



# **BRAINIACS OLYMPIAD**

**GRADES 11-12**

## **GEOGRAPHY SAMPLE PAPER (PRACTICAL PART)**



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# GEOGRAPHY FIELDWORK

**Grade:** 11-12

**Location:** The mountain town of Montverde (45°N latitude).

**Outdoor:** 60 minutes – **50 marks**

**Indoor:** 60 minutes – **50 marks**

**Total Marks:** 100 marks

**You will first collect field measurements (Outdoor), and then analyse weather maps and calculations (Indoor).**

## **PART A – OUTDOOR FIELDWORK (50 marks)**

### **Station 1 – Hill Viewpoint (12 marks)**

Measured atmospheric pressure: **996 mb**

Wind: steady and strong

1. State the instrument used to measure atmospheric pressure.

Answer: \_\_\_\_\_ (2)

2. Is this pressure higher or lower than standard sea-level pressure?

Answer: \_\_\_\_\_  
\_\_\_\_\_ (2)

3. Calculate the difference between the measured pressure and standard pressure.

Answer: \_\_\_\_\_  
\_\_\_\_\_ (3)

4. Based on the pressure value and wind conditions, suggest whether the area is under high pressure or low pressure.

Answer: \_\_\_\_\_  
\_\_\_\_\_ (2)

5. Give one reason for your answer.

Answer: \_\_\_\_\_  
\_\_\_\_\_ (3)

### **Station 2 – Town Square (10 marks)**

Measured pressure: **1004 mb**

Sky: partly cloudy

1. Compare this pressure with the hill viewpoint. Is it higher or lower?

Answer: \_\_\_\_\_ (2)

2. Suggest one reason pressure may vary between locations in the same town.

Answer: \_\_\_\_\_ (3)

3. What weather is usually associated with falling pressure?

Answer: \_\_\_\_\_ (2)

4. Predict the weather for the next 12 hours.

Give one reason.

Answer: \_\_\_\_\_ (3)

### **Station 3 – Riverside (9 marks)**

Measured pressure: **1007 mb**

Humidity: high

1. Arrange the three stations (hill, square, river) from lowest to highest pressure.

Answer: \_\_\_\_\_ (3)

2. Which station is most likely closest to the centre of a low-pressure system?

Answer: \_\_\_\_\_ (2)

3. Give one reason based on your data.

Answer: \_\_\_\_\_ (4)

### **Station 4 – Forested Slope (9 marks)**

Measured pressure: **1012 mb**

Wind: weak

1. Compare this value with standard atmospheric pressure.

Answer: \_\_\_\_\_  
\_\_\_\_\_ (2)

2. Does this location indicate approaching high pressure or low pressure?

Answer: \_\_\_\_\_ (2)

3. State one typical weather condition associated with such pressure.

Answer: \_\_\_\_\_ (3)

4. Would cloud cover increase or decrease here?

Answer: \_\_\_\_\_ (2)

### Station 5 — Pressure Pattern (10 marks)

Using all recorded measurements:

Hill: 996 mb

Square: 1004 mb

River: 1007 mb

Forest: 1012 mb

1. Identify the lowest pressure recorded.

Answer: \_\_\_\_\_ (2)

2. Identify the highest pressure recorded.

Answer: \_\_\_\_\_ (2)

3. Calculate the pressure range.

Answer: \_\_\_\_\_ (3)

4. Based on the pressure distribution, state whether the town is affected by a cyclone or an anticyclone.

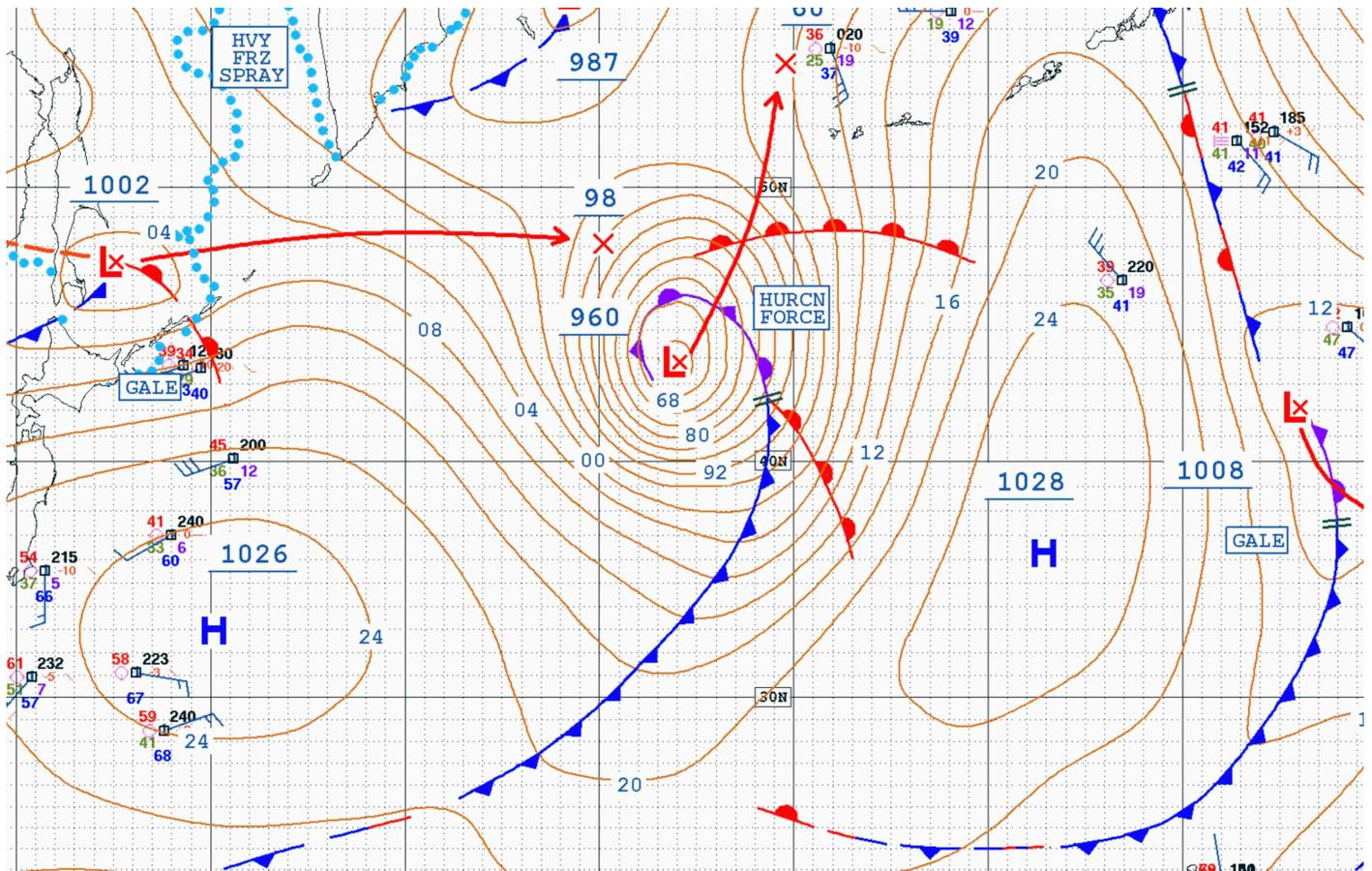
Answer: \_\_\_\_\_ (3)

## PART B – INDOOR FIELDWORK (50 marks)

Use your Outdoor measurements and observations when answering the following questions.

### I. Map Interpretation (20 marks)

Study Fig 1, which shows meteorological data represented by lines of equal atmospheric pressure, as well as areas of lower and higher pressure.



5. Compare these values with your field measurements.  
Is your town closer to the high-pressure or low-pressure area?

Answer: \_\_\_\_\_ (6)

## II. Pressure Systems (15 marks)

1. Identify the cyclone on the map and justify your choice using isobar patterns.

Answer: \_\_\_\_\_ (5)

2. Describe two weather effects of a cyclone.

Answer: \_\_\_\_\_ (4)

3. Compare a cyclone and an anticyclone (any two differences).

Answer: \_\_\_\_\_ (6)

## III. Pressure Units and Calculations (15 marks)

(Standard pressure at sea level = 760 mm Hg = 1013 mb = 101300 Pa)

1. Convert **1013 mb** into Pascals (Pa).

Answer: \_\_\_\_\_ (3)

2. Convert **760 mm Hg** into millibars (mb).

Answer: \_\_\_\_\_ (3)

3. Your measured hill pressure was 996 mb.  
State how much it differs from standard pressure.

Answer: \_\_\_\_\_ (3)

4. Based on all Outdoor data, state the most likely weather for the next day and justify your answer using pressure evidence.

Answer: \_\_\_\_\_ (6)

### Reference Information

<b>mb</b> – millibar
<b>mm Hg</b> – millimeter of mercury
<b>Pa</b> – pascal

**Fig. 2**