



BRAINIACS OLYMPIAD

GRADES 9-10 GEOGRAPHY SAMPLE PAPER (PRACTICAL PART)



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GEOGRAPHY FIELDWORK

Grade: 9-10

Location: The town of Valdoria (41°N latitude)

Outdoor: 60 minutes – **50 marks**

Indoor: 60 minutes – **50 marks**

Total Marks: 100 marks

PART A – OUTDOOR FIELDWORK (50 marks)

I. Open Square (Solar Radiation) (12 marks)

You measure air temperature and observe the Sun at 12:00 (local noon).

Measured air temperature: **28°C**

1. State the time of day when solar heating is strongest.

Answer: _____ (2)

2. Explain why solar heating is strongest at this time using the angle of the Sun's rays.

Answer: _____
_____ (4)

3. The ground temperature of asphalt is 42°C and grass is 31°C.
Which surface absorbs more heat?

Answer: _____ (2)

4. Give one reason for the temperature difference between asphalt and grass.

Answer: _____
_____ (4)

II. Valley Slopes (12 marks)

South-facing slope temperature: **26°C**

North-facing slope temperature: **20°C**

1. Which slope receives more solar radiation?

Answer: _____ (2)

2. Calculate the temperature difference between the slopes.

Answer: _____ (2)

3. Explain why one slope is warmer using the angle of incidence of sunlight.

Answer: _____
_____ (4)

4. Based on this observation, which slope would have a longer growing season?

Answer: _____ (2)

5. Give one reason for your answer.

Answer: _____ (2)

III. Built-up Street (Urban Area) (8 marks)

Air temperature between buildings: **24°C**

1. Compare this temperature with the open square (28°C).
Is it higher or lower?

Answer: _____ (2)

2. Explain why the temperature is different.

Answer: _____ (3)

3. State one effect buildings have on solar radiation reaching the ground.

Answer: _____ (3)

IV. Riverside (9 marks)

Air temperature near river: **22°C**

1. Compare this temperature with the built-up street (24°C).

Answer: _____ (2)

2. Explain why areas near water are cooler during the day.

Answer: _____
_____ (4)

3. State one climatic influence of rivers on nearby land.

Answer: _____
_____ (3)

V. Park Area (9 marks)

Air temperature under trees: **21°C**

1. Compare the park temperature with the open square.

Answer: _____ (2)

2. Explain why it is cooler under trees.

Answer: _____ (4)

3. Suggest one suitable land use for this location based on temperature conditions.

Answer: _____ (3)

PART B – INDOOR FIELDWORK (50 marks)

Use the measurements and observations you collected during the **Outdoor Investigation** to answer the following questions.

I. Thermal Zones (20 marks)

Study Fig. 1, which shows the division of the Earth into thermal zones.

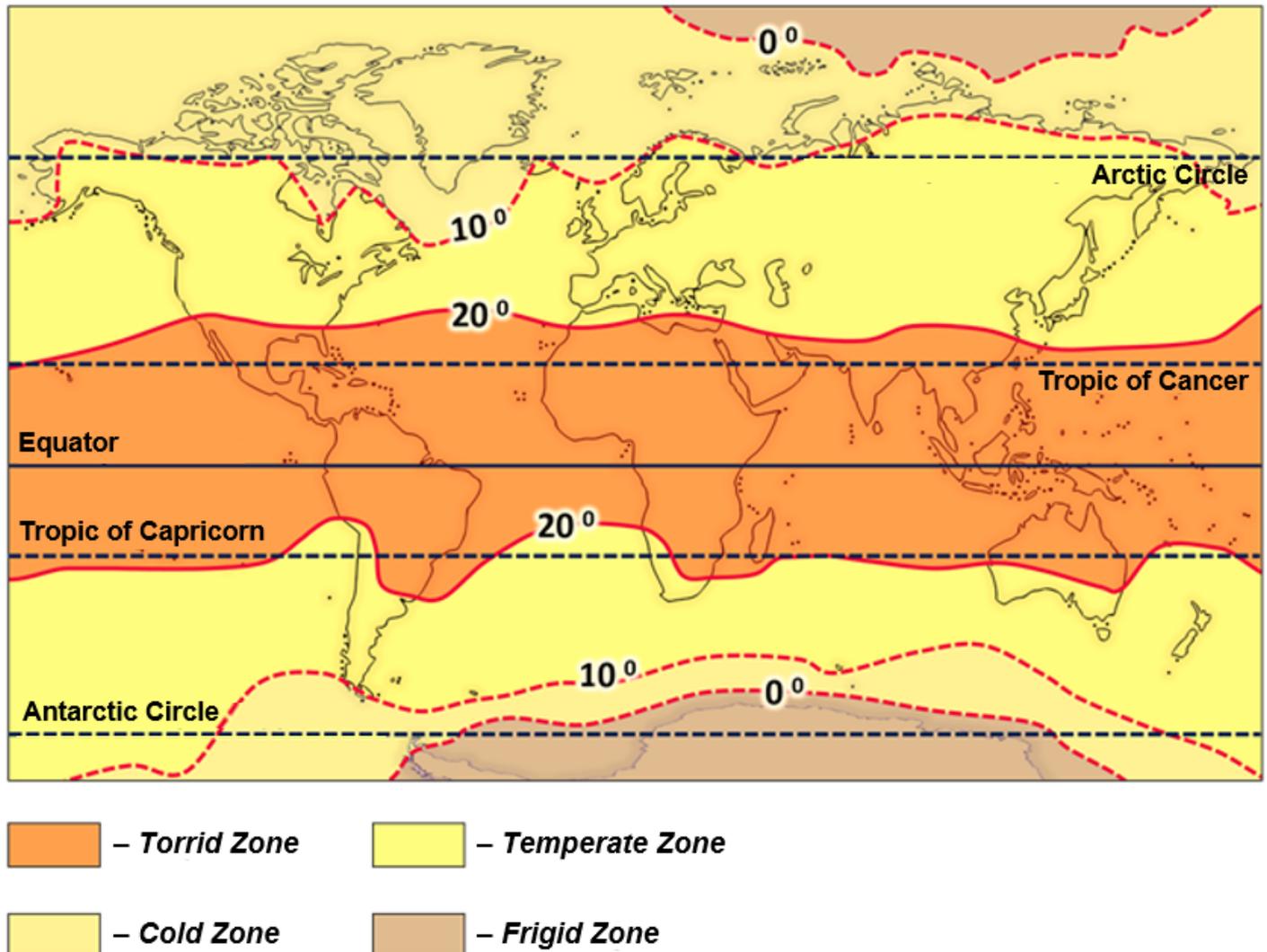


Fig. 1

1. List the Earth's thermal zones from north to south.

Answer: _____ (2)

2. What are lines connecting points of equal temperature called?

Answer: _____ (3)

3. Why is the Torrid Zone located between the Tropic of Cancer and the Tropic of Capricorn?

Answer: _____
_____ (5)

4. What is the function of the Tropic of Cancer in relation to solar radiation?

Answer: _____
_____ (5)

5. Using your slope observations, explain why temperatures decrease from the equator toward the poles.

Answer: _____
_____ (4)

II. Temperature Interpretation (15 marks)

Use your field data.

Highest measured temperature: **42°C (asphalt surface)**

Lowest measured temperature: **20°C (north-facing slope air)**

1. Calculate the temperature amplitude.

Answer: _____ (4)

2. Which location in the town is most similar to equatorial conditions?
Give a reason.

Answer: _____ (4)

3. Which location is most similar to higher latitude (cooler) conditions?
Give a reason.

Answer: _____ (4)

4. Explain how solar angle affects temperature distribution on Earth.

Answer: _____ (3)

III. Application and Conclusions (15 marks)

1. Which part of the town is most suitable for residential housing?
Give one climatic reason.

Answer: _____ (5)

2. Where should a recreation park be located?
Justify using your temperature measurements.

Answer: _____

_____ (5)

3. Using your measured temperatures, solar heating conditions, and slope observations, determine which global thermal belt the study area belongs to. Explain your answer using at least two pieces of field evidence.

Answer: _____

(5)