8316. The circumference of the Earth is approximately:

A – 43200 nm
B – 10800 nm
C – 21600 nm
D – 5400 nm

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8331. In order to fly from position A (10º00N, 030º00W) to position B (30º00N), 050º00W), maintaining a constant true course, it is necessary to fly:

A – the great-circle route
B – the constant average drift route
C – a rhumb line track
D – a straight line plotted on a Lambert chart

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8332. The diameter of the Earth is approximately:

A – 18 500 km
B – 6 350 km
C – 12 700 km
D – 40 000 km

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

9738. At what approximate date is the earth closest to the sun (perihelion)?

A – End of June
B – End of March
C – Beginning of July
D – Beginning of January

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

9818. The angle between the plane of the ecliptic and the plane of equator is approximately:

A – 27.5°
B – 25.3°
C – 23.5°
D – 66.5°

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

10899. Given:
The coordinates of the heliport at Issy les Moulineaux are:
N48°50 E002°16.5
The coordinates of the antipodes are:

A – S41°10 W177°43.5
B – S48°50 E177°43.5
C – S48°50 W177°43.5
D – S41°10 E177°43.5

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

10901. An aircraft at latitude 02°20N tracks 180°(T) for 685 nm. On completion of the flight the latitude will be:

A – 09°50S
B – 04°10S
C – 04°30S
D – 09°05S

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

10919. An aircraft departing A(N40° 00'E080°00') flies a constant true track of 270° at a ground speed of 120 kt. What are the coordinates of the position reached in 6 HR?

A – N40° 00' E068° 10'
B – N40° 00' E064° 20'
C – N40° 00' E070° 30'
D – N40° 00' E060° 00'

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

16319. A Parallel of Latitude is a:

A – Great circle
B – Rhumb line
C – Small circle
D – Meridian of tangency

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

16320. The shortest distance between 2 point of the surface of the earth is:

A – a great circle
B – the arc of a great circle
C – half the rhumb line distance
D – Rhumb line

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

16321. Conversion angle is:

A – convergency
B – 4 times convergency
C – twice convergency
D - 0.5 convergency

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

16322. Generally what line lies closer to the pole?

A – Rhumb line
B – Orthodromic line
C – Equator
D – The rhumb line or great circle depending on the chart used

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

25148. The Earth is:

A – A sphere which has a larger polar circumference than equatorial circumference
B – A sphere whose centre is equidistant (the same distance) from the Poles and the Equator
C – Considered to be a perfect sphere as far as navigation is concerned
D – None of the above statements is correct

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

25187. At what time of the year is the Earth at its furthest point from the sun (aphelion)?

A – Early July
B – Late December
C – Early January
D – Mid-June

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

061-01-03 Time and time conversions

8254. (Refer to figure 061-14)

When it is 1000 Standard Time in Kuwait, the Standard time in Algeria :

A – 0700
B – 1200
C – 1300
D – 0800

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

8398. The angle between True North and Magnetic North is called:

A – compass error
B – deviation
C – variation
D – drift

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8408. The value of magnetic variation on a chart changes with time. This is due to:

A – movement of the magnetic poles, causing an increase
B – increase in the magnetic field, causing an increase
C – reduction in the magnetic field, causing a decrease
D – movement of the magnetic poles, which can cause either an increase or a decrease

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

8414. Given:

True track is 348°
Drift 17° left
Variation 32°W
Deviation 4°E
What is the compass heading?

A – 007°
B – 033°
C – 359°
D – 337°

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

9740. An Agonic line is a line that connects:

A – positions that have the same variation
B – positions that have 0° variation
C – points of equal magnetic dip
D – points of equal magnetic horizontal field strength

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

9744. The Earth can be considered as being a magnet with the:

A – blue pole near the north pole of the earth and the direction of the magnetic force pointing straight up from the earth's surface
B – red pole near the north pole of the earth and the direction of the magnetic force pointing straight down to the earth's surface
C – blue pole near the north pole of the earth and the direction of the magnetic force pointing straight down to the earth's surface
D – red pole near the north pole of the earth and the direction of the magnetic force pointing straight up from the earth's surface

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

9771. When is the magnetic compass most effective?

A - In the region of the magnetic South Pole
B – About midway between the magnetic poles
C – In the region of the magnetic North Pole
D – On the geographic equator

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

9780. At the magnetic equator:

A – dip is zero
B – variation is zero
C – deviation is zero
D – the isogonal is an agonic line

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

8372. The direct reading magnetic compass is made aperiodic (dead beat) by:

A – using the lowest acceptable viscosity compass liquid
B – keeping the magnetic assembly mass close to the compass point and by using damping wires
C – using long magnets
D – pendulous suspension of the magnetic assembly

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

8384. The main reason for usually mounting the detector unit of a remote indicating compass in the wingtip of an aeroplane is to:

A – facilitate easy maintenance of the unit and increase its exposure to the Earth's magnetic field
B – reduce the amount of deviation caused by aircraft magnetism and electrical circuits
C – place it is a position where there is no electrical wiring to cause deviation errors
D – place it where it will not be subjected to electrical or magnetic interference from the aircraft

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

8405. The annunciator of a remote indicating compass system is used when:

A – synchronising the magnetic and gyro compass elements
B – compensating for deviation
C – setting local magnetic variation
D – setting the heading pointer

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

14651. The convergence factor of a Lambert conformal conic chart is quoted as 0.78535. At what latitude on the chart is earth convergency correctly represented?

A – 38°15
B – 51°45
C – 52°05
D – 80°39

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

14655. The nominal scale of a Lambert conformal conic chart is the:

A – scale at the equator
B – scale at the standard parallels
C – mean scale between pole and equator
D – mean scale between the parallels of the secant cone

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

14669. The constant of cone of a Lambert conformal conic chart is quoted as 0.3955. At what latitude on the chart is earth convergency correctly represented?

A – 68°25
B – 21°35
C – 23°18
D – 66°42

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

15413. On a direct Mercator projection, the distance measured between two meridians spaced 5° apart at latitude 60°N is 8 cm. The scale of this chart at latitude 60°N is approximately:

A – 1 : 4 750 000
B – 1 : 7 000 000
C – 1 : 6 000 000
D – 1 : 3 500 000

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

8522. On a Direct Mercator chart, great circles are shown as:

A – curves convex to the nearer pole
B – straight lines
C – rhumb lines
D – curves concave to the nearer pole

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

9810. A Rhumb line is:

A – the shortest distance between two points on a Polyconic projection
B – a line on the surface of the earth cutting all meridians at the same angle
C – any straight line on a Lambert projection
D – a line convex to the nearest pole on a Mercator projection

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

10956. Which one of the following, concerning great circles on a Direct Mercator chart, is correct?

A – They are all curves convex to the equator
B – They are all curves concave to the equator
C – They approximate to straight lines between the standard parallels
D – With the exception of meridians and the equator, they are curves concave to the equator

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

10970. How does scale change on a normal Mercator chart?

A – Expands as the secant2 (1/2 co-latitude)
B – Expands directly with the secant of the latitude
C – Correct on the standard parallels, expands outside them, contracts within them
D – Expands as the secant of the E/W great circle distance

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

25204. The distance on a Lambert's chart, between two parallels of latitude the same number of degrees apart:

A – is constant all over the chart
B – is constant between the Standard Parallels and expands outside them
C – Expands between the Standard Parallels, but reduces outside them
D – Reduces between the Standard Parallels, but expands outside them

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

25207. The scale quoted on a Lamberts chart is:

A – The scale at the Standard Parallels
B – The scale at the Equator
C – The mean scale between the Pole and the Equator
D – The mean scale at the Parallel of the Secant of the Cone

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

25212. On a conformal chart, scale is:

A – Constant
B – Constant along a meridian of longitude
C – Variable: it varies as a function of latitude and longitude
D – Constant along a parallel of latitude

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

25214. On a Transverse Mercator chart scale is correct at:

A – The 180o meridian
B – The False Meridian
C – The Great Circle of Tangency
D – The Meridian of Tangency

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

8451. (Refer to figure 061-10)

What are the average magnetic course and distance between position N6000 W02000 and Sumburg VOR (N5955 W 00115)?

A – 105° – 562 NM
B – 091° – 480 NM
C – 091° – 562 NM
D – 105° – 480 NM

Ref: all

Ans: A

8452. On a Polar Stereographic chart, the initial great circle course from A 70°N 060°W to B 70°N 060°E is approximately:

A – 030° (T)
B – 330° (T)
C – 150° (T)
D – 210° (T)

Ref: all

Ans: A

8454. (Refer to Jeppesen Student Manual – chart E(LO)1 – or figure 061-11)

Given:

SHA VOR (N5242.3 W00853.1) DME 50 NM
CRK VOR (N5150.4 W00829.7) DME 41 NM
Aircraft heading 270o(M)
Both DME distances increasing

What is the aircraft position?

A – N5215 W00745
B – N5215 W00940
C – N5200 W00935
D – N5235 W00750

Ref: all

Ans: C

8468. (Refer to Jeppesen Student Manual – chart E(LO)1 or figure 061-11)

What is the average track (°M) and distance between CRN NB (N5318.1 W00856.5) and BEL VOR (N5439.7 W00613.8)?

A – 229° – 125 NM
B – 089° – 95 NM
C – 057° – 126 NM
D – 237° – 130 NM

Ref: all

Ans: C

8470. (Refer to Jeppesen Student Manual – chart E(LO)1 or figure 061-11)

What is the average track (°M) and distance between KER NDB (N5210.9 W00931.5) and CRN NDB (N5318.1 W00856.5)?

A – 025° – 70 NM
B – 197° – 71 NM
C – 205° – 71 NM
D – 017° – 70 NM

Ref: all

Ans: A

8471. On a direct Mercator projection, at latitude 45° North, a certain length represents 70 NM. At latitude 60° North, the same length represents approximately:

A – 57 NM
B – 86 NM
C – 70 NM
D – 81 NM

Ref: all

Ans: B

8506. (refer to Jeppesen Student Manual – chart E(LO)1 or figure 061-11)

What is the radial and DME distance from SHA VOA/DME (N5243.3 W00853.1) to position N5210 W00920?

A – 346° – 34 NM
B – 354° – 34 NM
C – 198° – 37 NM
D – 214° – 37 NM

Ref: all

Ans: D

8507. (Refer to Jeppesen Student Manual – chart E(LO)1 or figure 061-11)

Given:

SHA VOR (N5243.3 W00853.1) radial 143°
CRK VOR (N5150.4 W00829.7) radial 050°

What is the aircraft position?

A – N5205 W00805
B – N5155 W00810
C – N5210 W00800
D – N5200 W00800

Ref: all

Ans: C

8510. The distance measured between two points on a navigation map is 42 mm (millimetres). The scale of the chart is 1:1 600 000. The actual distance between these two points is approximately:

A – 3.69 NM
B – 370.00 NM
C – 67.20 NM
D – 36.30 NM

Ref: all

Ans: D

10974. (Refer to Jeppesen Student Manual – chart E(LO)1 or figure 061-11)

What is the average track (°T) and distance between SLG NDB (N5416.7 W00836.0) and CFN NDB (N5502.6 W00820.4)?

A – 191° – 45 NM
B – 020° – 46 NM
C – 348° – 46 NM
D – 011° – 47 NM

Ref: all

Ans: D

10975. The total length of the 53°N parallel of latitude on a direct Mercator chart is 133 cm. What is the approximate scale of the chart at latitude 30°S?

A – 1 : 25 000 000
B – 1 : 30 000 000
C – 1 : 18 000 000
D – 1 : 21 000 000

Ref: all

Ans: A

10976. In a navigation chart a distance of 49 NM is equal to 7 cm. The scale of the chart is approximately

A – 1 : 190 000
B – 1 : 700 000
C – 1 : 1 300 000
D – 1 : 7 000 000

Ref: all

Ans: C

10977. (Refer to Jeppesen Student Manual – chart E(LO)1 or figure 061-11)
What is the average track (°T) and distance between WTD NDB (N5211.3 W00705.0) and SLG NDB (N5416.7 W00836.0)?

A – 344° – 139 NM
B – 336° – 137 NM
C – 156° – 136 NM
D – 164° – 138 NM

Ref: all

Ans: B

21668. (Refer to figure 061-07)

Assume a North polar stereographic chart whose grid is aligned with the Greenwich meridian. An aircraft flies from the geographic North pole for a distance of 480 NM along the 110°E meridian, then follows a grid track of 154° for a distance of 300 NM. Its position is now approximately:

A – 70° 15'N 080° E
B – 80° 00'N 080°E
C – 78° 45'N 087°E
D – 79° 15'N 074°E

Ref: all

Ans: B

21669. (Refer to Jeppesen Student Manual – chart E(LO)1 or figure 061-11)
Given:
CON VOR/DME (N5354.8 W00849.1)
Abbey Shrule aerodrome (N5335 W00739)

What is the CON radial and DME distance when overhead Abbey Shrule aerodrome?

A – 296° – 46 NM
B – 304° – 47 NM
C – 124° – 46 NM
D – 116° – 47 NM

Ref: all

Ans: C

21671. (Refer to figure 061-10)

An aircraft on radial 110o at a range of 120 NM from SAXAVORD VOR (N6050 W00050) is at position:

A – N6127 W00443
B – N6010 E00255
C – N6109 E00255
D – N6027 E00307

Ref: all

Ans: D

061-04 DEAD RECKONING NAVIGATION (DR)

061-04-01 Basics of dead reckoning

8297. Given:
A is N55° 000°
B is N54° E010°
The average true course of the great circle is 100°.
The true course of the rhumbline at point A is:

A – 100°
B – 096°
C – 104°
D – 107°

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

8299. The rhumb-line distance between points A (60°00N 002°30E) and B (60°00N 007°30W) is:

A – 150 NM
B – 450 NM
C – 600 NM
D – 300 NM

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

8562. An aircraft is climbing at a constant CAS in ISA conditions. What will be the effect on TAS and Mach No?

A – TAS increases and Mach No decreases
B – Both increase
C – Both decrease
D – TAS decreases and Mach No increases

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

16281. You are flying from A (30S 20E) to B (30S 20W). What is the initial GC track?

A – 260° (T)
B – 270° (T)
C – 290° (T)
D – 300° (T)

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

24012. An aircraft is flying at FL 180 and the outside air temperature is -30°C. If the CAS is 150 kt, what is the TAS?

A – 115 kt
B – 195 kt
C – 180 kt
D – 145 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

24015. Calibrated Airspeed (CAS) is indicated Airspeed (IAS) corrected for:

A – density
B – temperature and pressure error
C – compressibility error
D – instrument error and position error

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

24025. If the Compass Heading is 265° variation is 33°W and deviation is 3°E, what is the True Heading?

A – 229°
B – 235°
C – 301°
D – 295°

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

24046. The great circle bearing of position B from position A in the Northern Hemisphere is 040°. If the Conversion Angle is 4°, what is the great circle bearing of A from B?

A – 228°
B – 212°
C – 220°
D – 224°

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

24047. The great circle track measured at A (45°00'N 010°00'W) from A to B (45°00'N 019°00'W) is approximately:

A – 270°
B – 090°
C – 273°
D – 093°

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

24049. The initial great circle track from A to B is 080° and the rhumb line track is 083°. What is the initial great circle track from B to A and in which Hemisphere are the two positions located?

A – 260° and in the northern hemisphere
B – 260° and in the southern hemisphere
C – 260° and in the northern hemisphere
D – 266° and in the southern hemisphere

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

25152. A flight is planned from A (N37000' E/W000000') to B (N46000' E/W000000'). The distance in kilometres from A to B is approximately:

A – 540
B – 794
C – 1000
D – 1771

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

25155. Given:
Variation 7ºW
Deviation 4ºE
If the aircraft is flying a Compass heading of 270, the True and Magnetic Headings are:

A – 274º (T) 267º (M)
B – 267º (T) 274º (M)
C – 277º (T) 281º (M)
D – 263º (T) 259º (M)

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

25188. Given:
True track 140º
Drift 8ºS
Variation 9ºW
Deviation 2ºE
What is the compass heading?

A – 147º (C)
B – 155º (C)
C – 139º (C)
D – 125º (C)

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

25213. On a chart, 49 nm is represented by 7.0 cm; the scale of the chart is:

A – 1:700 000
B – 1:2 015 396
C – 1:1 296 400
D – 1: 156 600

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

25219. The distance Q to R is 3016 nm; TAS is 480 kts. Flying outbound Q to R the head wind component is calculated as 90 kts and the tail wind component R to Q is 75 kts. Leaving Q at 1320 UTC, what is the ETA at the point of Equal Time:

A – 1631 UTC
B – 1802 UTC
C – 1702 UTC
D – 1752 UTC

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

061-04-02 Use of the navigational computer

8255. Airfield elevation is 1000 feet. The QNH is 988. Use 27 feet per millibar. What is pressure altitude?

A – 675
B – 325
C – 1675
D – 825

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8526. Given:
True course 300°
Drift 8°R
Variation 10°W
Deviation -4°
Calculate the compass heading?

A – 306°
B – 322°
C – 294°
D – 278°

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

8566. Given:
GS = 510 kt
Distance A to B = 43 NM
What is the time (MIN) from A to B?

A – 6
B – 4
C – 5
D – 7

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8568. Given:
GS = 120 kt
Distance from A to B = 84 NM
What is the time from A to B?

A – 00 HR 42 MIN
B – 00 HR 43 MIN
C – 00 HR 44 MIN
D – 00 HR 45 MIN

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

8578. On a particular take-off, you can accept up to 10 knots tailwind. The runway QDM is 047, the variation is 2E and the ATIS gives the wind direction as 210.
What is the maximum wind strength you can accept?

A – 18 knots
B – 11 knots
C – 8 knots
D – 4 knots

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

8534. Given:
Runway direction 083°(M)
Surface W/V 035/35 kt
Calculate the effective headwind component?

A – 24 kt
B – 27 kt
C – 31 kt
D – 34 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

8535. An aircraft is following a true track of 048° at a constant TAS of 210 kt. The wind velocity is 350°/30 kt. The GS and drift angle are:

A – 192 kt, 7° left
B – 200 kt – 3.5° right
C – 195 kt, 7° right
D – 225 kt, 7° left

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8536. Given:
Runway direction 230°(T)
Surface W/V 280°(T)/40 kt
Calculate the effective cross-wind component?

A – 21 kt
B – 36 kt
C – 31 kt
D – 26 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8538. Given:

TAS = 485 kt
True HDG = 226°
W/V = 110°(T)/95 kt
Calculate the drift angle and GS?

A – 7°R – 531 ktg
B – 9°R – 533 kt
C – 9°R – 433 kt
D – 8°L – 435 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

8542. Given:
TAS = 198 kt
HDG (°T) = 180
W/V = 359/25
Calculate the Track (°T) and GS?

A – 180 – 223 kt
B – 179 – 220 kt
C – 181 – 180 kt
D – 180 – 183 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

8546. Given:
True HDG = 307°
TAS = 230 kt
Track (T) = 313°
GS = 210 kt
Calculate the W/V?

A – 255/25 kt
B – 257/35 kt
C – 260/30 kt
D – 265/30 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

11033. Given:
True HDG = 054º
TAS = 450 kt
Track (T) = 059º
GS = 416 kt
Calculate the W/V?

A – 010/55 kt
B – 005/50 kt
C – 010/50 kt
D – 010/45 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

11034. Given:
TAS = 485 kt
HDG (T) = 168º
W/V = 130/75 kt
Calculate the Track (ºT) and GS?

A – 175 – 432 kt
B – 173 – 424 kt
C – 175 – 420 kt
D – 174 – 428 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

11036. Given:
TAS = 190 kt
HDG (T) = 355º
W/V = 165/25 kt
Calculate the drift and GS?

A – 1R – 165 kt
B – 1L – 225 kt
C – 1R – 175 kt
D – 1L – 215 kt

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

14670. The Great Circle bearing of B (70ºS 060ºE), from A (70ºS 030ºW), is approximately?

A – 150º (T)
B – 090º (T)
C – 318º (T)
D – 135º (T)

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

15428. What is the final position after the following rhumb line tracks and distances have been followed from position 60º00N 030º00W?
South for 3600 NM
East for 3600 NM
North for 3600 NM
West for 3600 NM
The final position of the aircraft is:

A – 59º00N 090º00W
B – 60º00N 090º00W
C – 60º00N 030º00E
D – 59º00N 060º00W

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

15435. An aircraft at positon 60ºN 005ºW tracks 090º(T) for 315km. On completion of the flight the longitude will be:

A – 002º 10W
B – 000º 15E
C – 000º 40E
D – 005º 15E

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

16285. What is the Chlong (in degrees and minutes) from A (45N 1630E) to B (45N 15540W)?

A – 38º05E
B – 38º50W
C – 38º05W
D – 38º50E

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

24019. Given:

True Track	245º
Drift	5º right
Variation	3ºE
Compass Hdg	242º

Calculate the Magnetic Heading:

A – 247º
B – 243º
C – 237º
D – 253º

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

24020. Grid heading is 299º, grid convergency is 55º West and magnetic variation is 90º West. What is the corresponding magnetic heading?

A – 084º
B – 334º
C – 154º
D – 264º

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

061-04-05 Calculate DR elements

8540. OAT = +35oC
Pressure alt = 5000 feet
What is true alt?

A – 4550 feet
B – 5550 feet
C – 4290 feet
D – 5320 feet

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

8550. Given:
Airport elevation is 1000 ft
QNH is 988 hPa
What is the approximate airport pressure altitude?
(Assume 1 hPa = 27 FT)

A – 680 FT
B – 320 FT
C – 1680 FT
D - -320 FT

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8561. Your pressure altitude is FL 55, the QNH is 998, and the SAT is +30C. What is Density Altitude?

A – 6980 feet
B – 7750 feet
C – 8620 feet
D – 10020 feet

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8599. You are flying at a True Mach No of 0.82 in a SAT of -45ºC. At 1000 hours you are 100 nm from the POL DME and your ETA at POL is 1012. ATC ask you to slow down to be at POL at 1016. What should your new TMN be if you reduce speed at 100 nm distance to:

A – M .76
B – M .72
C – M .68
D – M .61

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

8604. Given:
TAS = 485 kt
OAT = ISA +10ºC
FL 410
Calculate the Mach Number?

A – 0.85
B – 0.90
C – 0.825
D – 0.87

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: C

8617. Given:
TAS 487 kt
FL 330
Temperature ISA + 15
Calculate the Mach Number?

A – 0.81
B – 0.84
C – 0.76
D – 0.78

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

11028. An aircraft takes off from the aerodrome of BRIOUDE (altitude 1 483 ft, QFE = 963 hPa, temperature = 32oC). Five minutes later, passing 5,000 ft on QFE, the second altimeter set on 1,013 hPa will indicate approximately:

A – 6,900 ft
B – 6,400 ft
C – 6,000 ft
D – 4,000 ft

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

11051. An aircraft maintaining a 5.2% gradient is at 7 NM from the runway, on a flat terrain; its height is approximately:

A – 680 ft
B – 2210 ft
C – 1890 ft
D – 3640 ft

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: B

15425. Given:
Pressure Altitude 29,000 ft, OAT -56C.
Calculate the Density Altitude?

A – 27,500 ft
B – 31,500 ft
C – 33,500 ft
D – 26,000 ft

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: A

16279. An aircraft leaves point A (75N 50W) and flies due North. At the North Pole it flies due south along the meridian of 65°50E unit reaches 75N (point B). What is the total distance covered?

A – 1,650 nm
B – 2,000 nm
C – 2,175 nm
D – 1,800 nm

Ref: AIR: atpl, cpl; HELI: atpl, cpl

Ans: D

25206. Given:
Aircraft position S8000.0 E14000.0
Aircraft tracking 025°(G)
If the grid is aligned with the Greenwich Anti-Meridian, the True track is:

A – 245°
B – 205°
C – 165°
D – 065°

Ref: AIR: atpl, cpl;

Ans: D

061-04-07 Name range specifics of maximum range and radius of action

8528. An aircraft was over Q at 1320 hours flying direct to R
Given:
Distance Q to R 3016 NM
True airspeed 480 kt
Mean wind component OUT -90 kt
Mean wind component BACK +75 kt
The ETA for reaching the Point of Equal Time (PET) between Q and R is:

A – 1820
B – 1756
C – 1752
D – 1712

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

8537. An aircraft was over A at 1435 hours flying direct to B. Given: Distance A to B 2,900 NM True airspeed 470 kt Mean wind component OUT +55 kt Mean wind component BACK -75 kt. The ETA for reaching the Point of Equal Time (PET) between A and B is:

A – 1721
B – 1744
C – 1846
D – 1657

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: D

8541. Given:
Distance A to B 2346 NM
Groundspeed OUT 365 kt
Groundspeed BACK 480 kt
Safe endurance 8 HR 30 MIN
The time from A to the Point of Safe Return (PSR) A is:

A – 197 min
B – 219 min
C – 290 min
D – 209 min

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

8544. Two points A and B are 1000 NM apart. TAS = 490 kt. On the flight between A and B the equivalent headwind is -20 kt. On the return leg between B and A, the equivalent headwind is +40 kt. What distance from A, along the route A to B, is the Point of Equal Time (PET)?

A – 470 NM
B – 530 NM
C – 455 NM
D – 500 NM

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: B

8552. An aircraft was operated for 4 hours 35 hours flying direct to B
Given:
Distance A to B 2900 NM
True airspeed 470 kt
Mean wind component OUT +55 kt
Mean wind component BACK -75 kt
Safe endurance 9 HR 30 MIN
The distance from A to the Point of Safe Return (PSR) A is:

A – 2844 NM
B – 1611 NM
C – 1759 NM
D – 2141 NM

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: D

11045. The distance from A to B is 2368 nautical miles. If outbound groundspeed in 365 knots and homebound groundspeed is 480 knots and safe endurance is 8 hours 30 minutes, what is the time to the PNR?

A – 290 minutes
B – 209 minutes
C – 219 minutes
D – 190 minutes

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: A

11058. For a distance of 1860 NM between Q and R, a ground speed OUT of 385 kt, a ground speed BACK of 465 kt and an endurance of 8 hr (excluding reserves) the distance from Q to the point of safe return (PSR) is:

A – 930 NM
B – 1532 NM
C – 1685 NM
D – 1865 NM

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

11065. Given:
Distance Q to R 1760 NM
Groundspeed out 435 kt
Groundspeed back 385 kt
Safe endurance 9 hr
The distance from Q to the Point of Safe Return (PSR) between Q and R is:

A – 1313 NM
B – 1838 NM
C – 1467 NM
D – 1642 NM

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: B

061-04-08 Miscellaneous DR uncertainties and practical means of correction

16314. Calculate the diat from N 001 15 E090 00 to S090 00:

A – 91°15N
B – 88°45N
C – 91°15S
D – 268°15N

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

16315. Calculate the dlong from N001 15 E090 00 to N001 15 E015 15:

A – 74°45E
B – 74°15E
C – 74°45W
D – 105°15N

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

11106. A ground feature appears 30º to the left of the centre line of the CRT of an airborne weather radar. If the heading of the aircraft is 355º (M) and the magnetic variation is 15º East, the true bearing of the aircraft from the feature is:

A – 160º
B – 220º
C – 310º
D – 130º

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: A

061-05-02 Navigation in climb and descent

8629. Given:
Aircraft height 2500 ft
ILS GP angle 3º
At what approximate distance from TRH can you expect to capture the GP?

A – 14.5 NM
B – 7.0 NM
C – 13.1 NM
D – 8.3 NM

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: D

8634. An aircraft is descending down a 12% slope whilst maintaining a GS of 540 kt. The rate of descent of the aircraft is approximately:

A – 650 ft/min
B – 6500 ft/min
C – 4500 ft/min
D – 3900 ft/min

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: B

8656. What is the effect on the Mach number and TAS in an aircraft that is climbing with constant CAS?

A – Mach number decreases; TAS decreases
B – Mach number remains constant; TAS increases
C – Mach number increases; TAS increases
D – Mach number increases; TAS remains constant

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

8663. Assuming zero wind, what distance will be covered by an aircraft descending 15000 FT with a TAS of 320 kt and maintaining a rate of descent of 3000 ft/min?

A – 26.7 NM
B – 19.2 NM
C – 38.4 NM
D – 16.0 NM

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: A

8665. At 65 nm from a VOR you commence a descent from FL 330 in order to arrive over the VOR at FL 100. Your mean groundspeed in the descent is 240 knots. What rate of descent is required?

A – 1120 feet/min
B – 1630 feet/min
C – 1270 feet/min
D – 1830 feet/min

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: A

8672. An aircraft at FL 370 is required to commence descent when 100 NM from a DME facility and to cross the station at FL 120. If the mean GS during the descent is 396 kt, the minimum rate of descent required is approximately:

A – 1650 ft/min
B – 2400 ft/min
C – 1000 ft/min
D – 1550 ft/min

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: A

8685. (Refer to Jeppesen Student Manual – chart E(LO)1 or figure 061-11)

You are at position 5340N 00840W. What is the QDR from the SHA VOR (5243N 00853W)?

A – 217
B – 037
C – 209
D – 029

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: B

8694. An aircraft is planned to fly from position A to position B, distance 250 NM at an average GS of 115 kt. It departs A at 0900 UTC. After flying 75 NM along track from A, the aircraft is 1.5 min behind planned time. Using the actual GS experienced, what is the revised ETA at B?

A – 1110 UTC
B – 1115 UTC
C – 1044 UTC
D – 1050 UTC

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: B

8695. Given:
Distance A to B = 120 NM
After 30 NM aircraft is 3 NM to the left of course
What heading alteration should be made in order to arrive at point B?

A – 8° left
B – 6° right
C – 4° right
D – 8° right

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: D

25142. You are heading 080°T when you get a range and bearing fix from your AWR on a headland at 185 nm 30° left of the nose. What true bearing do you plot on the chart?

A – 050 from the headland, using the headland's meridian
B – 050 from the headland, using the aircraft's meridian
C – 230 from the headland, using the headland's meridian
D – 230 from the headland, using the aircraft's meridian

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: D

25149. An aircraft starts from (S0400.0 W17812.2) and flies north for 2950 nm along the meridian, then west for 382 nm along the parallel of latitude. What is the aircraft's final position?

A – N45100 E172138
B – N53120 W169122
C – N45100 W169122
D – N53120 E172138

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: A

25154. An aircraft at latitude S0612.6 tracks 000°T for 1667 nm. On completion of the flight the latitude will be:

A – S2112.0
B – N2112.5
C – N0848.0
D – N0914.0

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

25190. An airraft departs from N0212.0 E0450.0 on a track of 180°T and flies 685 km. On completion of the flight the latitude will be:

A – S1112.5
B – S0813.0
C – S0357.0
D – S0910.5

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

21700. (Refer to figures 061-06 and 061-05)

Complete line 1 of the 'FLIGHT NAVIGATION LOG'; positions 'A' to 'B'. What is the HDG° (M) and ETA?

A – 268° – 1114 UTC
B – 282° – 1128 UTC
C – 282° – 1114 UTC
D – 268° – 1128 UTC

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: A

061-05-05 Purposes of (FMS) Flight Management Systems

8638. Which of the following lists the first three pages of the FMC/CDU normally used to enter data on initial start-up of te B737-400 Electronic Flight Intrument System?

A – IDENT – RTE – DEPARTURE
B – POS INIT – RTE – IDENT
C – IDENT – POS INIT – RTE
D – POS INIT – RTE – DEPARTURE

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: C

8645. In the B737-400 Flight Management System the CDUs are used during pre-flight to:

A – manully initialise the IRSs and FMC with dispatch information
B – automatically initialise the IRSs and FMC with dispatch information
C – manually initialise the Flight Director System and FMC with dispatch information
D – manually initialise the IRSs, FMC and Autothrotle with dispatch information

Ref: AIR: atpl, cpl; HELI: atpl, cpl;

Ans: A

8743. Alignment of INS and IRS equipments can take place in which of the following modes?

A – ATT and ALIGN
B – NAV and ALIGN
C – ALIGN and ATT
D – NAV and ATT

Ref: AIR: atpl;

Ans: B

8759. Which of the following statements concerning the loss of alignment by an Inertial Reference System (IRS) in flight is correct?

A – It is not usable in any mode and must be shut down for the rest of the flight
B – The IRS has to be coupled to the remaining serviceable system and a realignment carried out in flight
C – The mode selector has to be rotated to ATT then back through ALIGN to NAV in order to obtain an in-flight realignment
D – The navigation mode, including present position and ground speed outputs, in inoperative for the remainder of the flight

Ref: AIR: atpl;

Ans: D

8760. During initial alignment an inertial navigation system is north aligned by inputs from:

A – horizontal accelerometers and the east gyro
B – the aircraft remote reading compass system
C – computer matching of measured gravity magnitude to gravity magnitude of initial alignment
D – vertical accelerometers and the north gyro

Ref: AIR: atpl;

Ans: A

8762. During the initial alignment of an inertial navigation system (INS) the equipment:

A – will accept a 10° error in initial latitude but will not accept a 10° error in initial longitude
B – will not accept a 10° error in initial latitude but will accept a 10° error in initial longitude
C – will accept a 10° error in initial latitude and initial longitude
D – will not accept a 10° error in initial latitude or initial longitude

Ref: AIR: atpl;

Ans: B

8767. When initial position is put into an FMS, the system:

A – rejects initial latitude error, but it will accept longitude error
B – rejects initial longitude error, but it will accept latitude error
C – rejects initial latitude or longitude error
D – cannot detect input errors, and accepts whatever is put in

Ref: AIR: atpl;

Ans: C

8772. Which of the following statements is correct concerning gyro-compassing of an inertial navigation system (INS)?

A – Gyro-compassing of an INS is possible in flight because it can differentiate between movement induced and misalignment induced accelerations
B – Gyro-compassing of an INS is not possible in flight because it cannot differentiate between movement induced and misalignment induced accelerations
C – Gyro-compassing of an INS is possible in flight because it cannot differentiate between movement induced and misalignment induced accelerations
D – Gyro-compassing of an INS is not possible in flight because it can differentiate between movement induced and misalignment induced accelerations

Ref: AIR: atpl;

Ans: B