SUBJECT : CASA CPL NAVIGATION

EXAM TYPE : Practice Paper No 2

PASS MARK : 80% FTA (70% CASA)

TIME ALLOWED : 1 Hour 45 Minutes

Instructions to Candidates:

1. This practice exam has been constructed to reflect the scope and complexity of questions candidates can expect in the CASA CPL Navigation examination.

2. All required material to answer the questions is provided with the paper.

3. Some questions refer to WAC charts and where applicable extracts of these charts have been provided. It is recommended that the candidate obtain paper copies of these charts in order to resolve the questions graphically, if so required.

4. PERMITTED MATERIAL

A. Material Supplied with Examination:
- Answer Sheet
- WAC Extract 1: Bourke
- WAC Extract 2: Hamilton
- ARFOR TAF 1 & 5

B. Material Supplied by Candidate:
- Jeppesen Manual Complete
- Navigation Equipment
- Basic Electronic Calculator

5. ITEMS PROHIBITED

- Programmable and/or Scientific Calculators
- Electronic Aviation Calculators (Electronic Whizz-Wheels)
- Any other Reference Material

1 The UTC of the end of daylight at a given place depends on:

a) Latitude and date.
b) Latitude longitude and date.
c) Longitude and date.
d) Latitude date and high ground to the east. (1 Mark)

2 An aircraft maintaining the 090° radial outbound from a VOR is flying along:

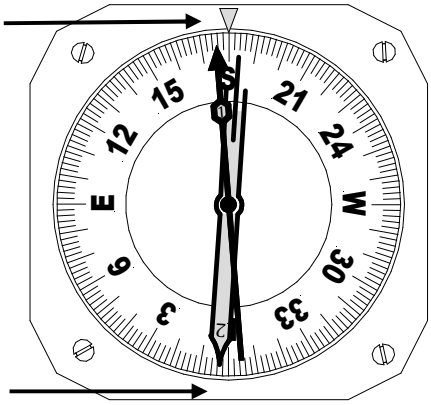
a) a great circle track.
b) a parallel of latitude.
c) a rhumb line track.
d) a track which crosses every meridian at 90°. (1 Mark)

3 What range will be indicated on a DME in an aircraft flying at 18,000 feet, when at a plan range of 4 nm?

a) 3 nm.
b) 4 nm.
c) 5 nm.
d) 7 nm. (2 Marks)

4 The following RMI display was obtained by an aircraft en-route between VOR G and VOR H. The direct track between VOR G and VOR H measures 178°M. The aircraft has maintained a constant heading of 180°M since passing over VOR G.

VOR H 176°



VOR G 003°

What is the heading required to track direct to VOR H from the present position?

a) 173°.
b) 183°.
c) 187°.
d) 176°. (2 Marks)

5 On which of the following dates will there be the shortest period of daylight at Broken Hill (32°00'S 141°28.3'E)?

a) 21st March.
b) 22nd June.
c) 23rd September.
d) 22nd December. (2 Marks)

6 The Jeppesen chart AS (H/L) 3 is based on a Normal Mercator projection. What is the appearance of a rhumb line on this projection?

a) Curved concave to the nearer pole.
b) All rhumb lines will appear as straight lines.
c) Only rhumb lines to the east or west will appear as straight lines.
d) Only rhumb lines to the north or south will appear as straight lines.
(1 Mark)

7 At Darwin International airport, a number of navigation aids are available. Their frequencies and channels are given as follows:

TACAN	84 (113.7)
NDB	344
VOR	112.6

Your aircraft carries VOR and DME. What frequency would you select to obtain range information?

a) 344 kHz.
b) 112.6 kHz.
c) 84 MHz.
d) 113.7 MHz. (1 Mark)

8 An aircraft en-route between NDB R and VOR S obtains the following bearings:

NDB R	191° Relative
VOR S	RMI reads 072°

The aircraft has maintained a constant heading of 065°M since overflying NDB R. The direct track between R and S measures 074°M. Variation is 13ºE.

What HDG should the aircraft fly to track direct from its present position to VOR S?

a) 061º
b) 065º
c) 074º
d) 083º (2 Marks)

9 The earliest departure time for a VFR flight from Longreach (23° 26'S 144° 17'E) on January 25th is:

a) 01241950 UTC
b) 01250510 UTC
c) 01241933 UTC
d) 01251447 UTC (2 Marks)

10 The Jeppesen chart AS (H/L) 3 is based on a Normal Mercator projection. What is the appearance of great circles on this projection?

a) Great circles are curved concave to the nearer pole.
b) All great circles will appear as straight lines.
c) All great circles will appear as curved lines.
d) Great circles are curved concave to the equator.

(1 Mark)

11 What information does DME measure?

a) Bearing and time-to-station.
b) Slant range.
c) Range and bearing.
d) Plan range. (1 Mark)

12 For which navigation aid is range least affected by aircraft height?

a) ADF.
b) DME.
c) TACAN.
d) VOR. (1 Mark)

13 Refer to ARFOR / TAF 5:

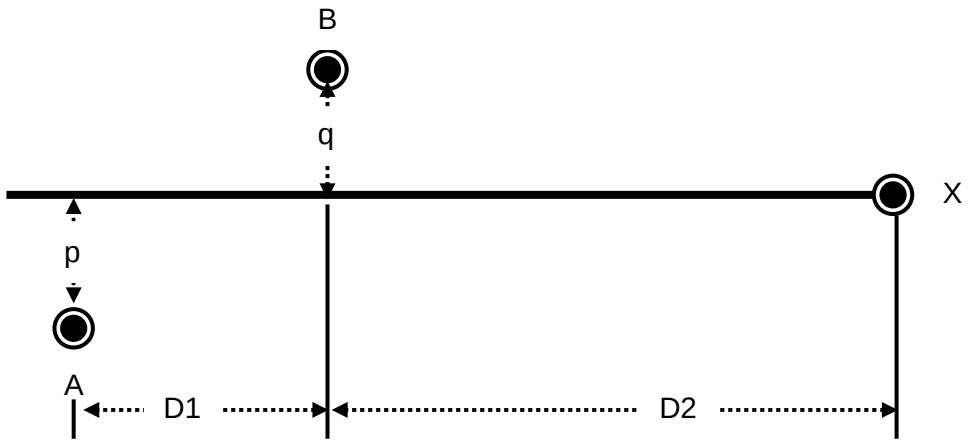
What is the forecast QNH at YSCB at 0200 UTC?

a) 1000.
b) 1001.
c) 1003.
d) 1004. (2 Marks)

14 You have covered a distance of 46 nm in 24 minutes. Your average ground speed during this time has been:

a) 135 kts.
b) 130 kts.
c) 115 kts.
d) 102 kts. (2 Marks)

15 With reference to the following diagram



p	4 nm
q	2 nm
D1	30 nm
D2	40 nm

A constant HDG has been maintained since 0130Z (at A).

The HDG alteration required at 0145Z (at B) to intercept track at X is:

a) 15^0 right.
b) 11^0right.
c) 3^0 right.
d) 7^0 right. (2 Marks)

16 Refer (HAMILTON) WAC 3469:

En-route from HORSHAM to PORTLAND (ATD 0256Z) you obtain a fix over Coleraine and using track error lines you estimate your track error from Horsham to this position to be 4° right. You now alter HDG 12° left to intercept the planned track. When you intercept TRK, according to your calculation, by what amount should you alter your HDG to maintain TRK to Portland?

a) 8° right.
b) 8° left.
c) 12° right.
d) 4° right. (3 Marks)

17 The rated coverage of DEVONPORT (TAS) NDB over the sea during the day is:

a) 60 nm.
b) 50 nm.
c) 130 nm.
d) 105 nm. (2 Marks)

18 You depart ALPHA at 0308UTC. At time 0324UTC you fix your position as 35 nm from ALPHA with a track error of 8^0 right. You alter your heading 16^0 to the left.

At what time will you intercept your planned track?

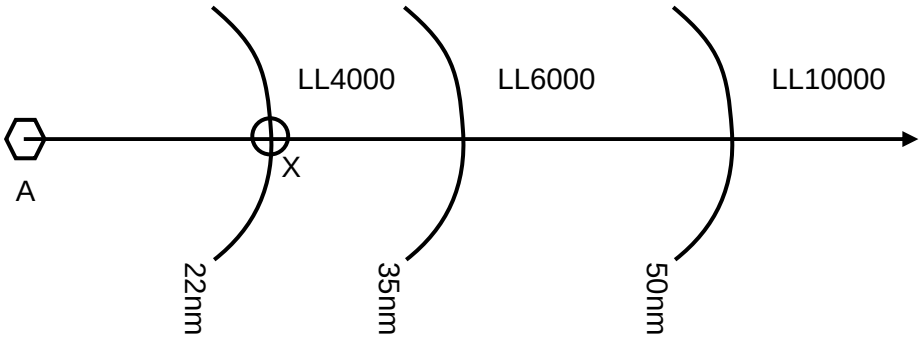
a) 0337 UTC.
b) 0356 UTC.
c) 0340 UTC.
d) 0332 UTC. (2 Marks)

19 Refer (BOURKE) WAC 3356:

The TRK (ºM) from NARRABRI (30º 19'S 149º 50'E) direct to ST GEORGE (28º 03'S 148º 36'E) is closest to:

a) 324ºM.
b) 334ºM.
c) 344ºM.
d) 354ºM. (2 Marks)

20 With reference to the following diagram, which represents CTA steps centred on A:



An aircraft is at 'X' at A020. If the planned GS is 120 kt and ROC 800 fpm, the minimum distance from A at which you could commence a continuous climb OCTA to A085 is approximately:

a) 44 nm.
b) 40 nm.
c) 38 nm.
d) 28 nm. (2 Marks)

21 Refer to ARFOR / TAF 1:

The forecast wind velocity for arrival in the circuit area YMER at 0715 UTC is:

a) 250^0T 15 kts.
b) 250^0M 15 kts.
c) 020^0T, 20 to 35 kts.
d) 020^0M, 20 to 35 kts. (1 Mark)

22 The following data applies to one segment of a flight plan:

TRK (ºM)	113
Variation	11ºE
TAS	125kt
Forecast W/V from ARFOR at the planned cruising level	240/25

The flight plan HDG (ºM) and GS will be closest to:

a) 102ºM and 135kts.
b) 124ºM and 115kts.
c) 124ºM and 140kts.
d) 124ºM and 135kts. (2 Marks)

23 The flight time for departure ALBURY (36°04'S 146°57'E) to landing at BALLARAT (37°31'S 143°48'E) is 90 minutes. No alternate aerodrome is required for BALLARAT. The latest ETD ALBURY for a VFR day flight on 15 December is closest to:

a) 0815 Z.
b) 1808 Z.
c) 0833 Z.
d) 0843 Z. (2 Marks)

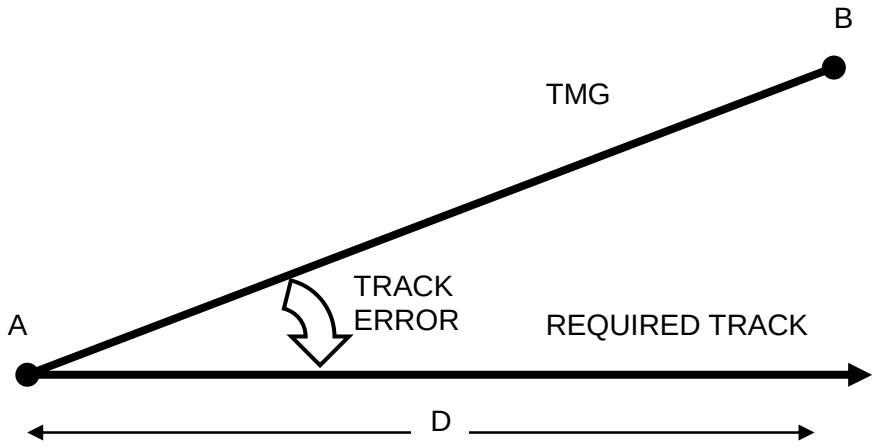
24 Determine the beginning daylight at GOODOOGA (29º04'S 147º22'E) in UTC on 20th June.

a) 202038.
b) 202028.
c) 192028.
d) 192038. (2 Marks)

25 If you were situated at some point on the Greenwich meridian, what would your local time be, in comparison with UTC?

a) UTC.
b) UTC+1.
c) UTC-1.
d) UTC-2 (1 Mark)

26 Refer to the following



Track error 9º.
D 20 nm.
A constant HDG has been maintained since 0800UTC (at A).
The pilot alters HDG 18^0 right at 0810UTC (at B).

At what time should the required track be intercepted?

a) 0850.
b) 0830.
c) 0820.
d) 0840 (2 Marks)

27 Refer to (HAMILTON) WAC 3469:

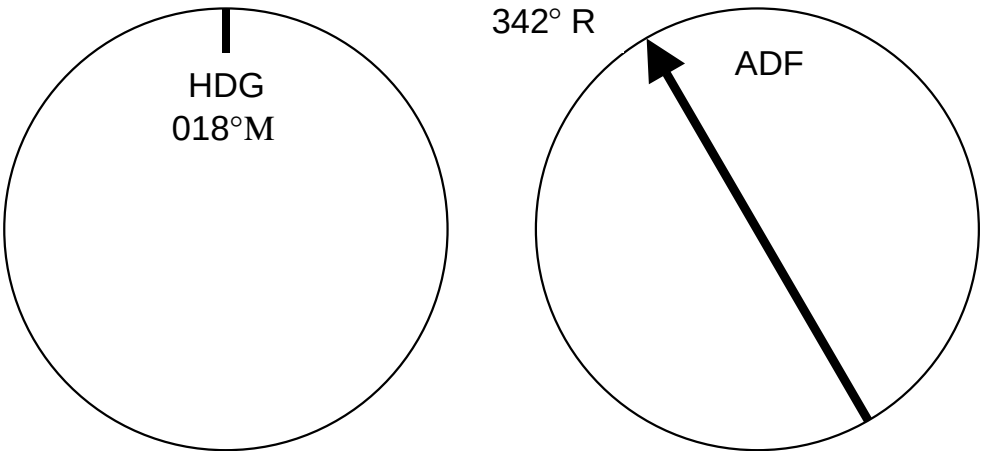
The following details refer to a direct flight from NARACOORTE (YNRC) to ARARAT (YARA):

ATD YNRC 2305Z.
A fix is obtained over Edenhope township at 2317Z.
A constant HDG has been maintained since departure YNRC.

The alteration of HDG required to regain planned TRK to YARA abeam Lake Bellfield is closest to:

a) 6º left.
b) 6º right.
c) 4º left.
d) 4º right. (3 Marks)

28 What is the magnetic bearing to the NDB?



a) 342°.
b) 324°.
c) 180°.
d) 360°. (2 Marks)

29 To track inbound to a VOR on the 270º radial, what is the correct procedure?

a) Turn the OBS to 000 with the TO flag displayed, fly 270 M keeping the needle centred.
b) Turn the OBS to 270 with the TO flag displayed, maintain, needle centred.
c) Turn the OBS to 270 with the FROM flag displayed, maintain, needle centred.
d) Turn the OBS to 090 with the TO flag displayed, maintain, needle centred.
(1 Mark)

Total 50