Term 1 Assessment 2

Test: Climate, weather and geomorphology – Suggested answers

1 Conditions necessary for the formation of a mid-latitude cyclone: warm subtropical air meets cold sub-polar air✓✓, between 40°N and 60°N and between 40°S and 60°S of the equator✓✓; the air masses have different temperatures and a front forms between them✓✓; the cooler air advances✓✓, uplifting the warmer air and a low pressure✓✓ is formed. (any 3) (3 × 2) (6)

2 Mature tropical cyclone: has surface convergence and upper air divergence, clear eye at centre with very low pressure✓✓. Dissipating tropical cyclone: pressure begins to rise, less surface convergence and uplift, storm begins to lose energy✓✓. (2 × 2) (4)

3 During winter the anticyclones become more dominant and move to a more northerly position✓✓. The anticyclones prevent moist air from feeding into the interior✓✓, causing dry conditions with very little rainfall✓✓. (3 × 2) (6)

4 Berg winds: these are warm, dry winds that occur when the following conditions are in place – there is a anticyclone over the interior with air moving in an anticlockwise direction around the high pressure✓✓. A lower pressure in the form of a mid-latitude cyclone or coastal low occurs on the coast✓✓. The winds from the anticyclone blow along the pressure gradient to the low pressure at the coast. As these winds descend to the coast along the escarpment they are heated adiabatically, and blow as warm winds down to the coastal low lands✓✓. Use Fig 1.31 on page 39 in Learners Book as an example of a diagram. (3 × 2) (6)

5.1 956 hPa✓✓ (2)

5.2 The mid latitude cyclones are far to the south✓✓, the anticyclones are not dominant over the interior✓✓ but are situated to the south✓✓, the time on the chart is midnight yet most temperatures are around 20 °C✓✓. (3 × 2) (6)

5.3 Ridge of high pressure✓✓. (2)

6 Drainage basin is the entire area drained by a river and its tributaries✓; the catchment area includes this, as well as all underground water sources in the area✓. (2)

7 Factors that influence infiltration of water into soils include: amount and nature of precipitation✓, rates of evaporation✓, gradient of the slope✓, amount of vegetation on the surface✓, amount of moisture already in the soil✓, and porosity✓ and permeability✓ of the soil. (any 4) (4 × 1) (4)

8 Periodic river – a river that receives water from groundwater only in the rainy season and has reduced flow or no flow in dry seasons✓; episodic river – rivers that never receive water from groundwater and flow only after heavy rain✓. (2 × 1) (2)

9.1 centripetal✓✓

9.2 rectangular✓✓

9.3 trellis or parallel✓✓ (3 × 2) (6)

10.1 The underlying rock is less resistant ✓✓ and the river was able to erode and undercut the rock✓✓, causing the river to retreat. (2 × 2) (4)

10.2 The plunge pool is formed when the volume and velocity of the water is great✓✓. The pressure of the falling water causes the area at the base of the waterfall to be eroded at a quicker and greater rate✓✓, causing a deeper pool of water called the plunge pool. (2 × 2) (4)

10.3 It is a cascading waterfall because the water descends down a series of steps✓✓. It has occurred here because of the varying resistance of the strata✓✓ over which the water is flowing. Resistant strata cause the water to flow horizontally, less resistant strata are eroded away and cause the water to fall to the next resistant level✓✓. (3 × 3) (6)

 **Total: 60 marks**