DOCUMENT
GSM-AUS-CPL.024

DOCUMENT TITLE
METEOROLOGY FOR AUSTRALIA

CHAPTER 34 – PAPER 4

Version 3.0
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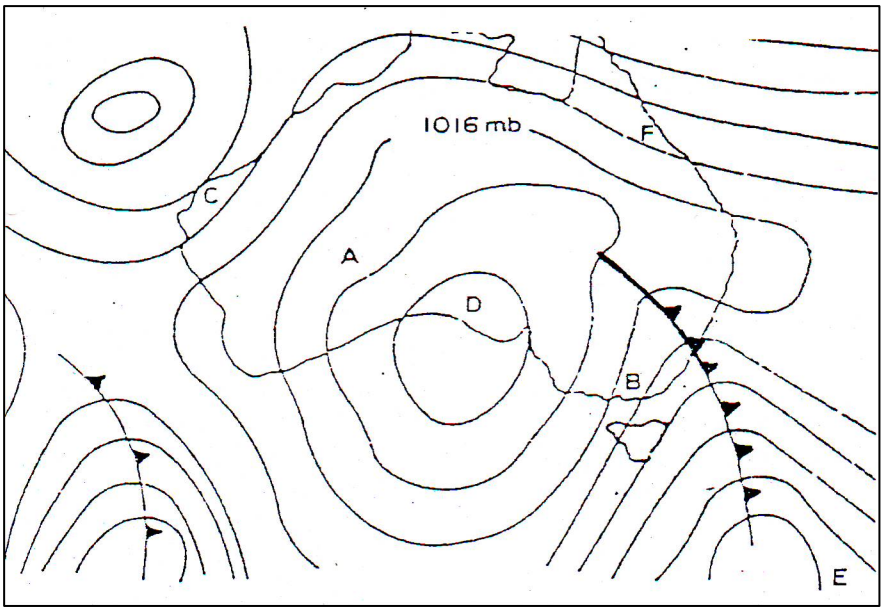
PAPER 4

Suggested Time: 2 Hours

Questions 1 to 5 refer to the MSL chart below. ch.4
Isobar spacing is 2 hPa.



1. One of the stations report 6/8 Cu 2000' with showers and a wind of 230/25. The most likely station would be :-

   a. A.

   b. B.

   c. C.

   d. D.

2. One of the stations reports a wind of 330/25 and 8/8 As 9000' with Rain. The most likely station would be :-

   a. C.

   b. D.

   c. E.

   d. F.

3. One of the stations reports a wind of 060/10, no cloud and fine. The most likely station would be :-

   a. A.

   b. B.

   c. C.

   d. D.

4. One of the stations reports a wind of 140/15 and 4/8 Cu 3000' and 4/8 Sc 6000' with showers. The most likely station would e :-

   a. C.

   b. D.

   c. E.

   d. F.

5. One of the stations reports a wind of 200/05, no cloud and fine. The most likely station would be :-

   a. A.

   b. B.

   c. C.

   d. D.

6. A pilot flying an aircraft and maintaining an indicated altitude of 3,000 feet is flying from high pressure towards lower pressure. The aircraft is :- ch.6,9

   a. ascending relative to MSL and experiencing left drift.

   b. descending relative to MSL and experiencing left drift.

   c. ascending relative to MSL and experiencing right drift.

   d. descending relative to MSL and experiencing right drift.

7. At a quasi-stationary front the cold air is :- ch.15,16

   a. not moving horizontally but is rising vertically.

   b. not moving horizontally but is subsiding.

   c. Moving horizontally, parallel to the front.

   d. Moving horizontally at right angles to the front.

8. An inversion aloft is formed by :- ch.2

   a. adiabatic heating.

   b. adiabatic cooling.

   c. cooling by compression.

   d. condensation.

9. During the formation of a surface inversion, the lower layer of the atmosphere loses heat by :- ch.2

   a. Conduction.

   b. Advection.

   c. Convection.

   d. Radiation.

10. Which of the following cloud types is most likely to produce virga? ch. 12,21

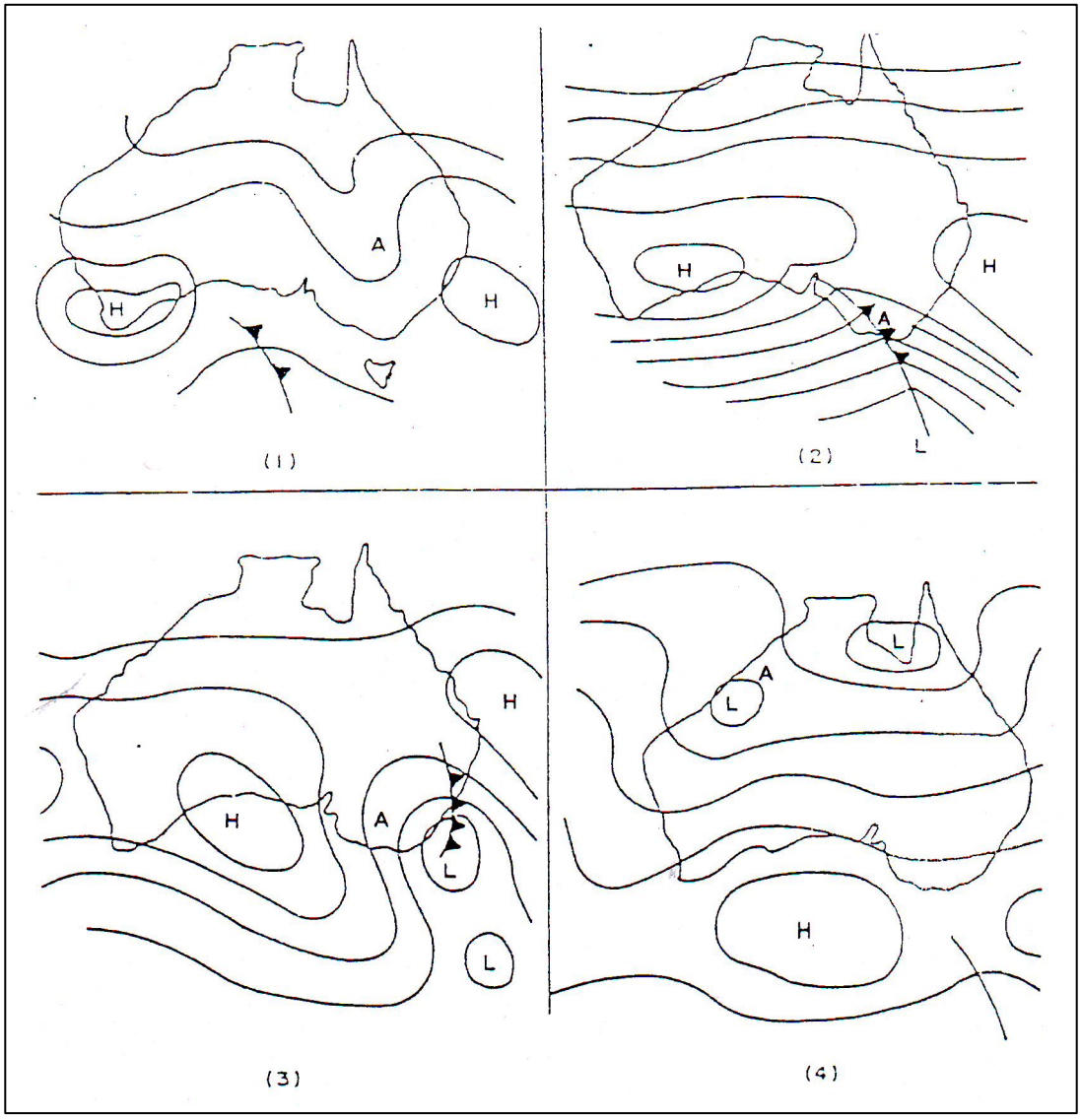
   a. Stratus.

   b. Nimbostratus.

   c. Altocumulus.

   d. Cirrostratus.

Questions 11 to 14 refer to the following: ch.20
"Thunderstorms are classified according to the meteorological processes immediately involved in their formation. There are six types". At the station marked A on each of the MSL Charts a thunderstorm is occurring.



11. On Chart 1 the thunderstorm occurring at A is most likely to be a :-

    a. heat thunderstorm.

    b. frontal thunderstorm.

    c. orographic thunderstorm.

    d. convergence thunderstorm.

12. On Chart 2 the thunderstorm occurring at A is most likely to be a :-

    a. Nocturnal equatorial thunderstorm.

    b. Cold stream thunderstorm.

    c. Heat thunderstorm.

    d. Frontal thunderstorm.

13. On Chart 3 the thunderstorm occurring at A is most likely to be a :-

    a. Cold stream thunderstorm.

    b. Frontal thunderstorm.

    c. Heat thunderstorm.

    d. Nocturnal equatorial thunderstorm.

14. On Chart 4 the thunderstorm occurring at A is most likely to be a :-

    a. Nocturnal equatorial thunderstorm.

    b. Convergence thunderstorm.

    c. Heat thunderstorm.

    d. Frontal thunderstorm.

15. Low ceilings and reduced surface visibility are most likely with the presence of :- ch.12

    a. Altocumulus.

    b. Cumulus.

    c. Stratocumulus.

    d. Nimbostratus.

16. The wind direction at an aerodrome has <u>just</u> changed from north-west to south-west because of the passage of a cold front. From which direction is the wind blowing 5,000 feet above the aerodrome;- ch.15,16

    a. Northeast.

    b. Southeast.

    c. Southwest.

    d. Northwest.

17. Cold streams over southeast Australia are usually unstable because :- ch.15

    a. The ocean surface over which the stream has passed is colder than the stream.

    b. The land surface over which the stream is passing is warmer than the stream.

    c. As the stream moves northward, the air in the upper troposphere becomes warmer.

    d. The sea breeze reinforces the southerly stream, making the air in the lower troposphere colder.

18. The zone of transition between two air masses of different density is commonly referred to as a :- ch.15

    a. Front.

    b. Friction layer.

    c. Turbulence zone.

    d. Trough.

19. In an aerodrome forecast the term which means that the phenomenon or variation will occur for periods of time equal to or greater than 30 minutes but less than 60 minutes is :- Jepps.

    a. TEMPO.

    b. AMD.

    c. INTER.

    d. PROB.

20. TTF SPECI YMML 0330 29012G23KT 9999 SHRA FEW025 14/10 Q1019 FM 0500 CAVOK. Jepps.
    The validity period of the TTF is :-

    a. 1 hour.

    b. 2 hours.

    c. 3 hours.

    d. 4 hours.

21. A rapidly moving steep cold front having little cloud associated with it would indicate that :- ch.15,16

    a. The warm air is stable.

    b. The cold air is stable.

    c. The warm air is relatively dry.

    d. The cold air is relatively dry.

22. A cloud formed by local heating of the earth's surface would be :- ch.12

    a. Cumulus.

    b. Stratus.

    c. Cirrostratus.

    d. Cirrocumulus.

23. A radiation fog will tend to have a greater depth :- ch.14

    a. in calm conditions due to the greater cooling.

    b. With light winds because turbulence mixes the cold air to higher levels of the atmosphere.

    c. in calm conditions because the absence of turbulence allows the water vapour to condense at higher levels of the atmosphere.

    d. With light winds because of the greater cooling.

24. "FM" indicates in a forecast :- Jepps

    a. a permanent change to the following conditions.

    b. a temporary change to the following conditions.

    c. a temporary change for a short period.

    d. a permanent change for 30 minutes.

25. Dangerous icing conditions are most frequently encountered in :- ch.19

    a. Cirrus cloud.

    b. Regions of falling pressure.

    c. Regions of rising pressure.

    d. Nimbostratus clouds.

26. When the temperature and dewpoint are equal :- ch.5

    a. the temperature is above freezing.

    b. the relative humidity is low.

    c. the air is in equilibrium.

    d. clouds or fog may form.

27. Clouds classified as high clouds are :- ch.12

    a. Altostratus: Altocumulus.

    b. Stratus: Stratocumulus.

    c. Nimbostratus: Cumulonimbus.

    d. Cirrus: Cirrostratus: Cirrocumulus.

28. The turbulence associated with a thunderstorm is most severe :- ch.20

    a. Immediately before any cloud is formed.

    b. During the growing (or cumulus) stage.

    c. During the mature stage.

    d. During the dissipating stage.

29. A front is called a cold front when :- ch15,16

    a. there is a horizontal movement of cold air.

    b. cold air is flowing over warm air.

    c. warm air is displacing cold air at the surface.

    d. cold air is displacing warm air at the surface.

30. You would expect severe turbulence at a height of 3,000 feet above the ground at a:- ch.15,16

    a. rapidly moving warm front.

    b. rapidly moving cold front with unstable air.

    c. warm front with unstable air between layers.

    d. slowly moving cold front with stable air.

31. Airframe icing is most likely to occur when :- ch.19

    a. there is no visible moisture present and the temperature is above 0°C.

    b. there is no visible moisture present and the temperature is below 0°C.

    c. visible moisture is present and the temperature is below freezing point.

    d. Visible moisture is present and the temperature is above freezing point.

32. An inversion aloft marks a level at which :- ch.2

    a. the base of stratocumulus cloud often occurs.

    b. Stratiform cloud becomes convective cloud.

    c. The top of radiation fog occurs.

    d. Vertical currents from the ground may be blocked.

33. A TAF is a forecast of conditions for a particular Aerodrome :- Jepps.
    a. within visual range from the Met Office.
    b. within the confines of the aerodrome boundaries.
    c. within a 5nm radius from the centre of the airport or runway complex.
    d. within a 30 km radius from the centre of the airport or runway complex.

34. If the sky is seven eighths covered by middle level cloud, the cloud cover is classified as :- Jepps.
    a. OVC.
    b. SKC.
    c. BKN.
    d. SCT.

35. If the only cloud along a route is overcast cirrostratus, a pilot should encounter: - ch.12
    a. no precipitation.
    b. light drizzle.
    c. virga.
    d. slight rain.

36. The surface wind direction given in an ATIS broadcast is :- Jepps.
    a. the direction from which the wind is blowing in degrees true.
    b. the direction from which the wind is blowing in degrees magnetic.
    c. the direction to which the wind is blowing in degrees true.
    d. the direction to which the wind is blowing in degrees magnetic.

37. If the air is stable in the lower layers and the wind is light you can expect :- ch.7
    a. smooth flying conditions and unlimited visibility.
    b. smooth flying conditions and restricted visibility.
    c. bumpy flying conditions with unlimited visibility.
    d. bumpy flying conditions and restricted visibility.

38. An environmental temperature trace for a particular station at a particular time shows a layer of the atmosphere where the temperature increases with height: Within this layer the atmosphere is said to :- ch.2,7

    a. be stable.

    b. be unstable.

    c. be conditionally stable.

    d. have neutral stability.

39. Areas of sinking air are generally cloudless because as the air sinks it is :- ch.2,7,12

    a. warmed by expansion.

    b. cooled by expansion.

    c. cooled by compression.

    d. warmed by compression.

40. Suppose a strong temperature inversion exists near the surface. Should this phenomenon be considered hazardous to aircraft;- ch.2

    a. No, temperature inversion near the surface creates smooth air and good visibility.

    b. No, a sudden change in outside air temperature would be the only evidence of a temperature inversion.

    c. Yes, a potential hazard exists due to strong steady down draughts.

    d. Yes, a potential hazard exists due to turbulence created by wind shear.

41. Thick radiation fog occurs frequently with :- ch.14

    a. partial stratus cloud cover.

    b. complete cloud cover.

    c. light winds and clear skies at night.

    d. dead calm conditions and clear skies at night.

42. Which of the following clouds would be the most likely to be associated with slight continuous rain;- ch.12,13

    a. Cumulonimbus.

    b. Nimbostratus.

    c. Stratocumulus.

    d. Altostratus.

43. Dust storms are likely over arid land when there are :- ch.14

    a. light winds and stable conditions.

    b. strong winds and stable conditions.

    c. light winds and unstable conditions.

    d. strong winds and unstable conditions.

44. The "ideal" warm front differs from the "ideal" cold front because :- ch.15,16

    a. the frontal surfaces tend to slope in opposite directions relative to the direction of movement.

    b. the warm air mass behind the warm front has a higher temperature than the warm air mass ahead of the cold front.

    c. the MSL barometric pressure is not as low on a warm front.

    d. Cumulus type cloud forms only on a cold front surface.

45. Streamlines, which are generally drawn on charts which analyse tropical air flow, are best defined as :- ch.9

    a. joining places of equal wind direction.

    b. joining places of equal wind speed.

    c. being always tangential to the instantaneous wind direction.

    d. being perpendicular to the wind direction and spaced according to the wind speed.

46. The temperatures and QNH values in a routine TAF are given in :- Jepps.

    a. 4 hourly intervals starting from time of commencement of TAF.

    b. 3 hourly intervals starting 3 hours after time of commencement of TAF.

    c. 4 hourly intervals starting 3 hours after time of commencement of TAF.

    d. 3 hourly intervals starting from time of commencement of TAF.

47. Flight through rain when the temperature is below freezing may result in :- ch19

    a. heavy frost accretion.

    b. moderate to heavy rime ice.

    c. moderate to heavy clear ice.

    d. light rime ice.

48. A subsidence inversion is caused by :- ch.2

    a. radiation cooling.

    b. solar heating.

    c. adiabatic cooling.

    d. Adiabatic heating.

49. In which of the following cloud types would the most severe airframe icing be expected;- ch.19

    a. altostratus cloud.

    b. towering cumulus cloud.

    c. stratocumulus cloud.

    d. stratus cloud.

50. Information about the expected occurrence of winds or 40 kt or more within 2,000 feet above ground level, passed to a pilot during flight, is called :- Jepps

    a. an AIREP.

    b. an AIRMET.

    c. a SIGMET.

    d. a SPECIAL AIREP.

ANSWERS

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