SUBJECT : CASA CPL NAVIGATION

EXAM TYPE : Practice Paper No 5

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

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

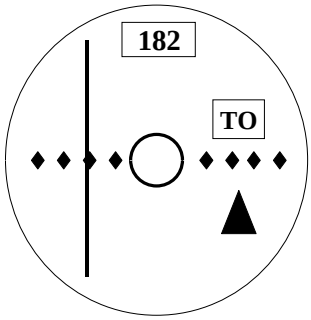
1 Relief may be shown on a chart by:

a) a statement in words.
b) a representative fraction.
c) layer tinting and/or contours.
d) lines joining points of equal pressure. (1 Mark)

2 Which of the following radio navigation aids may be frequency paired with VOR?

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

3 The OBS / L-R display below is showing VOR information:



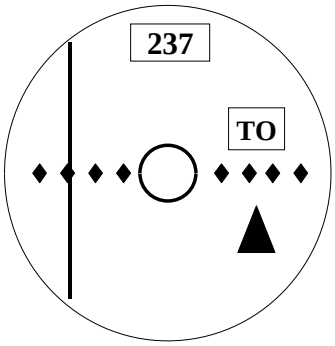
On which radial is the aircraft located?

a) R008.
b) R176.
c) R188.
d) R356. (2 Marks)

4 The scale of the Jeppesen chart AS (H/L) 6 is shown as 1 inch = 50 nm. How many cm are required to represent 200 km?
(Note 1 inch = 2.54 cm).

a) 3.90.
b) 4.70.
c) 5.50.
d) 7.20. (2 Marks)

5 The OBS/L-R display below is showing VOR information:



On which radial is the aircraft located?

a) R049.
b) R065.
c) R229.
d) R245. (2 Marks)

6 What is the rated coverage of a DME for an aircraft flying at 8,000 feet?

a) 60 nm.
b) 90 nm.
c) 100 nm.
d) 110 nm. (2 Marks)

7 Given the following information

Time 0130	VOR LIMA 280° radial DME LIMA 86 nm
Time 0142	VOR LIMA 280° radial DME LIMA 46 nm

Heading 088°M and TAS 180 kts maintained constant. What wind velocity is affecting the flight?

a) 335°/45 kts.
b) 200°/45 kts.
c) 350°/40 kts.
d) 210°/40 kts. (2 Marks)

8 An aircraft maintaining the 180° radial outbound from a VOR is:

a) flying along a meridian.
b) maintaining a rhumb line track.
c) maintaining constant longitude.
d) tracking along a great circle. (1 Mark)

9 How does scale vary on a Transverse Mercator projection?

a) Scale is correct on the central meridian and expands with increasing distance from the central meridian.
b) Scale expands with increasing latitude and is correct at the equator.
c) Scale is correct at the standard parallels. It contracts between the standard parallels and expands outside the standard parallels.
d) Scale is constant because the chart is orthomorphic. (1 Mark)

10 Given the following information

Time 0238	VOR MIKE 180° radial DME MIKE 74 nm
Time 0250	VOR MIKE 180° radial DME MIKE 50 nm

Heading 352°M and TAS 150 kts maintained constant.

What wind velocity is affecting the flight?

a) 020°/40 kts.
b) 215°/35 kts.
c) 035°/40 kts.
d) 325°/35 kts. (2 Marks)

11 You are approaching Orange Airfield cruising at A070. You are instructed to arrive overhead at 1,000 feet AGL. Your descent will be at 600 feet per minute with a ground speed of 140 knots. At what distance from Orange should you commence descent?

a) 32 nm.
b) 23 nm.
c) 15 nm.
d) 11 nm. (2 Marks)

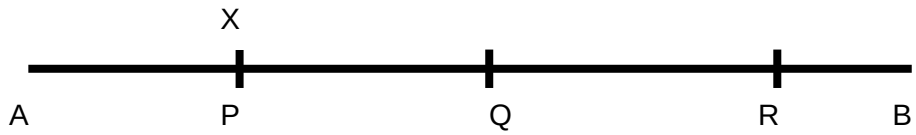
12 A VFR charter flight is planned from PARKES (33º 08'S 148º 14'E) to GOULBURN (34º 49'S 149º 44'E) on May 31st. Total flight time is 63 mins. Assuming no operational requirements, the latest ETD YPKS in UTC is:

a) 0614.
b) 0636.
c) 0616.
d) 1625. (2 Marks)

13 What range will be indicated on a DME in an aircraft flying at 30,000 feet when at plan range 6 nm?

a) 5.0 nm.
b) 7.8 nm.
c) 9.2 nm.
d) 11.0 nm. (2 Marks)

14 Referring to the diagram below, positions 'P', ‘Q’ and 'R’ depict 10 nm intervals along a track from 'A' to 'B'. The total distance 'A’ to ‘B' is 35nm, and the aeroplane is on time over 'A'. If the planned estimate for 'B' was 0140Z and the aeroplane is 2 minutes late over 'X', the revised estimate for 'B' is:



a) 0142Z.
b) 0144Z.
c) 0147Z.
d) 0148Z. (2 Marks)

15 Refer (BOURKE) WAC 3356:

You are flying over WEE WAA Township approximately 20 nm WNW NARRABRI (YNBR) (30º 19’S 149º 50’E), direct to ST GEORGE (YSGE) (28º 03’S 148º 36’E)

At 2347UTC you pinpoint your position over a minor road 5nm northeast of MUNGINDI township (approximately 60nm SE SGE). You have been maintaining a constant HDG since WEE WAA township.

The alteration of HDG required to track from the 2347UTC position to YSGE is closest to:

a) 16º left.
b) 12º left.
c) 7º left.
d) 5º left. (3 Marks)

16 Given:

Pressure altitude	9000ft
Ambient temp	-15ºC
CAS	170 kts

Determine the TAS.

a) 202 kts.
b) 195 kts.
c) 190 kts.
d) 152 kts. (2 Marks)

17 Your ETA for WHA in an aircraft with a maximum take-off weight of 2100 kg is 0040UTC. TAF WHA reads as follows:

TAF YWHA 101923Z 2008 33015KT CAVOK
FM 01 18018KT 9999 FEW010 SCT012
T 13 14 15 15 13 Q 1025 1023 1023 1022

Does the pilot need to make allowance for an alternate in the planning for the flight?

a) Yes, because the ETA WHA is within 30 minutes if the forecast commencement of deteriorating visibility.
b) No, because the amount of stratus cloud is less than 4 OKTAS.
c) No, because the ETA WHA is outside the period of forecast weather deterioration.
d) Yes, because the ETA of WHA is within 30 minutes of the forecast commencement of a cloud base below the alternate minima.

(2 Marks)

18 Given:

Aerodrome elevation	1500 ft
Cruise level	A065
Rate of descent	500 fpm
GS	140 kts

To arrive over the aerodrome at 1500 ft AGL, how far from the destination must the descent be initiated?

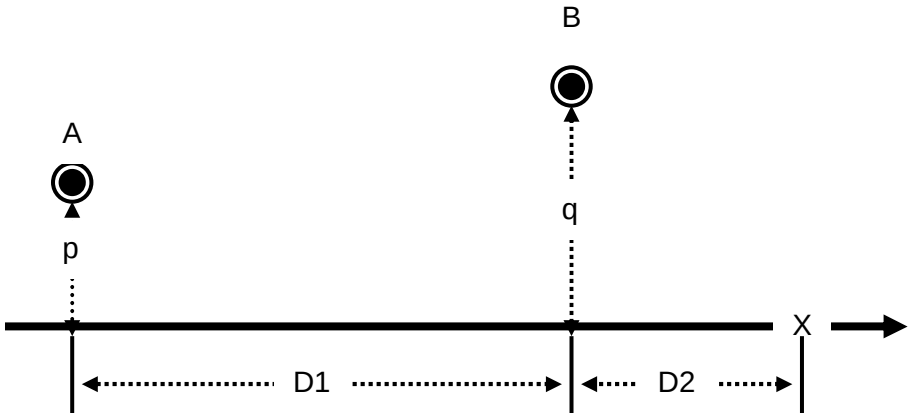
a) 21 nm.
b) 13 nm.
c) 16 nm.
d) 28 nm. (2 Marks)

19 Last light at your planned destination for a day VFR flight is 0835UTC. The TAF includes weather conditions requiring 30 minutes holding. The planned duration of the flight is 55 minutes.

What is the latest time you may depart on this flight in accordance with Visual Flying Rules?

a) 0615 UTC.
b) 0740 UTC.
c) 0700 UTC.
d) 0730 UTC. (2 Marks)

20 With reference to the following diagram:



p	4nm
q	8nm
D1	50nm
D2	40nm

A constant HDG of 115ºM has been maintained since 0300Z (at A)

The HDG required at time 0330Z (at B) to intercept track at X is:

a) 124^0M.
b) 127^0M.
c) 130^0M.
d) 133^0M. (2 Marks)

21 Referring to the figure below:

D1	25nm
D2	50nm
ETA C	0615UTC

on time at A
2 minutes late at B

The revised estimate for C is:

a) 0621UTC.
b) 0619UTC.
c) 0617UTC.
d) 0616UTC. (2 Marks)

22 Refer (BOURKE) WAC 3356:

You plan to fly from NARRABRI (YNBR) (30º 19'S 149º 50'E) direct to ST GEORGE (YSGE) (28º 03'S 148º 36'E). To avoid clouds after departing YNBR you divert left of planned TR along the YNBR-WALGETT railway line. At WEE WAA township (approximately 20 nm WNE NBR) you decide to track direct to YSGE.

Which of the following features would provide the most accurate ground speed check between WEE WAA and YSGE?

a) The Carnarvon highway between Mungindi and ST GEORGE.
b) The Barwon River.
c) The railway line between Moree and Mungindi.
d) The Gwydir highway between Collarenebri and Moree. (2 Marks)

23 During summer in Australia, in what direction from the departure aerodrome will the end of daylight (in LMT) be later?

a) East.
b) South.
c) North.
d) West. (1 Mark)

24 Given:

Pressure altitude	6000ft
OAT	+20ºC
CAS	120 kts

Determine the TAS.

a) 106 kts.
b) 135 kts.
c) 125 kts.
d) 130 kts. (2 Marks)

25 Given

Area Forecast W/V	150/45
Track	080ºT
Variation	10ºE
TAS	145 kts

Determine the approximate HDG (ºM) and ground speed.

a) 053º and 150 kts.
b) 097º and 125 kts.
c) 087º and 125 kts.
d) 095º and 115 kts. (2 Marks)

26 What is the appearance of the graticule on a Normal Mercator projection?

a) Meridians appear as parallel straight lines and parallels of latitude are regular curves concave to the nearest pole.
b) Both meridians and parallels of latitude appear as parallel straight lines.
c) Meridians are curved lines, parallel at the equator and joining at the poles.
d) Meridians converge towards the nearer pole and parallels of latitude cross meridians at 90°. (1 Mark)

27 Your aircraft is fuelled with 286 litres of fuel. Taxi allowance is 15 litres. Average fuel consumption rate is 55 litres/hour. How much fuel will you have used after 22 minutes of flight?

a) 21 litres.
b) 36 litres.
c) 55 litres.
d) 70 litres. (2 Marks)

28 How does Coastal refraction affect a radio navaid?

a) Rapid oscillations in CDI indications when flying over water and tuned to a VOR situated some distance inland
b) Rapid oscillations in ADF indications when flying over water and tuned to a NDB situated some distance inland
c) A constant incorrect bearing indication when flying over water and tuned to a NDB situated some distance inland
d) A constant incorrect radial indication when flying over water and tuned to a VOR situated some distance inland (1 Mark)

Total 50