

Weather questions

Question 1 (1 Mark)

State what information is included in a cyclone warning.

Question 2 (1 Mark)

In which direction do winds travel around a high pressure system in the southern hemisphere?

- a. Clockwise outward.
- b. Anti-clock wise inward.
- c. Clockwise inward.
- d. Anti-clock wise outward.

Question 3 (4 Marks)

The weather forecast for New South Wales coastal waters indicates that a cold front is expected during the afternoon. Describe the offshore weather conditions you would expect ahead of the passage of the cold front through the area.

Question 4 (1 Mark)

Brief, violent showers frequently accompanied by thunder and lightning are usually associated with

- a. Passage of a cold front.
- b. Winds shifting counter clockwise in the northern hemisphere.
- c. Stationary high pressure system.
- d. Passage of a warm front.

Question 5 (2 Marks)

List four weather observations which can be made onboard, which would assist in weather prediction.

Question 6 (1 Mark)

Swell waves are described as moderate if their height is in the range:

- a. 2.00 to 4.00 metres.
- b. 0.00 to 2.00 metres.
- c. Over 10.00 metres.
- d. Over 4.00 metres.

Question 7 (1 Mark)

The most important information you can obtain from your barometer is the:

- a. presence of temperature and pressure gradients.
- b. local temperature and pressure conditions.
- c. ambient temperature of the atmosphere.
- d. rate and direction of changes in atmospheric pressure

Question 8 (1 Mark)

You are master of a vessel off the Queensland coast, steering east into an increasing wind which is backing slowly. A tropical revolving storm is known to be approaching. What is the best possible action to avoid the storm?

- a. Proceed at best speed and keep wind 10 to 45 degrees on port bow.
- b. Proceed at slow speed and heave to.
- c. Proceed at best speed and keep wind on port quarter.
- d. Proceed at best speed and keep wind 10 to 45 degrees on starboard bow.

Question 9 (1 Mark)

With reference to the time of day at which it is issued, state what period of time is covered by a small craft meteorological forecast:

- a) issued in the morning

b) issued in the afternoon

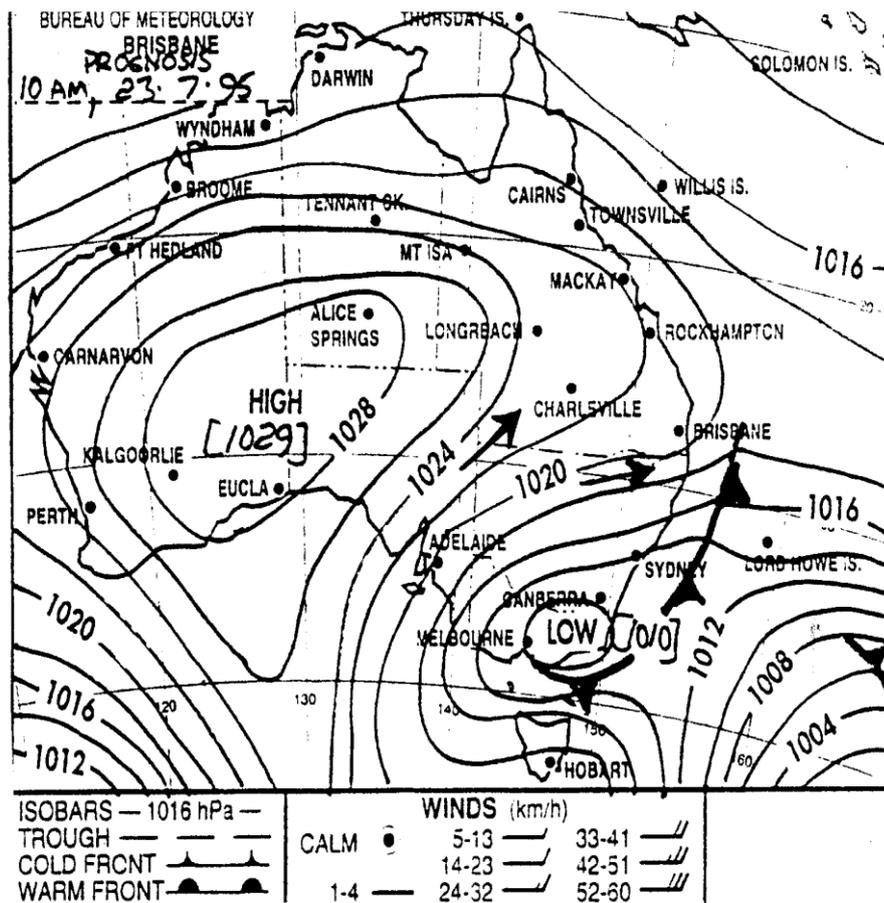
c) issued at other times

Question 10 (1 Mark)

The atmosphere in the vicinity of a high pressure area is called:

- a. an occluded front.
- b. an anticyclone.
- c. a cyclone.
- d. a cold front.

Question 11 (4 Marks)



Answer the following questions with regard to Gabo Island off the south coast of New South Wales.

- a. What is the atmospheric pressure at Gabo Island?

b. What is the probable wind direction at Gabo Island?

c. What is the probable wind speed at Gabo Island?

d. What is the state of the sea at Gabo Island?

Question 12 (1 Mark)

As a high pressure system approaches a barometer:

- a. falls then rises.
- b. falls.
- c. stays steady.
- d. rises.

Question 13 (2 Marks)

Describe what causes a “sea breeze”, and state when they usually occur.

Question 14 (1 Mark)

Sea waves are described as moderate if their height is in the range:

- a. 1.25 to 2.50 metres.
- b. 2.50 to 4.00 metres.
- c. 0.50 to 1.25 metres.
- d. 4.00 to 6.00 metres.

Question 15 (1 Mark)

Prior to reading an aneroid barometer, you should tap the face lightly with your finger to:

- a. Contract and expand the glass face.
- b. Expose any loose connections.
- c. Demagnetise the metal elements.
- d. Bring the pointer to its true position.

Question 16 (1 Mark)

A vessel in the eye of a cyclone will experience the lowest barometric pressure and:

- a. no wind.
- b. strong winds.
- c. zero visibility.
- d. heavy rain.

Question 17 (1 Mark)

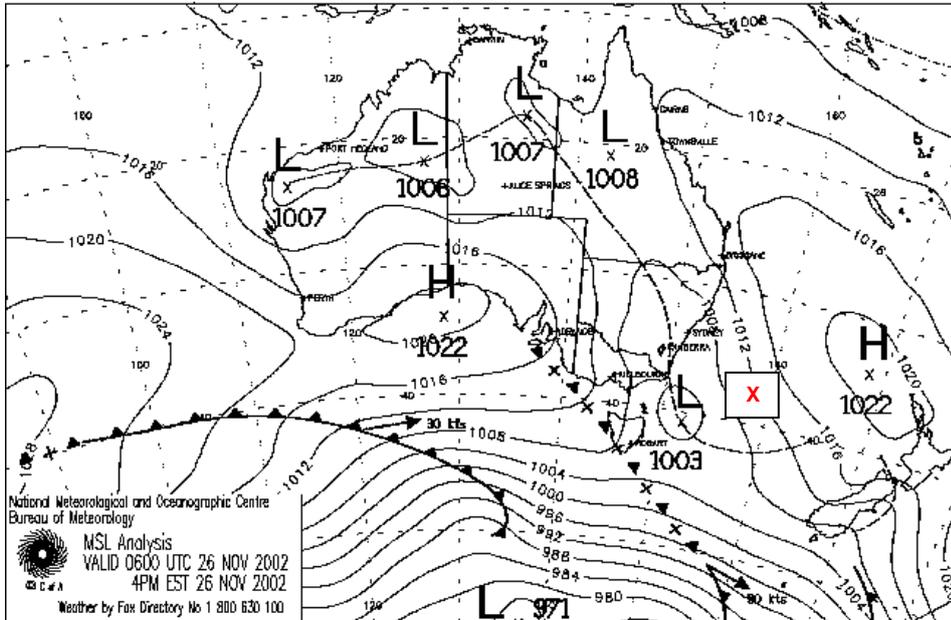
State what period of time is covered by a small craft meteorological forecast which is issued in the afternoon.

Question 18 (1 Mark)

The atmosphere in the vicinity of a high pressure area is called:

- a. an occluded front.
- b. a cold front.
- c. a cyclone.
- d. an anticyclone.

Question 19 (4 Marks)



Answer the following questions with regard to position 'X' off the New South Wales coast. Position 'X' is shown to the east of Sydney on the weather map above.

a. What is the atmospheric pressure at position 'X'?

b. What is the probable wind direction at position 'X'?

c. What is the probable wind speed at position 'X'?

What change could be expected in the wind speed and direction?

Question 20 (1 Mark)

What is the most useful information for predicting the weather?

- a. The current reading of the barometer.
- b. The direction and rate of change of barometric readings.
- c. The current temperature and temperature gradient.
- d. The reading of the barometer three hours ago.

Question 21 (2 Marks)

Describe what causes a "sea breeze", and state when they usually occur.

Question 22 (1 Mark)

The wind speed of a moderate breeze is in the range:

- a. 11 to 16 knots.
- b. 4 to 6 knots.
- c. 7 to 10 knots.
- d. 1 to 3 knots.

Question 23 (1 Mark)

The purpose of the "set" hand on an aneroid barometer is to:

- a. adjust the barometer on a daily basis.
- b. correct the barometer for the height above sea level.
- c. indicate any change in the reading of the barometer.
- d. correct the barometer for temperature changes.

Question 24 (1 Mark)

You are master of a vessel off the Queensland coast, steering east into an increasing wind which is backing slowly. A tropical revolving storm is known to be approaching. Where is the tropical revolving storm in relation to the vessel?

- a. East.
- b. West.
- c. North.
- d. South.

Question 25 (1 Mark)

An onshore wind:

- a. has no effect on tides
- b. causes lower tides.
- c. causes higher tides.
- d. affects only neap tides.

Question 26 (1 Mark)

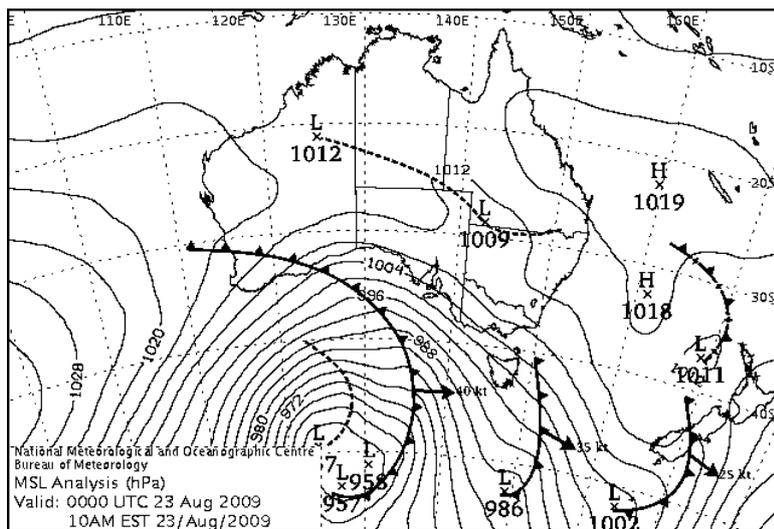
List at least four sources for weather reports and warnings.

Question 27 (1 Mark)

As a cold front passes, the pressure:

- a. drops and wind becomes variable.
- b. Rises and winds become variable.
- c. Drops and wind becomes gusty.
- d. rises and winds become gusty.

Question 28(4 Marks)



Answer the following questions with regard to the weather map above.

- a. Where would you expect to find gale conditions on the New South Wales coast, and what would be the probable wind direction?

- b. What do you estimate the wind direction and strength to be off Sydney?

Question 29 (1 Mark)

Brief, violent showers frequently accompanied by thunder and lightning are usually associated with

- a. Passage of a cold front.
- b. Stationary high pressure system.
- c. Winds shifting counter clockwise in the northern hemisphere.
- d. Passage of a warm front.

Question 30 (2 Marks)

List four weather observations which can be made onboard, which would assist in weather prediction.

Question 31 (1 Mark)

Swell waves are described as moderate if their height is in the range:

- a. 0.00 to 2.00 metres.
- b. 2.00 to 4.00 metres.
- c. Over 10.00 metres.
- d. Over 4.00 metres.

Question 32 (1 Mark)

The purpose of the "set" hand on an aneroid barometer is to:

- a. indicate any change in the reading of the barometer.
- b. correct the barometer for the height above sea level.
- c. correct the barometer for temperature changes.
- d. adjust the barometer on a daily basis.

Question 33(1 Mark)

You are master of a vessel off the Queensland coast, steering east into an increasing wind which is backing slowly. A tropical revolving storm is known to be approaching. Where is the tropical revolving storm in relation to the vessel?

- a. West.
- b. East.
- c. South.
- d. North.

Question 34 (1 Mark)

List the information which is usually included in a weather forecast.

Question 35 (1 Mark)

A 'pressure gradient' is:

- a. The rate of change of barometric pressure.
- b. A line joining places of the same pressure.
- c. A grading system of pressure.
- d. A line joining places of zero pressure.

Question 36 (4 Marks)

The weather forecast for New South Wales coastal waters indicates that a cold front is expected during the afternoon. Describe the offshore weather conditions you would expect ahead of the cold front

Question 37 (1 Mark)

According to the Buys-Ballot Law for the southern hemisphere, a person facing the wind has the centre of the low pressure:

- a. directly behind.
- b. about 90 degrees on the right.
- c. right ahead.
- d. about 90 degrees on the left.

Question 38 (2 Marks)

Describe what causes a "sea breeze", and state when they usually occur.

Question 39 (1 Mark)

The wind speed of a light breeze is in the range:

- a. 1 to 3 knots.
- b. 4 to 6 knots.
- c. 11 to 16 knots.
- d. 7 to 10 knots.

Question 40 (1 Mark)

The purpose of the "set" hand on an aneroid barometer is to:

- a. indicate any change in the reading of the barometer.
- b. correct the barometer for the height above sea level.
- c. adjust the barometer on a daily basis.
- d. correct the barometer for temperature changes.

Question 41 (1 Mark)

A vessel in the eye of a cyclone will experience the lowest barometric pressure and:

- a. strong winds.
- b. heavy rain.
- c. no wind.
- d. zero visibility.

Question 42 (1 Mark)

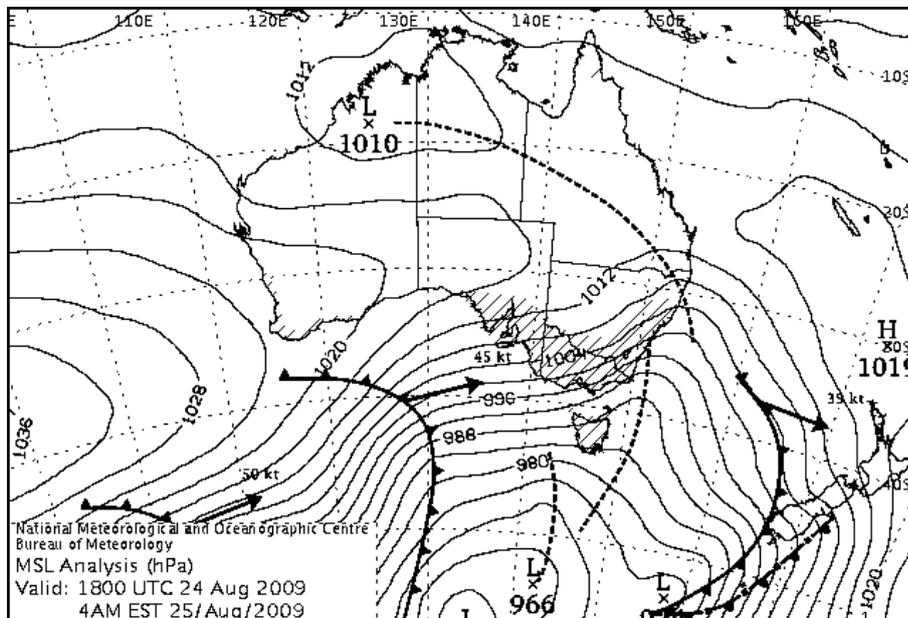
State what period of time is covered by a small craft meteorological forecast which is issued in the afternoon.

Question 43(1 Mark)

As it approaches, a typical warm front will bring:

- a. rising barometric pressure and temperature.
- b. falling temperature and pressure.
- c. falling temperature and rising pressure.
- d. rising temperatures and falling barometric pressure.

Question 44 (4 Marks)



Answer the following questions with regard to the weather map above.

- a. Where would you expect to find gale conditions on the New South Wales coast, and what would be the probable wind direction?
-

- b. What do you estimate the wind direction and strength to be off Sydney?
-

Question 45 (1 Mark)

What is the most useful information for predicting the weather?

- a. The reading of the barometer three hours ago.
- b. The current temperature and temperature gradient.
- c. The current reading of the barometer.
- d. The direction and rate of change of barometric readings.

Question 46 (2 Marks)

Describe what causes a "land breeze", and state when they usually occur.

Question 47 (1 Mark)

Sea waves are described as moderate if their height is in the range:

- a. 0.50 to 1.25 metres.
- b. 4.00 to 6.00 metres.
- c. 1.25 to 2.50 metres.
- d. 2.50 to 4.00 metres.

Question 48 (1 Mark)

Which indications provided by a barometer are most meaningful in forecasting weather?

- a. The direction and rate of change of air pressure.
- b. The words "Fair - Change - Rain"
- c. The actual barometric pressure and temperature.
- d. The relative humidity and air temperature.

Question 49(1 Mark)

You are master of a vessel off the Queensland coast, steering east into an increasing wind which is backing slowly. A tropical revolving storm is known to be approaching. What is the best possible action to avoid the storm?

- a. Proceed at slow speed and heave to.
- b. Proceed at best speed and keep wind 10 to 45 degrees on port bow.
- c. Proceed at best speed and keep wind 10 to 45 degrees on starboard bow.
- d. Proceed at best speed and keep wind on port quarter.

Question 50 (1 Mark)

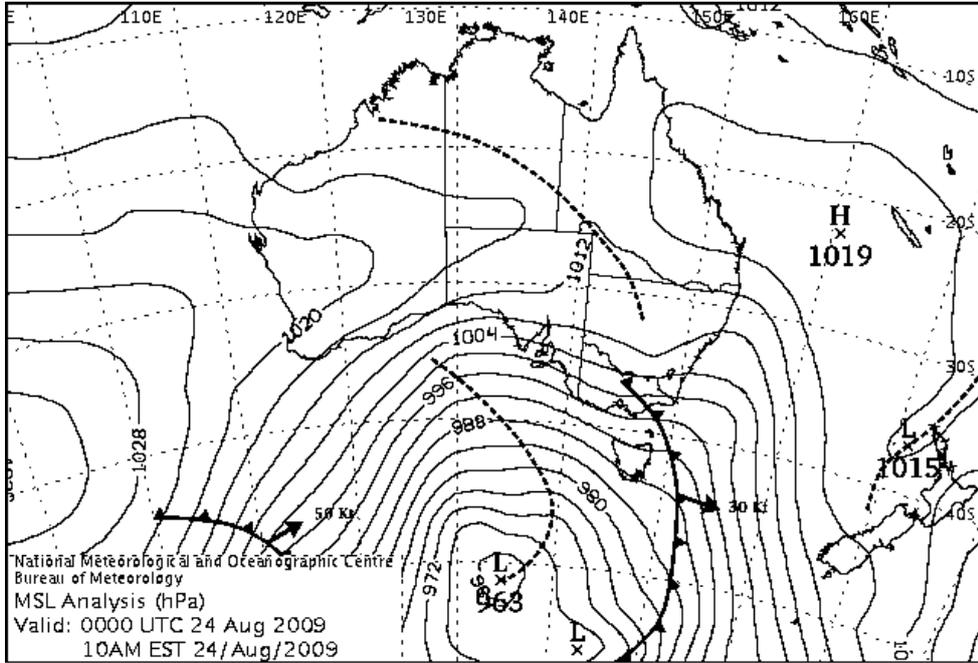
State what period of time is covered by a small craft meteorological forecast which is issued in the morning.

Question 51 (1 Mark)

As a cold front passes, the pressure:

- a. rises and winds become gusty.
- b. Drops and wind becomes gusty.
- c. Rises and winds become variable.
- d. drops and wind becomes variable.

Question 29 (4 Marks)



Answer the following questions with regard to Gabo Island off the south coast of New South Wales.

a. What is the atmospheric pressure at Gabo Island?

b. What is the probable wind direction at Gabo Island?

c. What is the probable wind speed at Gabo Island?

d. What is the state of the sea at Gabo Island?

Question 52 (1 Mark)

As a high pressure system approaches a barometer:

- a. rises.
- b. falls.
- c. stays steady.
- d. falls then rises.

Question 53 (2 Marks)

Describe what causes a "land breeze", and state when they usually occur.

Question 54 (1 Mark)

Sea waves are described as slight if their height is in the range:

- a. 1.25 to 2.50 metres.
- b. 4.00 to 6.00 metres.
- c. 2.50 to 4.00 metres.
- d. 0.50 to 1.25 metres.

Question 55 (1 Mark)

Which indications provided by a barometer are most meaningful in forecasting weather?

- a. The words "Fair - Change - Rain"
- b. The relative humidity and air temperature.
- c. The actual barometric pressure and temperature.
- d. The direction and rate of change of air pressure.

Question 56 (1 Mark)

In a cyclone, a trough line is:

- a. another name of the eye.
- b. the line of lowest pressure.
- c. its curving point.
- d. the southern limit of its travel.

Question 57 (9 Marks)

1.
 - a) In which direction do winds travel around a high pressure system in the southern hemisphere?
 - b) Use a diagram to explain what is a 'pressure gradient' in a pressure system?

Answer.

- a) anti-clock

- b) Rate of change of barometric pressure. At right-angles to direction of isobars, expressed in hPc/mile.

2.

Explain the daily phenomenon of a sea breeze
(ANABATIC BREEZE)

3.

- a) If there is a high pressure system of 1035 Hectopascals in the Great Australian Bight, what direction and strength of winds would you expect on the North Queensland Coast?

- b) What else might you expect with a ridge forming on the North Queensland Coast?

Answer.

4.

- a) North (Charts. No ref in text books)

- b) SE Meteorology for Mariners Page 227

5.

Explain the difference between a rapidly falling barometer versus a slowly falling barometer at the approach of a cold front?

Answer.

6.

What sort of weather might you expect with:

- a) rising air in a low pressure system

- b) descending air in a high pressure system

Answer.

- a) Approaching cold front. Barometer falling, wind freshening and increasing rain. Onset of rough seas.

- b) Settled weather, clear visibility and light winds. Calm seas.

7.

List three ways by which you might gain weather information.

Answer.

- a) Weather forecasts from Coast Radio Stations
- b) Weatherfax transmissions
- c) Local observations of barometer, thermometer, humidity, wind and sea, cloud state.

8.

How would a strong sea breeze affect the SE Trade Winds on the Queensland Coast?

Answer.

It would accelerate windspeed and cause backing towards the East.

9.

List the signs of a T.R.S. in your area.

Answer.

Cirrus Cloud, Swell, Barometer, Significant Wind Shift, Lurid sunrise/sunset. Clear atmosphere day before, High Humidity.