S3 Geography Practice Paper: Map Reading and Scale, Contours and Landforms, Weather and Climate, Population Distribution and Migration, Land Use and Agriculture, Natural Hazards and Management

S3 | Geography | Time: 60 minutes | Total: 100 marks | 24 questions

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Part 1 Map Reading and Scale

Study the data, show all working and give the answer.

1. The scale of a map is 1:50,000. Two points are 8.4 cm apart on the map. Find the actual distance between them in kilometres. [4]

2. On another map with scale 1:20,000, points A and B are 6.0 cm apart. Walking at 4 km per hour, how many minutes does the journey take? [4]

3. The bearing of B from A is 045 degrees. Find (a) the bearing of A from B and (b) the new bearing after turning 90 degrees clockwise at A. [4]

4. On a 1:25,000 map a rectangular plot measures 5.0 cm by 4.0 cm. Find its actual area in square kilometres and state how many 1 km by 1 km grid squares this equals. [4]

Part 2 Contours and Landforms

Study the contour information and show all working.

5. The contour interval of a map is 20 m. Point A lies below point B, which is 5 contours higher; the horizontal distance is 2 km. Find the vertical interval and the gradient as a percentage. [4]

6. A summit is 320 m high and a valley floor 200 m; the horizontal distance between them is 1.5 km. Find the average gradient of the slope. [4]

7. Describe the contour pattern of a concave slope and a convex slope, and state which one is steeper near the top. [4]

8. A hill foot is at 200 m with a temperature of 28.0 °C; the summit is at 1,600 m. If temperature falls by 6.5 °C per 1 000 m of ascent, find the summit temperature. [4]

Part 3 Weather and Climate

Study the weather data and show all working.

9. On a day at 25 °C the air contains 14.4 g/m3 of water vapour; the saturation value at that temperature is 18.0 g/m3. Find the relative humidity. [4]

10. Daily rainfall for one week was 25, 8, 62, 14 mm. Find the weekly total, the number of rain days (at least 1 mm) and the wettest day. [4]

11. On a weather map two places read 1008 hPa and 1004 hPa and are 200 km apart. Find the pressure gradient and state where the wind is stronger. [4]

12. The warmest month averages 31.2 °C and the coldest 14.8 °C. Find the annual temperature range and the annual mean. [4]

Part 4 Population Distribution and Migration

Study the population data and show all working.

13. A district has a population of 480,000 in an area of 60 km2. Find the population density. [5]

14. In the same year there were 5,200 births, 3,100 deaths, 1,500 arrivals and 900 departures. Find natural increase, net migration, total growth and the growth rate per 1 000 people. [5]

15. The district has 72,000 people aged 0-14, 48,000 aged 65 or above and 360,000 aged 15-64. Find the dependency ratio. [4]

16. A population pyramid is narrow at the base and wide at the top. State two population characteristics this shows and one social problem it creates. [4]

Part 5 Land Use and Agriculture

Study the farm data and show all working.

17. A farm of 15 hectares produces 24 tonnes of rice a year, sold at $3,200 per tonne, with total costs of $45,000. Find the yield per hectare, total revenue, profit and profit per hectare. [5]

18. Describe two common land-use conflicts in the urban fringe and suggest one way to reduce them. [4]

19. Explain how crop rotation maintains soil fertility and state one limitation of rotation in modern high-yield farming. [4]

20. Terracing a hillside reduces soil erosion. Explain why, and state one risk terraces still face in heavy rain. [4]

Part 6 Natural Hazards and Management

Study the hazard data and show all working.

21. A place recorded 180 mm of rain in 3 hours; the landslide warning threshold is 30 mm per hour. Find the average rainfall intensity and how many times the threshold. [5]

22. The return period of a flood is 50 years. Find the probability of such a flood in any one year and the approximate chance of at least one in 25 years. [4]

23. A slope has resisting force 120 units and driving force 80 units; the required safety factor is 1.3. Find the safety factor and judge whether the slope is stable. [4]

24. Compare engineering and non-engineering slope hazard measures, giving one example of each and its limitation. [4]
