DOCUMENT
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DOCUMENT TITLE
METEOROLOGY FOR AUSTRALIA

CHAPTER 32 – PAPER 2

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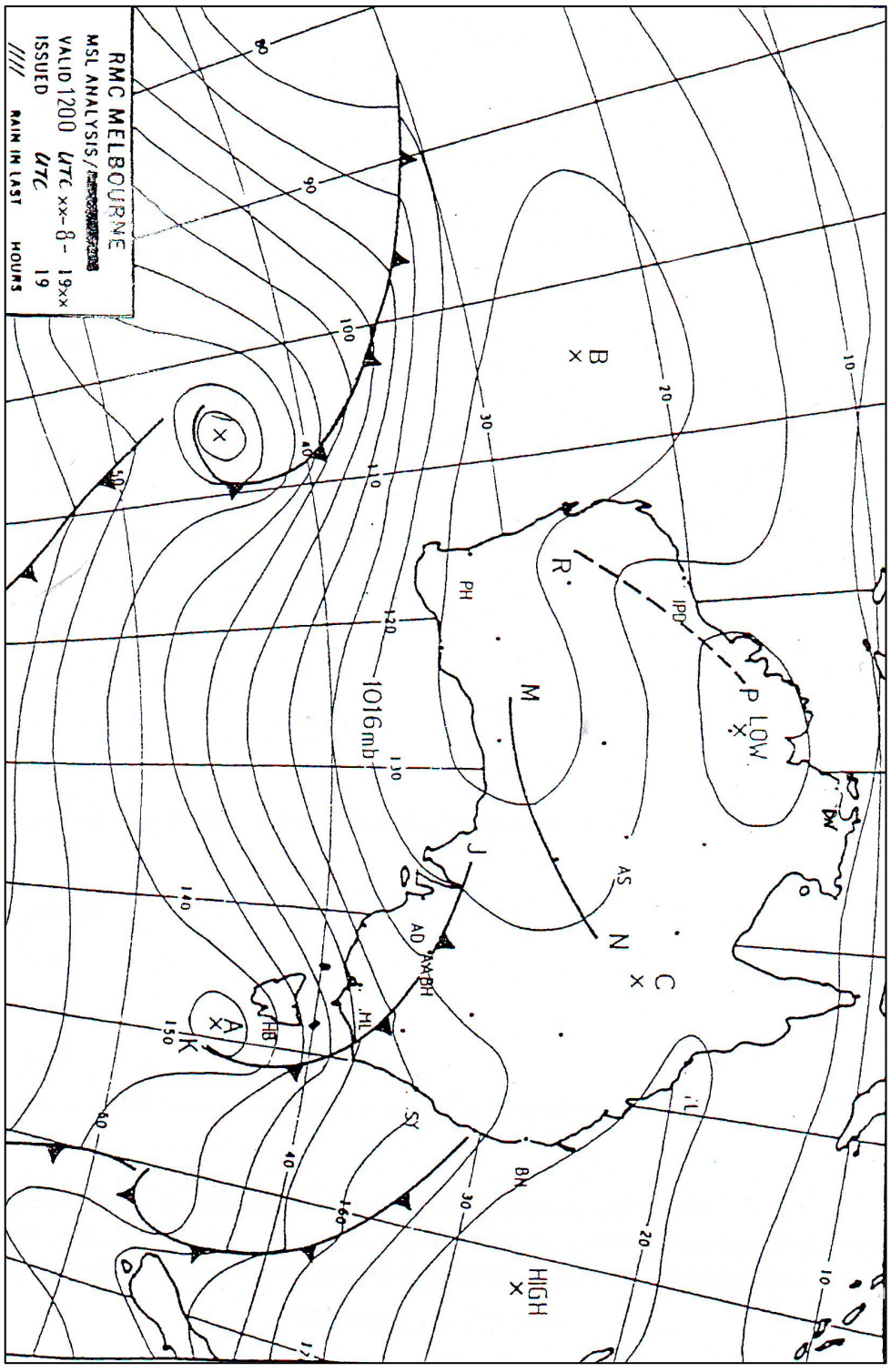
PAPER 2

Suggested Time: 2 Hours

Figure 1 shows a mean sea level isobatic analysis for the Australian region at 1200 Z for a day in August. The isobars are spaced at intervals of 4 hPa apart and the 1016 mb isobar is shown. Questions 1 to 10 refer to this figure.



1. The pressure pattern about the point A is known as a :-
   a. high.
   b. low.
   c. col.
   d. trough.

2. The pressure pattern about the point B is known as a :-
   a. ridge.
   b. low.
   c. col.
   d. high.

3. The pressure pattern about the point C is known as a :-
   a. high.
   b. low.
   c. col.
   d. ridge.

4. The line JK indicates the position of a :-
   a. stationary front.
   b. occluded front.
   c. cold front.
   d. warm front.

5. The line MN indicates the position of a :-
   a. ridge.
   b. isobar.
   c. trough.
   d. front.

6. The line PR indicates the position of a :-
   a. ridge.
   b. isobar.
   c. front.
   d. trough.

7. The wind direction at AD at 1200 Z is closest to :-

   a. 060°(T).

   b. 150°(T).

   c. 240°(T).

   d. 330°(T).

8. The wind direction at 1200 at a point over the ocean 15°S 105°E is closest to:

   a. 090°(T).

   b. 180°(T).

   c. 270°(T).

   d. 360°(T).

9. At 1200 Z the MSL pressure at HB is closest to :-

   a. 1004 hPa.

   b. 998 hPa.

   c. 992 hPa.

   d. 988 hPa.

10. At 1200 Z the MSL pressure at B is closest to :-

   a. 1026 hPa.

   b. 1022 hPa.

   c. 1018 hPa.

   d. 1014 hPa.

The following meteorological messages which were issued shortly after the time of the analysis (Fig. 1) refer to Questions 11 to 14 below –
METAR XXXX 1200 00000 9999 FEW030 15/12 Q 1021
METAR ZZZZ 1200 26012KT 5000 +SH BKN008 BKN015 10/09 Q 992

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11. The station (XXXX) to which the first message refers to :-

   a. BN.

   b. AD.

   c. PH.

   d. PD.

12. The station (ZZZZ) to which the second message refers is :-

    a. SY.

    b. HB.

    c. TL.

    d. DN.

13. The height of the lowest cloud at station ZZZZ is :-

    a. 800 ft AGL.

    b. 1500 ft AGL.

    c. 5000 ft AGL.

    d. 8000 ft AGL.

14. Cloud height in a METAR message refers to the height above :-

    a. mean sea level.

    b. the lowest terrain within 8 km of the runway.

    c. the highest terrain within 8 km of the runway.

    d. the aerodrome reference point.

The following message which was issued during a briefing refers to Questions 15 to 24 . SPECI YAWY 2311 11010G20KT 8000 SH FEW003 BKN006 17/16 Q 1016

15. The message is :-

    a. a routine aerodrome forecast.

    b. a routine aerodrome report.

    c. a Trend Type forecast.

    d. an aerodrome report issued when conditions have deteriorated below specific limits.

16. The expected period of persistence of the conditions is :-

    a. from 2300 Z to 1100Z

    b. from 2311 Z for three hours.

    c. from 2311 Z for two hours.

    d. not specified.

17. The wind direction in the message is :-

    a. 010°.

    b. 100°.

    c. 110°.

    d. 160°.

18. The mean wind speed in the message is :-

    a. 10 knots.

    b. 11 knots.

    c. 15knots.

    d. 20 knots.

19. The visibility in the message is :-

    a. 80 metres.

    b. 800 metres reducing to 160 metres.

    c. 8000 metres.

    d. 8 km or more.

20. The lowest cloud in the message has a base AGL of :-

    a. 200 feet.

    b. 300 feet.

    c. 500 feet.

    d. 600 feet.

21. The type of the lowest cloud in the message is most likely to be :- ch.13

    a. Cumulus.

    b. Altocumulus.

    c. Stratus.

    d. Fog.

22. The dry-bulb temperature in the message is :-

    a. 10°C.

    b. 11°C.

    c. 16°C.

    d. 17°C.

23. The QNH is valid for the time :-

    a. 2300 Z

    b. 2311 Z.

    c. 0200 Z.

    d. 0211 Z

24. The maximum speed of the wind is :-

    a. 10 knots.

    b. 11 knots.

    c. 17 knots.

    d. 20 knots.

25. A private flight over water in a single-engine aircraft is planned. The distance between successive land masses suitable for emergency landings is 40 nm. Under what circumstances must a weather forecast be obtained? Jepps.

    a. In all circumstances.

    b. Only when operating IFR, LIM/IFR or NGT VMC.

    c. Only if the flight is a FULL SAR or SARTIME flight.

    d. Only if the aircraft's MTOW is 1930 kg or more.

26. A VFR flight from Perth (YPPH) to Esperance (YESP) in ARFORS Area 63 is planned. Aerodrome forecasts for ESP are :- Jepps.

    a. issued routinely and are available on request.

    b. not issued routinely, but are available with at least one hours notice.

    c. not issued routinely, but are available with at least three hours notice.

    d. not available. Pilots must assess terminal conditions from the Area Forecast.

27. A SPECI meteorological message refers to :- Jepps.

    a. an airport.

    b. a specific area.

    c. an aircraft position.

    d. a route.

28. An Area QNH has limits of plus or minus :- Jepps.

    a. 1 hPa.

    b. 2 hPa.

    c. 5 hPa.

    d. 10 hPa.

29. An AIREP meteorological message refers to :- Jepps

    a. an airport.

    b. a specific area.

    c. an aircraft position.

    d. a route.

30. Details of any forecast Cumulonimbus cloud will always be contained ion the relevant TTF when the cloud is expected to have a base :- Jepps.

    a. below 20000 feet AGL.

    b. below 10000 feet AGL.

    c. below 5000 feet AGL.

    d. at any level.

31. Noticeable changes in performance may occur on climbing through inversions because the aircraft is ascending to a region of the atmosphere where :- ch.2

    a. the temperature is higher and the pressure higher.

    b. the temperature is higher and the pressure lower.

    c. the temperature is lower and the pressure higher.

    d. the temperature is lower and the pressure lower.

32. An isobar is a line joining places of equal :- ch.4

    a. wind speed.

    b. air pressure.

    c. wind direction.

    d. air temperature.

33. Tropical cyclones in the Australian region are most likely to develop and intensify :- ch.17

    a. over the sea near the equator.

    b. over land near the equator.

    c. over the sea at about 15°S.

    d. over land at abut 15°S.

34. The winds around a high pressure system blow :- ch.4

    a. clockwise in the northern hemisphere and anti-clockwise in the southern hemisphere.

    b. clockwise in the southern hemisphere and anti-clockwise in the northern hemisphere.

    c. clockwise in both hemispheres.

    d. anti-clockwise in both hemispheres.

35. Pressure gradient is related most closely to the spacing of :- ch.9

    a. isotherms.

    b. isobars.

    c. cold fronts.

    d. low pressure centres.

36. Thunderstorms calls are sometimes <u>not</u> visible when embedded in a large cloud mass. The type of cloud this is most likely to be is :- ch.12

    a. Stratocumulus.

    b. Stratus.

    c. Nimbostratus.

    d. Altostratus.

37. Cumuliform clouds are :- ch.7

    a. warmer than the environment.

    b. colder than the environment.

    c. at the same temperature of the environment.

    d. warmer than the environment in the low levels but colder than the environment in the upper levels.

38. Thunderstorms usually develop to greater heights in the tropics than in temperature latitudes because :- ch.2,12,17,20

    a. at 15000 feet the air would be colder in the tropics than in the temperate latitudes.

    b. the tropopause is higher in the tropics than in the temperate latitudes.

    c. the SALR is greater than the DALR in the tropics.

    d. air in the tropics is rarely unstable in the "wet" season.

39. The most dangerous flight path past a mature thunderstorm is :- ch.20,21

    a. downwind above the freezing level.

    b. downwind below the freezing level.

    c. underneath the overhang (anvil).

    d. underneath the storm.

40. When encountering airframe ice in an aircraft not fitted with anti-icing equipment, the pilot's immediate reaction should be to :- ch.19

    a. execute a 180° turn.

    b. descend below the freezing level.

    c. climb until the temperature is about -15°C.

    d. increase speed.

41. Rime ice may be dangerous because it alters the aerofoil shape and :- ch.19

    a. adds considerable weight to the aircraft.

    b. is the most difficulty type to remove.

    c. spreads back over most of the aerofoil section.

    d. may block the pitot tube.

42. What is the principal hazard related to the accumulation of ice on propeller blades? ch.19

    a. Reduction of efficiency by alteration of the aerodynamic shape.

    b. Damage to the airframe and control surfaces by chunks of ice being thrown off.

    c. Damage to the engine by its having to turn the extra weight of the ice.

    d. There is no hazard because propellers move too fast to accumulate ice.

43. Atmospheric relative humidity inside a fog is :- ch.5

    a. 50%.

    b. 90%.

    c. 100%.

    d. 110%.

44. In undulating country, fog often occurs in valleys because :- ch.14

    a. of the normal decrease of temperature with increase of height.

    b. saturated air is denser than unsaturated air.

    c. gradient winds cannot reach the valleys to clear the fog.

    d. the coldest air descends down the slopes at night.

45. On final approach on a hot calm day, most turbulence is likely to occur when the approach path is over :- ch.3,18

    a. ploughed fields.

    b. open pasture.

    c. thick bush.

    d. water.

46. "Rotor" clouds are associated with :- ch.18

    a. thunderstorms.

    b. mountain waves.

    c. cold fronts.

    d. low level jets.

47. For the formation of mountain waves, the wind strength near the top of the mountain range :- ch.18

    a. must be at least 20 knots and gusty.

    b. must be at least 25 to 30 knots.

    c. must be at least 45 to 50 knots.

    d. can be as low as 10 knots as long as there is a smooth deep flow at nearly right angles to the mountain.

48. A large and sudden DECREASE in headwind component during an approach will, with attitude and power constant, cause the airspeed to :- ch.18,ady

    a. decrease and then return to normal.

    b. increase and then return to normal.

    c. remain the same throughout.

    d. increase steadily until the roundout.

49. A sea breeze is most likely to occur at :- ch.10

    a. 0300 LST.

    b. 0900 LST.

    c. 1500 LST.

    d. 2100 LST.

50. A pilot is committed to a forced landing on flat coastal terrain on the east coast of Australia on a summer afternoon. Wind aloft is light westerly. Given a choice, what should be the direction for the final approach? ;- ch.10

    a. East.

    b. South.

    c. West.

    d. North.

ANSWERS

1.	b	11.	c	21.	a	31.	b	41.	d
2.	d	12.	b	22.	d	32.	b	42.	a
3.	c	13.	a	23.	b	33.	c	43.	c
4.	c	14.	d	24.	d	34.	a	44.	d
5.	a	15.	d	25.	a	35.	b	45.	a
6.	d	16.	d	26.	a	36.	c	46.	b
7.	c	17.	c	27.	a	37.	a	47.	b
8.	a	18.	a	28.	c	38.	b	48.	a
9.	c	19.	c	29.	c	39.	d	49.	c
10.	b	20.	b	30.	d	40.	b	50.	a