Examiner Only	
Marks	Remark

(b) A rain gauge is used to measure precipitation. Describe a rain gauge and explain how the amount of precipitation is measured.

Description

_____

_____

_____

_____

_____

_____ [3]

Explanation of how precipitation is measured.

_____

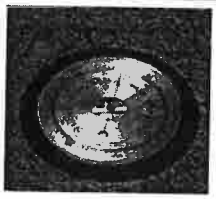
_____

_____

_____ [2]

2 (a) Study **Table 1** which shows two weather recording instruments. Answer the question which follows. (2010)

Table 1

IMAGE OF INSTRUMENT	NAME OF INSTRUMENT	ELEMENT OF WEATHER RECORDED	UNIT OF MEASUREMENT
 © CCEA		AIR PRESSURE	
 © CCEA	ANEMOMETER		KNOTS

Complete **Table 1** by writing the correct answers in the blank boxes [3]

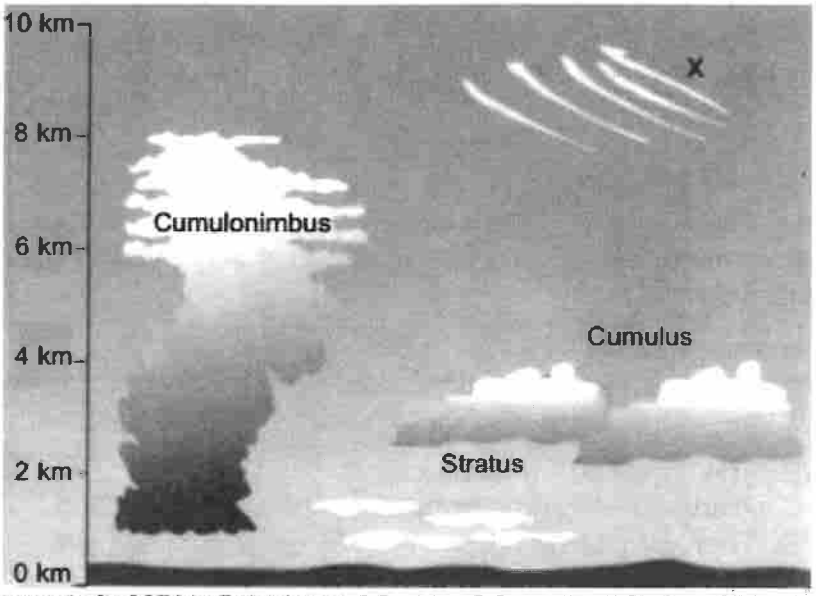
Past Paper Questions

UNIT 1 Theme C: Our Changing Weather and Climate

1 - Measuring the elements of the weather

2011 Q2(a)(i), (ii)

2 **(a)** Study **Fig. 5** which shows different types of clouds. Answer the questions which follow.



© Geography for CCEA by P Henderson, S Roulston, P Corr, editor K Clarke, published by Hodder Education, 2009. ISBN 9780340984956. Reproduced by permission of Hodder Education.

Fig. 5

(i) Name the type of cloud at **X**.

_____ [1]

(ii) State the type of cloud associated with thunderstorms.

_____ [1]

2012 Q2(b)(ii)

(ii) Weather stations on land collect data which is used to create a weather forecast. Name **two** other sources of data which can be used to create a weather forecast.

1. _____

2. _____ [2]

2013 Q2(a)(i)

2 **(a)** Study **Fig. 4** which shows a simple weather forecast about an anticyclone that is over Northern Ireland in July. Answer the questions which follow.

A. The temperature will be a very warm 28 °C.
B. The wind speed will be calm.
C. Warm air will come from a south-easterly direction.
D. There will be no rain.

Fig. 4

(i) Using **Fig. 4** complete **Table 1** by writing in the names of the instruments that could be used to collect information on each of these elements of the weather forecast.

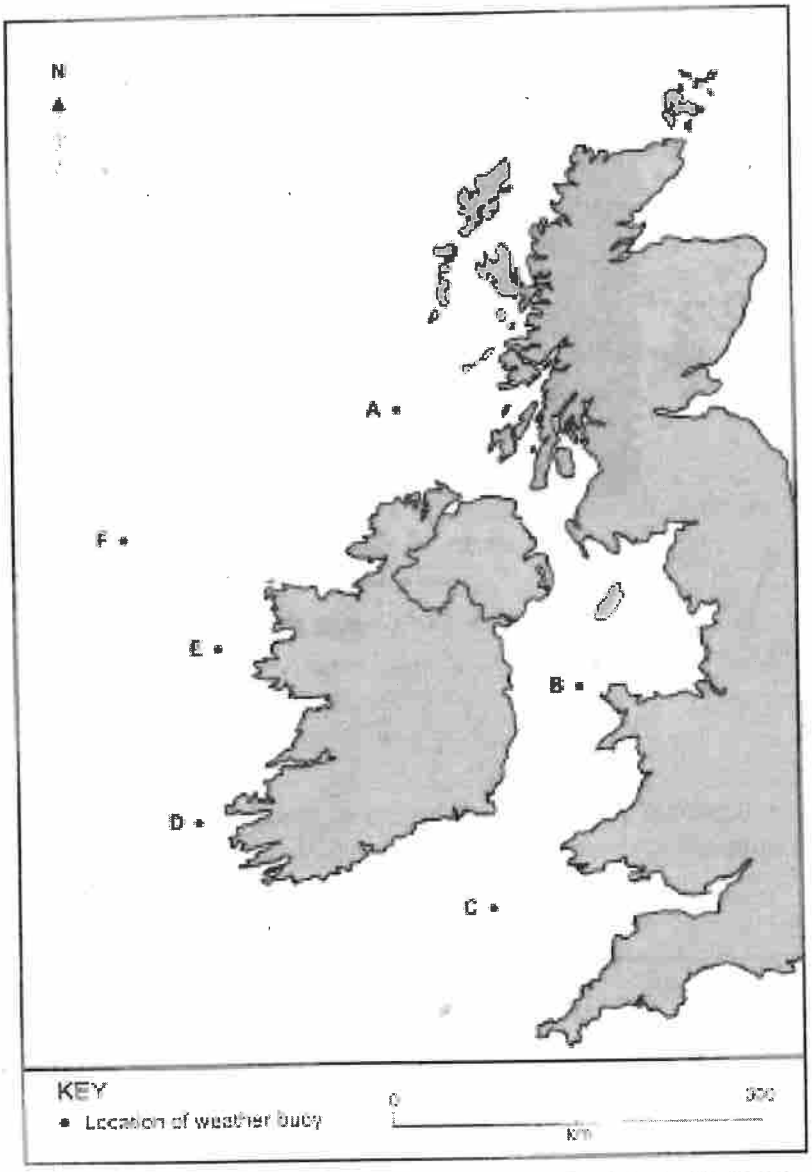
Table 1

Weather element	Instrument
A	
B	
C	
D	

[4]

2015 Q2 (b)(i), (ii)

(b) **Study Fig. 4** which shows the location of weather buoys around the Irish coastline. Answer the questions which follow.



Source: adapted from www.southamptonweather.co.uk/buoydata.php

Fig. 4

(i) **State** the distance between weather buoys **D** and **E**.

_____ km [1]

(ii) List **three** sources of data other than weather buoys which can be used to create a weather forecast.

_____

_____

_____ [3]

Mark Schemes

2011 Q2(a)(i), (ii)

2 **(a)** **(i)** Name the type of cloud at X
Cirrus [1]

(ii) State the type of cloud associated with thunderstorms
Cumulo-nimbus [1]

2012 Q2(b)(ii)

(ii) Weather stations on land collect data which is used to create a weather forecast. Name **two** other sources of data which can be used to create a weather forecast.

Any **two** of weather balloons, ships, aircraft, satellites, buoys.
(2 × [1]) [2]

2013 Q2(a)(i)

2 **(a)** **(i)** Using **Fig. 4** complete **Table 1** by writing the names of the instruments that could be used to collect each of these readings.

Table 1

Weather Element	Instrument
A	THERMOMETER
B	ANEMOMETER
C	WIND VANE
D	RAIN GAUGE

(4 × [1]) [4]

2015 Q2(a)(i), (ii), & (b)(i), (ii)

2 **(a)** **(i)** Name the weather element which this instrument measures.

Wind speed. Do not accept wind on its own. [1]

(ii) Explain how this instrument records the weather element.

Award [0] for a response not worthy of credit.

Award [1] for a simple statement,
e.g. The cups spin around.

Award [2] for a statement with a consequence,
e.g. This instrument is placed in the air, the cups catch the wind and spin around.

Award [3] for a statement, consequence and elaboration on either
a – placed high/in open
b – method of recording
c – detail of device,
e.g. The cups on the anemometer catch the wind and spin around. The reading is displayed on the instrument in knots/mph. [3]

(b) **(i)** State the distance between weather buoys D and E.

145 km–155 km. [1]

(ii) List **three** sources of data other than weather buoys which can be used to create a weather forecast.

Any **three** from:
land based stations, balloons, weather ships, satellites.
Credit both if named – Geostationary/Polar.
Do **not** credit measuring instruments.
(3 × [1]) [3]

3 – Weather systems affecting the British Isles

2011 Q2(c)(i), (ii), (iii) – Depressions

(c) Study **Fig. 6** which shows information about a weather system. Answer the questions which follow.

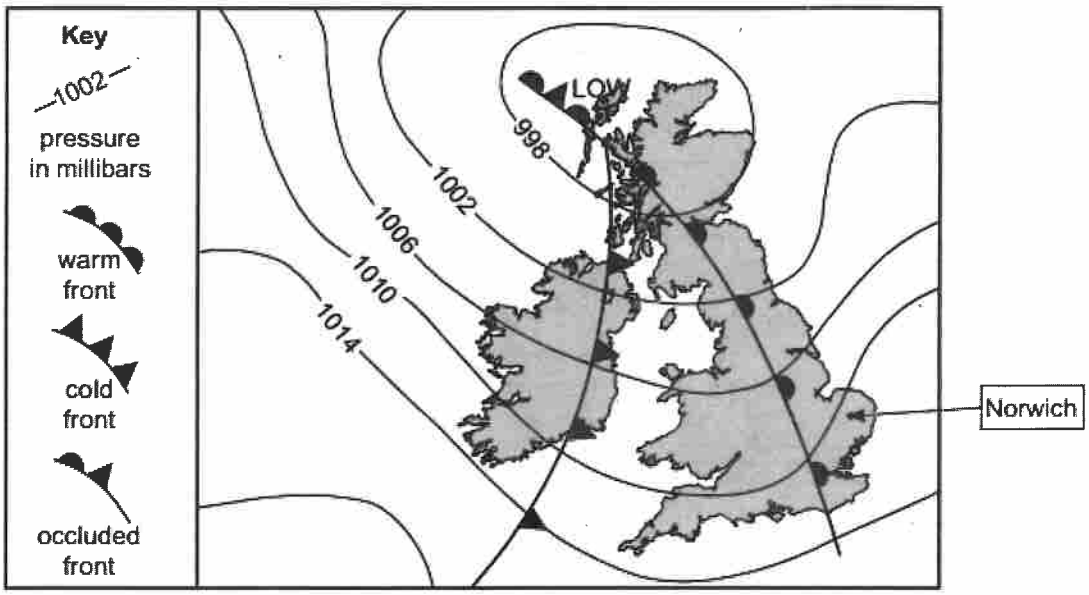


Fig. 6

(i) What is a synoptic chart?

_____

_____

_____

_____ [2]

(ii) State the name of the weather system located over the British Isles.

_____ [1]

(iii) The temperature in Norwich will change as this weather system passes.

Describe and explain how the temperature will change.

Description

_____

_____

_____

_____ [2]

Explanation

_____

_____

_____

_____

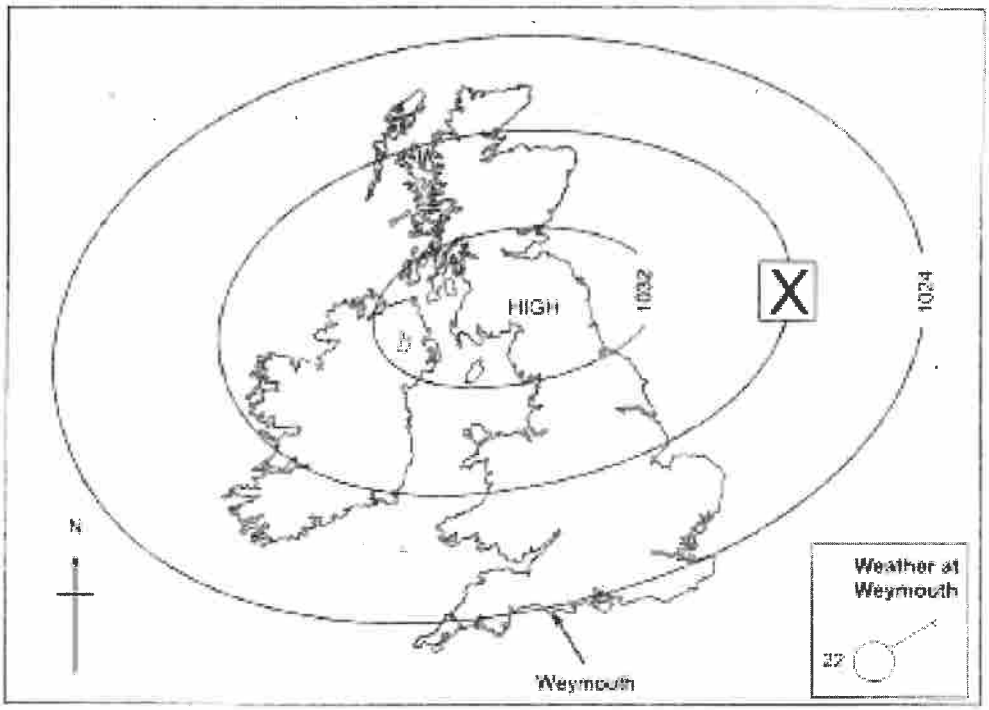
_____

_____ [3]

2012 Q2(a)(i), (ii)

Theme B: Our Changing Weather and Climate

2 (a) Study **Fig. 7** which shows a weather system over the British Isles on a day in July 2009. Answer the following questions.



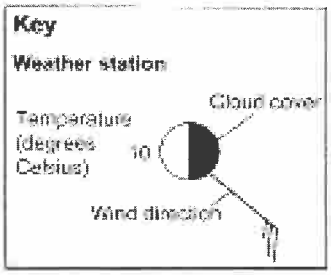


Fig. 7

(i) Complete the following statements to describe the weather conditions shown on **Fig. 7**.

The pressure at X is _____ mb

The wind direction at Weymouth is _____

[2]

Examiner Only
Marks | Remark

(ii) Explain how the weather system in **Fig. 7** caused the hot, sunny weather that people were able to enjoy on the beach in Weymouth as shown in **Fig. 8**.

Source: Alistair Coleman / Duckorange

Fig. 8

[3]

2 **(a)** Study **Fig. 4** which shows a simple weather forecast about an anticyclone that is over Northern Ireland in July. Answer the questions which follow.

A. The temperature will be a very warm 28 °C.
B. The wind speed will be calm.
C. Warm air will come from a south-easterly direction.
D. There will be no rain.

Fig. 4

(ii) State the name of the air mass that is most likely to be responsible for this weather.

_____ [1]

(iii) Explain why there will be no rain.

_____

_____

_____

_____

_____

_____ [3]

2014 Q2(c)(i), (ii)

(c) Study **Fig. 7** which shows a weather system over the British Isles. Answer the questions which follow.

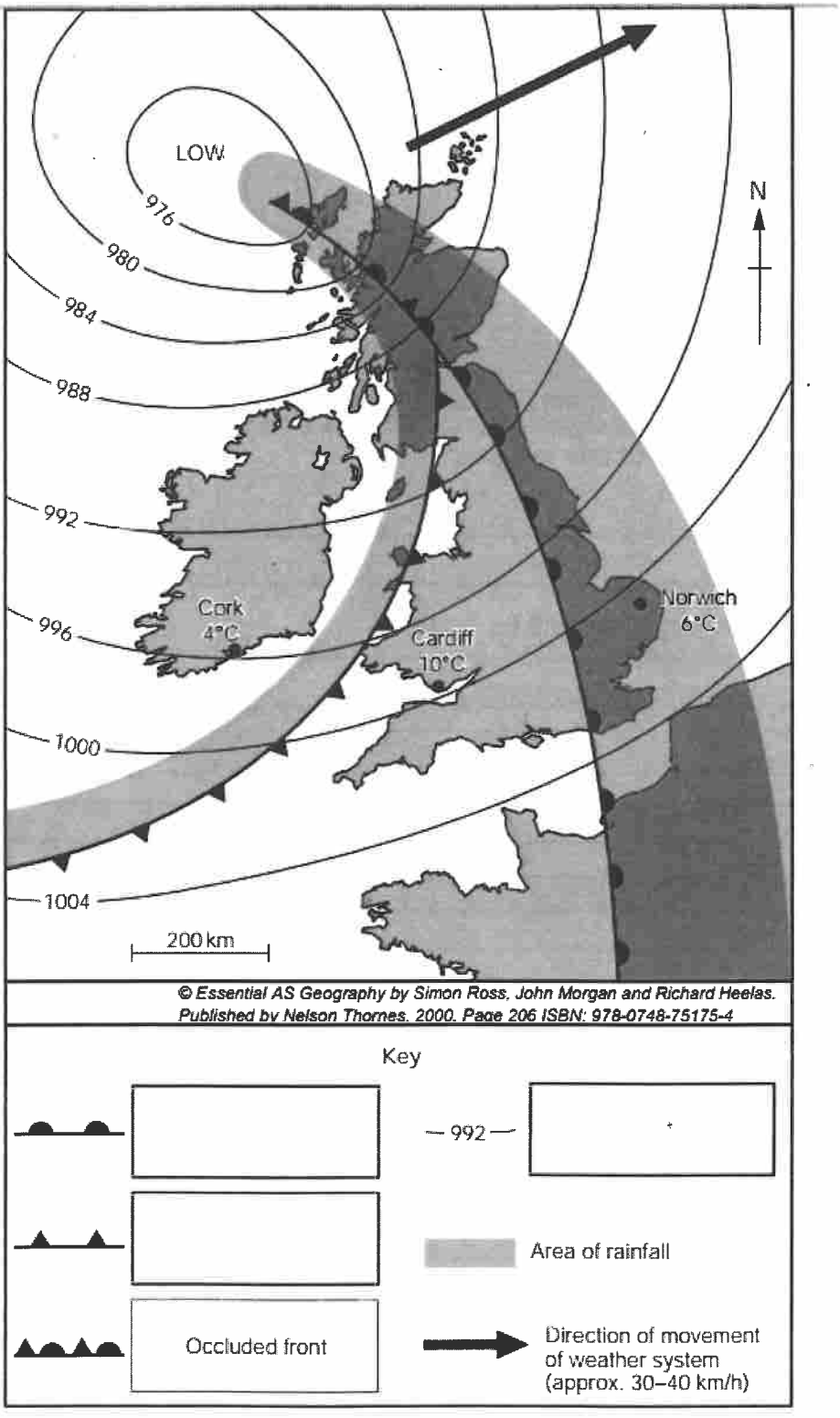


Fig. 7

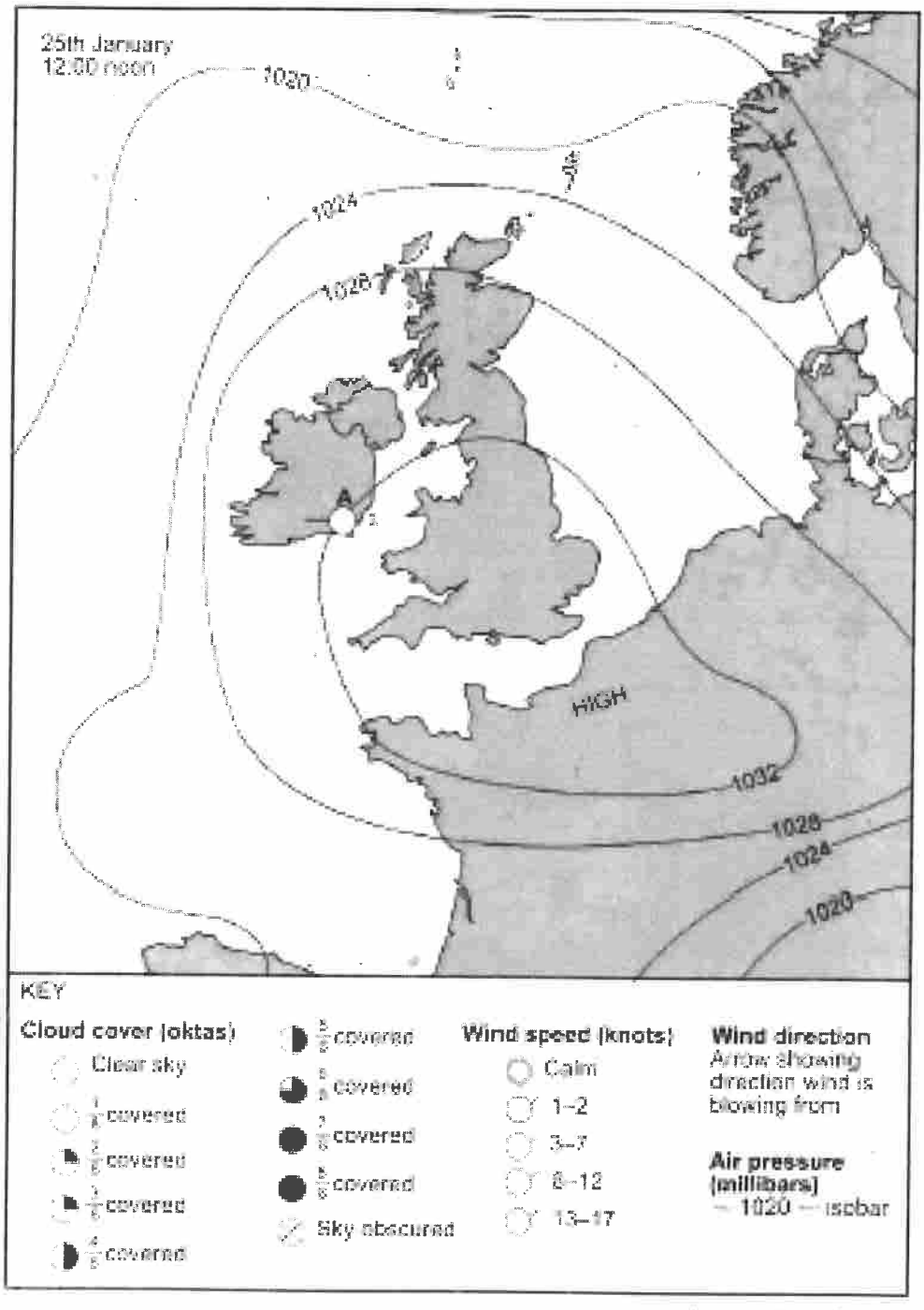
(i) Complete the key on **Fig. 7**. [3]

(ii) Describe and explain the change in temperature as the weather system moves across the British Isles.

[5]

2015 Q2(c)(i), (ii)

(c) Study **Fig. 5** which shows a weather system over the British Isles on a day in January. Answer the questions which follow.



Source: Pearson Examiner

Fig. 5

(i) Complete **Table 3**, to show the weather being experienced at weather station **A** (south east Ireland) on **Fig. 5**.

Table 3

Weather element	Weather conditions
Temperature	
Cloud cover	
Wind speed	
Wind direction	
Air pressure	

[5]

(ii) Explain the following weather conditions experienced in a winter anticyclone.

Low temperatures

[3]

Absence of cloud cover

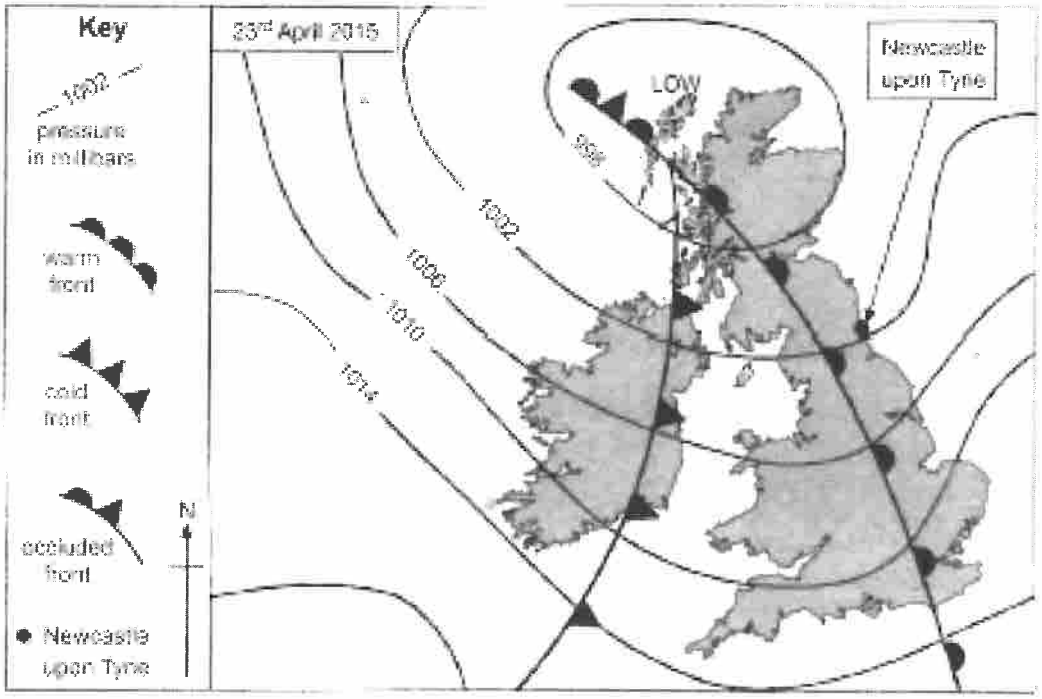
[3]

2016 Q2(a)(i) & (b)

(ii) Describe why it is difficult for meteorologists to accurately forecast the weather.

[3]

(b) Study Fig. 7 which illustrates a low pressure weather system over the British Isles. Answer the question which follows.



Source: Principal Examiner

Fig. 7

Describe and explain the likely changes in rainfall over Newcastle upon Tyne as the depression passes.

[6]

Mark Schemes

2012 Q2(a)(i), (ii)

2 **(a)** Study **Fig. 7** which shows a weather system over the British Isles on a day in July 2009. Answer the following questions.

(i) Complete the following to describe the weather at Weymouth.

Pressure at X is **1028 mb**
Wind direction at Weymouth is **north east**
(2 × [1]) [2]
No alternative answer accepted.

(ii) Explain how the weather system in **Fig. 7** caused the hot, sunny weather that people were able to enjoy on the beach in Weymouth as shown in **Fig. 8**.

Award [0] for a response not worthy of credit.

Level 1 ([1])
A simple statement relating to the high pressure of an anticyclone, e.g. it is sunny/dry/not raining because of the high pressure.

Level 2 ([2])
A simple reason or consequence
e.g. high pressure brings dry weather because there are no fronts
e.g. or it is sunny because there are no clouds in areas of high pressure.

Level 3 ([3])
A reason which is elaborated
e.g. in areas of high pressure the air is sinking/warming up and so there are no clouds and this means it is warm/sunny during the day and there are high temperatures. [3]

2013 Q2(a)(ii), (iii)

(ii) State the name of the air mass that is most likely to be responsible for this weather.

TROPICAL CONTINENTAL [1]

(iii) Explain why there will be no rain.

Award [0] for a response not worthy of credit.

Award [1] for an answer that has a simple statement, e.g.
There are no clouds.
Air is sinking.
It is high pressure.

Award [2] for an answer that has a simple statement with a consequence.
There are no clouds developing because air is sinking in an anticyclone.

Award [3] for an answer that has a statement, consequence and elaboration.
There are no clouds in the sky because air is sinking.
As air sinks it warms up. This means that condensation doesn't occur.
Clouds therefore can't develop.

Answers related to the nature of the TC air mass are also creditworthy [3]

2014 Q2(c)(i), (ii)

(c) Study **Fig. 7** which shows a weather system over the British Isles. Answer the questions which follow.

(i) Complete the key on **Fig. 7**

Warm front

Cold front

- 992 – isobar or air pressure or any valid alternative answer (mb, millibars, line of equal pressure etc) .

3 × [1] [3]

(ii) Describe and explain the change in temperature as the weather system passes across the British Isles.

Award [0] for a response not worthy of credit.

Level 1 ([1])
A simple answer which describes or explains, e.g. the temperature increases or decreases **or** the warm sector is present.

Level 2 ([2]–[3])
An answer which describes and gives some explanation, e.g. the temperature will increase because warm air is present. [2]
e.g. the temperature will increase because it is in the warm sector and then go down again. [3]

Level 3 ([4]–[5])
A detailed answer which describes both the increase and decrease in temperature and explains why with reference to the passing of fronts and air masses named for full Level 3 answer.
e.g. The temperature will increase in Norwich and then decrease. This is due to Norwich coming into the warm sector and then the temperatures decrease because the cold front passes. [4]
e.g. The temperatures will increase from 6°C to 10°C and then decrease to 4°C as the depression passes. The temperature increases as the warm front passes and falls as the cold front passes. The air masses change; the temperature increases because warm, tropical maritime air is in the warm sector and temperatures fall again as the cold front passes, bringing a cold polar maritime air mass. [5]

2015 Q2(c)(i), (ii),

(c) (i) Complete **Table 3**.

Weather conditions
2 (°C)
Clear sky or 0/8 or 0 oktas
1–2 **knots** (must include unit)
Westerly or West
1032 **mb** (must include unit)

(5 × [1]) [5]

(ii) Explain the following weather conditions experienced in a winter anticyclone.

Award [0] for a response not worthy of credit.
Credit valid alternative reasons.
Several simple statements, award up to Level 2.
No marks awarded for stating weather conditions.

Low temperatures

Award [1] for a simple statement,
e.g. The days are short/influenced by a polar continental air mass/low angled sun or radiation heat loss.

Award [2] for a statement with a consequence,
e.g. The days are short so there is little time to heat the ground.

Award [3] for a statement, consequence and elaboration,
e.g. The days are short so there is little time to heat the ground, which in turn, heats the air. [3]

Absence of cloud cover

Award [1] for a simple statement,
e.g. Air is sinking in an anticyclone.

Award [2] for a statement with a consequence,
e.g. Air is sinking in an anticyclone. As the air is warming up, clouds cannot develop.

Award [3] for a statement, consequence and elaboration,
e.g. Air is sinking in an anticyclone. As the air sinks it is warming up, so therefore clouds cannot develop. **Condensation** is prevented from happening so water droplets cannot develop and form clouds. [3]

2016 a ii & b

(ii) Describe why it is difficult for meteorologists to accurately forecast the weather.

Award [0] for a response not worthy of credit.

Answers can focus on either range or accuracy. Alternatively credit answers which relate to short term and long term forecasts.

Award [1] for an answer with a simple statement,
e.g. The atmosphere is very unpredictable/the weather is changeable.

Award [2] for an answer with a statement and a consequence,
e.g. The atmosphere is very unpredictable because of changing weather systems.

Award [3] for an answer with a statement, consequence and an elaboration,
e.g. The weather is always changing because of different weather systems such as depressions change to anticyclones (or vice versa). [3]

Accept references to air masses, weather systems or fronts.

(b) Study **Fig. 7** which illustrates a low pressure weather system over the British Isles. Answer the question which follows.

Describe and explain the likely changes in rainfall over Newcastle upon Tyne as the depression passes.

Level 1 ([1]–[2])
A simple statement outlining that rainfall will occur at the fronts, e.g.

- Rain will occur at the cold and warm front, however it will remain dry in the warm sector.

Level 2 ([3]–[4])
A descriptive or unbalanced answer with limited explanation provided, e.g.

- At the warm front nimbostratus clouds bring steady rainfall, however at the warm sector it becomes dry/drizzle. Finally as the cold front passes towering cumulonimbus clouds cause heavy rainfall to occur [3].

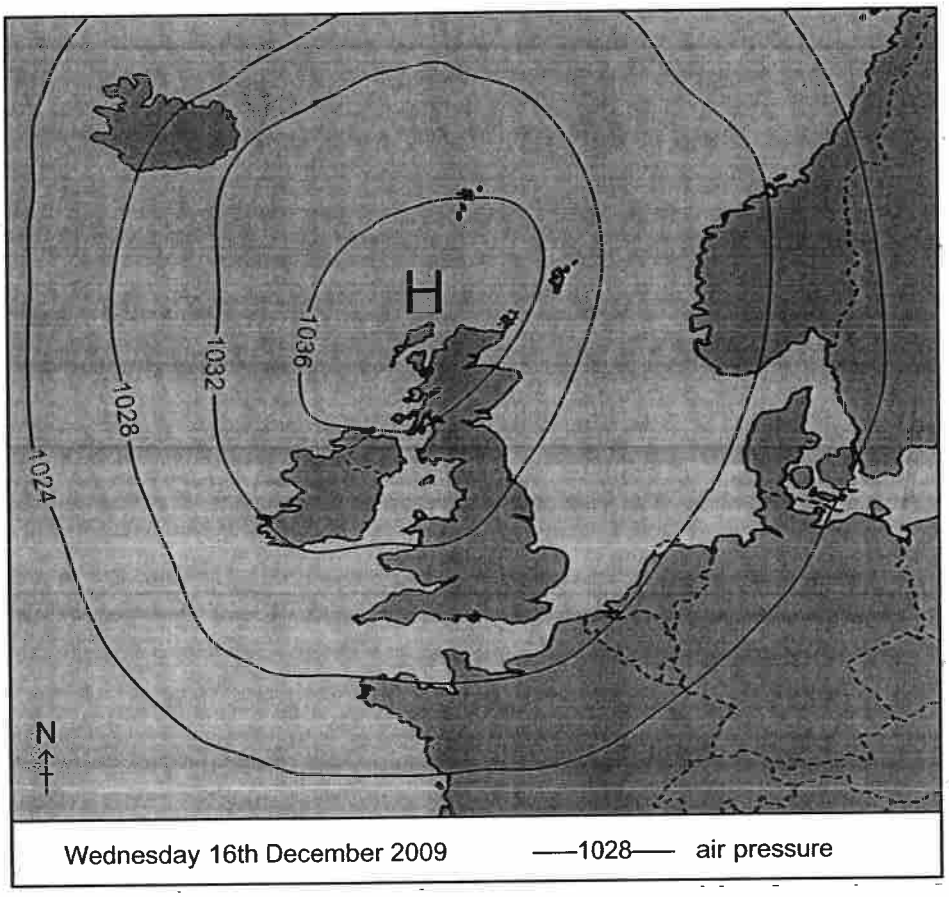
Level 3 ([5]–[6])
A detailed description and explanation of how the rainfall changes as the depression passes and should include reference to cloud types or air masses, e.g. As the warm front passes the lighter tropical maritime air will rise above the denser polar maritime air mass. This will cause the air mass to cool and condense forming nimbostratus clouds bringing steady rainfall to Newcastle upon Tyne. However in the warm sector there will be low cloud and perhaps drizzle as warm air can hold moisture as water vapour. Finally as the cold front passes, the polar maritime air mass undercuts the tropical maritime air mass forcing it to rise. This leads to the formation of cumulonimbus clouds and will bring heavy rainfall and possible thunderstorms to Newcastle upon Tyne. [6]

Name:

Date:

Examiner Only	
Marks	Remark

(c) Study **Fig. 6** which shows a weather map and information about the weather system over the British Isles in December 2009. Answer the questions which follow.



Forecasters have warned that the weather in Britain is set to turn cold this weekend.

Temperatures will fall to as low as –5°C in London and –2°C in Edinburgh by Sunday.

Over the next few days the country will experience dry, calm and cold conditions.

Fig. 6

(i) State the type of weather system over the British Isles on Wednesday 16th December 2009.

_____ [1]

(ii) Choose **two** of the weather elements below and explain why these conditions were experienced in the British Isles on Wednesday 16th December 2009.

Examiner Only	
Marks	Remark

LOW TEMPERATURES	CALM CONDITIONS	DRY CONDITIONS

[6]

Name:

Date:

Examiner Only	
Marks	Remark

(c) Study **Fig. 6** which shows information about a weather system. Answer the questions which follow.

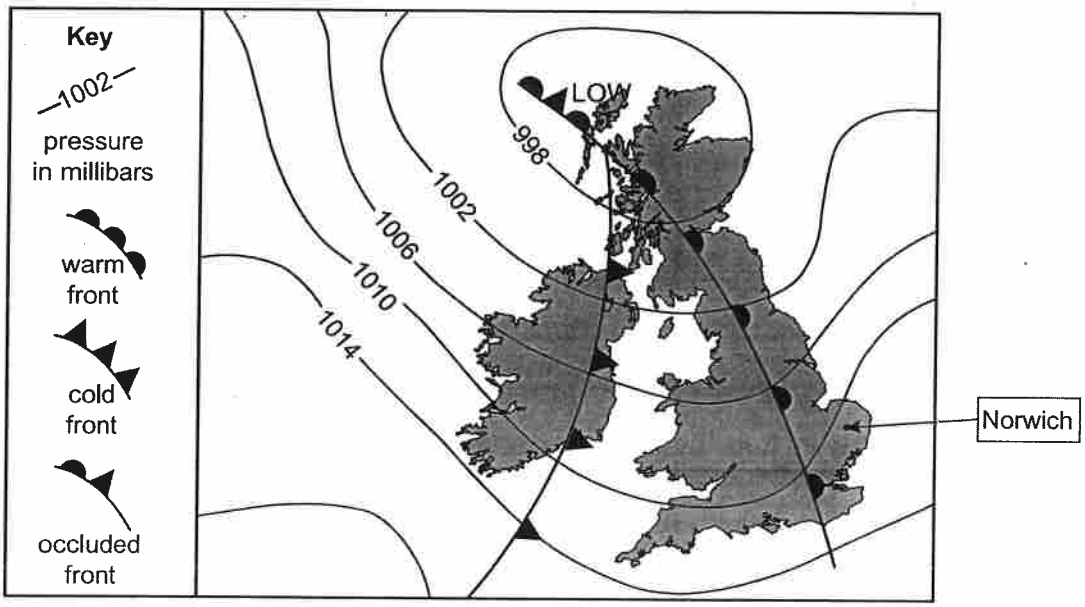


Fig. 6

(i) What is a synoptic chart?

_____

_____

_____

_____ [2]

(ii) State the name of the weather system located over the British Isles.

_____ [1]

(iii) The temperature in Norwich will change as this weather system passes.

Describe and explain how the temperature will change.

Description

_____

_____

_____

_____ [2]

Explanation

_____

_____

_____

_____

_____

_____ [3]

Examiner Only	
Marks	Remark