C 40 kt.
D 80 kt.

22 The wake turbulence:

A starts when pulling out the drag devices and stops when retracting the drag devices.
B starts when the aeroplane reaches a height of 35 ft above the ground and stops when it crosses this height before landing.
C starts as soon as the aeroplane commences rolling and stops as soon as it has come to a stop at landing.
D starts at rotation and stops as soon as the aeroplane's wheels touch the ground.

23 In case of a hi-jack, the squawk code is:

A A 2000
B A 7700
C A 7600
D A 7500

24 A list of dangerous goods, which may not be transported by air, can be found in:

A the technical instructions for the safe transport of dangerous goods by air.
B Annex 18 to the Chicago Convention.
C Annex 6 to the Chicago Convention.
D the shipper's declaration for dangerous goods.

25 A runway covered with 4 mm thick water, is said to be:

A flooded.
B damp.
C contaminated.
D wet.

1. Question 1 and we have a problem – there must be a misprint!

   EITHER the question should specify "All Turbine-powered aeroplanes first issued with a C of A after 1 Jan 89"

   OR the date specified in the question should be 1 Jun 90….then "All aeroplanes" is correct.

   For both of these, an FDR is required if the Maximum Certificated Take-off mass is greater than 5700 kg. so, answer (c) is the closest, but not quite!

   Answer (c)

2. OP notes page 4.1 The MEL must be approved by the Authority of the State of the Operator.

   Answer (d)

3. OP notes 5.14 ….30 minutes at 1500ft above the destination alternate.

   Answer (a)

4. Op notes page 5.2 Special VFR flights should not be commenced when the visibility is less than 3 km.

   Answer (c)

5. OP notes page 7.7 You need to know all the approach minima. Answer (d)

6. OP notes page 4.11 Number of Masks must be at least the number of seats + 10%

   Answer (a)

7. OP notes page 13.3 100% of the passengers – entire flight time above 15000ft, but in no case less than 10 minutes. This is the requirement for a PRESSURISED aeroplane.

   Answer (a)

   (Another useful fact for the Exam - In a NON-PRESSURISED aeroplane – 100% of the passengers above 13000ft.

8. OP notes pages 4.5 and 4.6 The question asks about fire extinguishers in the "passenger compartment"….7-30 seats, answer 1.

   Answer (a)

   (Beware the wording…if the question had asked about the number in the "aeroplane," add an extra one for the cockpit. Curent exams all seem to specify the passenger compartment)

9. OP notes page 2.8 To operate as commander…..at least 3 take-offs and landings as pilot flying.

   Answer (b)

10. ‘Posit’ comes from the Latin *positus* meaning ‘it is put in place’. I guess the best translation is ‘Given:’

    The forumula we learn for earth convergency is:

    Convergency = change of long x sine mean latitude

    using the given terms,

    Convergency = g x sine Lm or
    = g.sin Lm, which is a shorthand version of the same thing.

    Conversion angle is half convergency so

    Conversion angle = (g.sin Lm)/2

    This is not quite the same as g/2.sin Lm which easily could be interpreted as being g/(2 sin Lm) but its all we’ve got so, reluctantly,

    Answer (a)

11. Astronomic precession means Earth Rate – a Negative error in the Northern Hemisphere. a horizontal gyro axis will spin to the left when viewed from above. The gyro animation sequence on the CD shows this well.

    Answer (a)

12. OP notes page 9.22 Air to air comms – 123.45 MHz

    Answer (d)

13. OP notes pages 9.10 and 9.11 Within MNPS airspace (FL285 – FL420)– vertical separation 2000ft…but the question specifies FL290 – FL410, which is RVSM airspace, so vertical separation is 1000ft.

    Answer (b)

14. OP notes page 9.10 FLs 285 – 420, Canary Islands (27°N) to the North Pole.

    Answer (b)

15. OP notes page 4.1 The Operator establishes an MEL – approved by the Authority, it is part of the Operations Manual. The MEL is based on the MMEL – written by the manufacturer.

    Answer (a)

16. OP notes page 11.1 Ice increases weight and disrupts air flow…..therefore it *increases* Take-off run, *decreases* climb gradient, and *increases* stall speed.

    Answer (a)

17. Noise abatement procedures are detailed in the OP notes pages 6.4…. Make sure your notes have ICAO Procedure 1 and 2 (Procedure A and B are no more). However, this question is not quite covered by the notes – there is an extra paragraph in JAR OPS that states:

    'An operator must establish procedures for noise abatement iaw ICAO PANS OPS. Take-off climb procedures for noise abatement specified by an operator for any one aeroplane type should be the same for all aerodromes'.

    Answer (b)

18. OP notes pages 14.18 and 14.19 CO_2 on Engine and electrical – second choice for brake, also Class B (fuel/electrical)and C (gas). One problem here is the definition of a hydrocarbon – I'm assuming they mean fuel. Some of these fire extinguisher questions may be a little ambiguous – go for the "best fit" solution.

    Answer (a)

19. OP notes pages 14.18 and 14.19 By "Wheel fire" I assume they mean brake fire, so DRY POWDER would be best.

    Answer (a)

20. OP notes page 13.1 After a decompression the first initial action by operating crew is *always* to put on their oxygen masks.

    Answer (a)

21. OP notes page 10.5 A 40 kt headwind component may well become a 40 kt tailwind component as the aircraft crosses the microburst. Hence a windshear of 80 kt.

    Answer (d)

22. OP notes pages 10.8 and 10.9. Wake turbulence is formed due to pressure differential between upper and lower surfaces of the wing – hence it is present from rotation to touchdown in differing levels of severity.

    Answer (d)

23. Hi-jack – squawk 7500 Answer (d)

24. OP notes page 16.1 General regulations in ICAO Annex 18. Answer (b)

25. OP notes page 12.1 A runway is considered contaminated when 25% of the surface is covered in more than 3mm of water or equivalent in wet snow or slush.

    Answer (c)

    (A WET runway has a reflective surface, a DAMP runway has moisture, but is not reflective)