This document consists of **22** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1: Marks must be awarded in line with: • the specific content of the mark scheme or the generic level descriptors for the question • the specific skills defined in the mark scheme or in the generic level descriptors for the question • the standard of response required by a candidate as exemplified by the standardisation scripts.
GENERIC MARKING PRINCIPLE 2: Marks awarded are always **whole marks** (not half marks, or other fractions).
GENERIC MARKING PRINCIPLE 3: Marks must be awarded **positively**: • marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate • marks are awarded when candidates clearly demonstrate what they know and can do • marks are not deducted for errors • marks are not deducted for omissions • answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.
GENERIC MARKING PRINCIPLE 4: Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning	Use
✔	Correct point	All questions
✘	Incorrect	All questions
RES	Reserve mark	All questions
J	Just	All questions
^	Omission or further development/detail needed to gain credit	All questions
?	Unclear or validity is doubted	All questions
REP	Repetition	All questions
BOD	Benefit of doubt	All questions
TV	Too vague	All questions

Annotation	Meaning	Use
NAQ	Material that does not answer the question	All questions
SEEN	1. Diagram has been seen but no specific credit given 2. Additional page has been checked	1. Any diagrams 2. All blank pages in the provided generic answer booklet and/or extension answer booklet(s).
✔d	Accurate data mark	All questions

Section A: Mapwork skills

Question	Answer	Marks	Guidance
1(a)(i)	**Name an island located in grid square 7578.** Storvollen / Stor-vollen / Valoya	1	
1(a)(ii)	**Give a six-figure grid reference for the ancient monument located in the south of Jørstadmoen.** 748 792/3	1	**= 0** 749
1(b)(i)	**State the height of lake A.** 537 (metres)	1	
1(b)(ii)	**Identify feature B.** Historical site	1	
1(b)(iii)	**On Fig. 1.1, draw the power line between 730844 and 744820.** Straight line from 730 843/4 to 743/4 820	1	**= 0** If line extends too far
1(b)(iv)	**State the total area covered by the grid squares in Fig. 1.1. Give your answer in square kilometres (km^2).** 12 (km^2)	1	
1(c)(i)	**Using the map extract:** **In which general compass direction is the river Gausa flowing?** East / west to east	1	

Question	Answer	Marks	Guidance
1(c)(ii)	**How long is the river Gausa as shown on the map extract?** 2 km	1	**Must have units (km)** **= 0** 2 km^2 **Allow** 1.9–2.2 km
1(c)(iii)	**Name <u>one</u> other river that flows into Lake Mjøsa.** Mesna / Nordlibekken / Skvalabekken / Oyreselva / Baela / Leirvika / Svartevjua	1	**= 0** Names of marshes **Allow** Ovartevjua
1(c)(iv)	**A large part of Lake Mjøsa is a nature conservation area. How is this shown on the map extract?** <u>Green</u> boundary / line / outline / border	1	
1(d)	**Complete Table 1.1 by giving a four-figure grid reference for each type of tourist accommodation. One has been completed for you.** 	tourist accommodation	map location
---	---
camp site	7778
camp site cabins	7580
caravan site	7874
hotel/lodging	[7775]		3	

Question	Answer	Marks	Guidance
1(e)	**Using the map extract, complete Table 1.2** to describe the following physical features:	6	**Reserve 1 mark** for each section **Must answer in correct section** **Only allow marsh x 1**

physical features	description
vegetation and land cover	Forest Marsh Forest in west / marsh in east
relief	Hilly <u>Gentle</u> slopes Highland / above 600 m 614–723 m highest point is 723 m / highest trigonometric point 718 m Steeper slope to west / at 7981 Plateau to east / at 8182, 8183
drainage	Streams / tributaries / (small) rivers Most flow ESE to WNW Lakes Marsh

Guidance continued for 1(e):

= 0
Group of trees
Cultivated area

= 0
Mountainous
Steep slopes
Lowest is 614 m

Heights need metres/m

= 0
Mjosa lake
Surface drainage/water
Pond

Question	Answer	Marks	Guidance
1(f)	**Using the map extract, name the settlement shown in Fig. 1.3.** Vingnes	1	**Allow** Vignes / Vinges

Section B: Geographical skills

Question	Answer	Marks	Guidance
2(a)(i)	**Describe how the population of Brunei has changed from 1900 to 2020.** Overall (large) increase from 17–19 000 in 1900 to 443–448 000 in 2020 by 424–431 000 Slow / small increase 1900 to 1940–52 from 17–19 000 to 42–50 000 Rapid / steep / large increase 1940–52 to 2020 from 42–50 000 (depending on date) to 443–448 000 in 2020	3	**Max. 2 marks for data** **= 0** Positive trend / relationship Steady increase 1960
2(a)(ii)	**On Fig. 2.1, complete the line graph using the following data to show how the population of Brunei is projected to change from 2020 to 2100.** <table><tr><td colspan="2">United Nations (UN) population projection for Brunei</td></tr><tr><td>2050</td><td>490 000</td></tr><tr><td>2100</td><td>400 000</td></tr></table> **1 mark** for accurate plotting **1 mark** for neat line joining 2020 to 2050 to 2100	2	

Question	Answer	Marks	Guidance
2(b)(i)	**On Fig. 2.2, draw a pie graph for 1991** using the following data and the key provided. **1 mark** for accurate plotting **in the correct order** at 35% and 95% **1 mark** for neat shading that replicates the key	2	
2(b)(ii)	**Compare the change in the percentage of the population aged 14 and under with the population aged 15–64 for the years 1961 and 2021.** Type of change (increase or decrease) 14 and under have decreased whereas 15–64 have increased Amount of change 14 and under changed more than 15–64 14 and under changed from 47/48% to 22% but 15–64 changed from 50% to 71/72% 14 and under have changed by 25/26% whilst 15–64 have changed by 21/22% Difference between 14 and under and 15–64 **[only 1 mark]** 1961 only 3% difference BUT in 2021 there is 49/50% difference By 2021 there is a bigger difference By 2021 15–64 is more than 14 and under by a bigger amount	2	**Must compare the CHANGE (similarities and/or differences)** **No mark for 1961 info on its own as question is change to 2021** **= 0** Aged 65 and over <table><tr><td></td><td>**14 and under**</td><td>**15–64**</td></tr><tr><td>1961</td><td>47/48%</td><td>50%</td></tr><tr><td></td><td colspan="2">2/3% difference / similar</td></tr><tr><td>2021</td><td>22%</td><td>71/72%</td></tr><tr><td></td><td colspan="2">49/50% difference</td></tr><tr><td>1961–2021</td><td>decrease</td><td>increase</td></tr><tr><td></td><td>by 25/26%</td><td>by 21/22%</td></tr></table> **NOTE** 14 and under have decreased by 25/26% and 15–64 have increased by 21/22% **= 2 marks**

Question	Answer	Marks	Guidance
2(b)(iii)	**State <u>one</u> reason for the change in the population aged 14 and under in Brunei between 1961 and 2021.** Lower/low birth rate / falling fertility rate / smaller families Increase family planning Women focus on education / career women Later marriage / high cost of (raising) children Ageing population / longer life expectancy so relative % of 0–14 lower	1	**= 0** High cost of living Death rate

Question	Answer	Marks	Guidance
3(a)	**Describe the pattern of energy use per person in Africa shown in Fig. 3.1.** <u>Pattern</u> Increases from Equator to north / south <u>Comparison</u> **Higher/most/more** in the north and south / Tropic of Cancer and Tropic of Capricorn **Anomaly** at west coast of Africa on the Equator / central western Africa **Lower/least/less** at the Equator / interior / centre / middle	3	**Refer to Fig. 3.1.** **Must have units (once) kWh** Allow any valid points about pattern or distribution **No double credit for same comment in different ways** **= 0** Top or bottom **NOTE** Decreases from North to Equator then increases from Equator to South **= 2 marks**

Question	Answer	Marks	Guidance
3(a)	<u>By location</u> In **North** / on/near/above **Tropic of Cancer** mainly 5000–19 999 kWh (and 20 000–50 000 kWh) / high On/near **Equator** mainly 0–999 kWh / low/very low In **South** / on/near **Tropic of Capricorn** mainly 5000–19 999 kWh / high **Below Tropic of Capricorn / in South** 20 000–50 000 kWh / very high / highest **Between the Tropics** mainly 0–999 and 1000–4999 kWh / < 5000 kWh / low <u>By use per person</u> **0–999 kWh / Very low / Lowest** along Equator / interior / centre / central / landlocked / middle / east **1000–4999 kWh / Low** mainly/more in west / NW / at coast / between the Tropics **5000–19 999 kWh / High / Medium** mostly north / NW / NE / Tropic of Cancer <u>and</u> south / SW / Tropic of Capricorn / or at coast Some/anomaly at west coast of Africa on the Equator / central western Africa **20 000–50 000 kWh / Highest** at north and south / Tropic of Cancer and Tropic of Capricorn		

Question	Answer	Marks	Guidance
3(b)	**Use Fig. 3.2 to describe how the main source of energy used for cooking and heating changes as the level of income increases.** Allow any valid changes as income increases such as: From biomass **to** fossil fuels/electricity From renewable to non-renewable From primary energy **to** electricity From solid fuels **to** liquid/gas/electricity From fuels that cause indoor air pollution **to** energy sources that do not cause air pollution within the household Very low income to low income From crop waste/dung/wood **to** charcoal / **stop** using crop waste, dung / **start** using charcoal Low income to middle income From wood/charcoal **to** coal / kerosene / ethanol / methanol / gas / LPG OR **Start** using fossil fuels (named example) OR Middle income greater **variety** of energy sources Middle income to high income From coal / kerosene / ethanol / methanol / gas / LPG **to** electricity/natural gas OR **Stop** using traditional biomass (or example) / **start** using electricity/natural gas OR High income less **variety** than middle income / High income greater **variety** than very low income/low income	2	**Must be a change** Do not credit description of energy use at each income level. No need to state income improvement as given in stem of question so can be implied.

Question	Answer	Marks	Guidance
3(c)(i)	**Rank the renewable energy sources in order of importance. One has been completed for you.** <table><tr><th>rank</th><th>renewable energy source</th></tr><tr><td>1</td><td>hydropower</td></tr><tr><td>2</td><td>wind</td></tr><tr><td>3</td><td>solar</td></tr><tr><td>4</td><td>[other renewables]</td></tr><tr><td>5</td><td>biofuels</td></tr></table>	1	**= 0** Nuclear
3(c)(ii)	**Use information from Fig. 3.3 to calculate the global decrease in the use of fossil fuels from 2000 to 2019.** 1.7%	1	**Must have units (%)**

Question	Answer	Marks	Guidance
3(c)(iii)	**Explain why it is important to reduce the global use of fossil fuels.** <u>Examples</u> Fossil fuels / coal / oil / gas are non-renewable, will not last forever / need to be replaced Energy security needs an energy mix, not over-reliance on use of fossil fuels To reduce our carbon footprint, because fossil fuels release carbon monoxide/CO_2 Burning oil and gas releases greenhouse gases/CO_2, which increases the greenhouse effect / contributes to global warming SO_2/NO_x emissions from burning coal cause acid rain Hot water from power stations kills fish / marine life Coal mining destroys landscapes / causes deforestation Coal waste can cause land pollution / ecosystem disruption / habitat loss Air pollution from burning fossil fuels causes respiratory problems Oil spills cause water pollution which damages marine ecosystems	3	**Needs to be an explanation – not just a basic point** Three distinct points needed **Max. 1 mark** for: Global warming Acid rain Ecosystem disruption/habitat loss **Pollution must be named**

Question	Answer	Marks	Guidance
4(a)	**Using the Bradshaw model shown in Fig. 4.1, suggest <u>one</u> other hypothesis you could test.** Discharge increases downstream (Average) velocity increases downstream Load quantity increases downstream Channel bed roughness decreases downstream Slope angle/gradient decreases downstream	1	Hypothesis must be based on the Bradshaw model shown in Fig. 4.1. **Allow** The converse i.e. upstream Higher or lower for increase/decrease
4(b)	**<u>Complete Table 4.1</u> by suggesting different ways to reduce the <u>three</u> possible risks.** <table><tr><th>risk</th><th>ways to reduce risk</th></tr><tr><td>dehydrating</td><td>[carry a water bottle] [drink plenty of clean water]</td></tr><tr><td>sunstroke</td><td>wear a (sun) hat use sunscreen keep body covered do not collect data during midday stay in shade avoid working in the sun for too long use a fan use an umbrella</td></tr><tr><td>mosquito bites</td><td>[wear mosquito repellent] [keep your skin covered]</td></tr></table>	3	**= 0** Bring your own water bottle Carry clean water for drinking Must relate to waterborne diseases **= 0** Avoid slippery shoes Slippery slopes

Question	Answer	Marks	Guidance
4(b)	<table><tr><td>**risk**</td><td>**ways to reduce risk**</td></tr><tr><td>waterborne diseases</td><td>do not drink the river water use waterproof plasters on cuts wash hands with clean water/sanitiser before eating or drinking/after touching water from river wear gloves</td></tr><tr><td>getting wet whilst making measurements</td><td>[wear waterproof clothing]</td></tr><tr><td>slipping, tripping, falling</td><td>wear boots / shoes / footwear <u>that is</u> sensible / suitable / sturdy / strong / proper / heavy duty / rubber / good grip / non-slip / safety take extra care <u>in</u> mossy areas/muddy areas/ when rainy/or on wet surfaces/ steep (river) banks</td></tr></table>		

Question	Answer	Marks	Guidance
4(c)(i)	**Describe how the students used this equipment to measure and record the width <u>and</u> depth of the river channel at the three sites.** Width One student / ranging pole on each bank/side of river Ranging poles must be directly across / at 90 degrees to banks Place tape measure across channel from one bank to the other Keep tape measure taut/stretched Use tape measure to measure the distance between the two ranging poles/banks Record measurements on recording sheet/clipboard Depth One student / ranging pole on each bank/side of river Ranging poles must be directly across / at 90 degrees to banks Place tape measure across channel from one bank to the other Keep tape measure taut/stretched Use tape measure to locate positions across the river / at every 50 cm / divide the width into (10) intervals **[or similar]** Measure distance (between the surface of the river and) to the riverbed with a metre ruler Keep the metre ruler vertical Record measurements on recording sheet/clipboard	4	**Reserve 1 mark** for width and **1 mark** for depth. **No double credit** for same point repeated e.g. Place a ranging pole on each bank Record measurement on clipboard **= 0** Put ranging poles on riverbed (unless clear it is each side of the river) Ranging poles must be vertical Measure width using tape measure = TV Measure depth with a metre ruler = TV Repeat Calculate the average Use clipboard to secure recording sheets Place the metre ruler <u>vertically</u> into the river until it touches the bed **= 2 marks**
4(c)(ii)	**How did the students calculate the average (mean) depth for Site 2?** Sum of the depth measurements ÷ the number of measurements/15	1	**= 0** Total depth

Question	Answer	Marks	Guidance
4(c)(iii)	**Using the results in Table 4.2, <u>complete the bar graph on Fig. 4.2</u> to show the width of the river channel at Site 2.** Bar accurately plotted at 3.1 m	1	
4(c)(iv)	**To what extent is <u>Hypothesis 1</u>: 'The river channel becomes wider and deeper downstream' supported by the evidence in Table 4.2 and Fig. 4.2? Put a tick (✓) in the box to show your decision and support it with evidence.** **Do not credit the decision. Only credit evidence and data that matches the decision.** **Partly supported:** <u>Evidence</u> Table 4.2 or Fig. 4.2 shows an overall increase in width / width increases from Site 1 to Site 3 Table 4.2 or Fig. 4.2 shows that depth increases then decreases / depth is less at Site 3 than Site 2 / an anomaly <u>Data</u> e.g. Site 1 width is 2.7 m increases to 5.07 m at Site 3 / increases by 2.37 m e.g. Site 2 average depth is 24 cm decreases to 22 cm at Site 3	3	**Reserve 1 mark** for data [use ✓d] **Refer to Table 4.2** **= 0** Not supported **NOTE** The width increases from 2.7 m at Site 1 to 5.07 m at Site 3 **= 2 marks** **1 mark** for depth data and **1 mark** for width data **Data must have units (m/cm)**

Question	Answer	Marks	Guidance
4(c)(iv)	**Fully supported:** Evidence **[can be in two separate points = 1 mark]** Table 4.2 or Fig. 4.2 shows an overall increase in width <u>and</u> depth / width <u>and</u> depth increases from Site 1 to Site 3 Data e.g. Site 1 width is 2.7 m increases to 5.07 m at Site 3 / increases by 2.37 m e.g. Site 1 average depth is 11 cm increases to 22 cm at Site 3 / overall average depth increases by 11 cm (from Site 1 to 3)		
4(d)(i)	**Which <u>one</u> of the following describes this method of sampling?** Systematic	1	
4(d)(ii)	<u>**Circle the name of the equipment**</u> **used in Fig. 4.3 to measure the length of the pebble:** Callipers	1	**= 0** Two answers circled
4(d)(iii)	**Using data from Table 4.3, <u>complete Site 2 on Fig. 4.4</u> by plotting the length of pebble number 4 <u>and</u> the average length of the pebbles.** Length of pebble number 4 = an x at 6.0 cm on Site 2 Average length of the pebbles = a horizontal line at 8.8 cm on Site 2	2	

Question	Answer	Marks	Guidance
4(d)(iv)	**What conclusion would you make about <u>Hypothesis 2:</u> 'Load particle size decreases downstream'? Use evidence from Table 4.3 and Fig. 4.4 to support your conclusion.** Conclusion **[1 mark]** Hypothesis is supported, true, proven, accepted, valid, confirmed Evidence **[1 mark]** Fig. 4.4 shows an overall decrease in size/length of pebble Average size/length of pebble decreases from Site 1 to Site 3 Average size/length of pebble at Site 1 is bigger/longer than at Site 3 Data **[1 mark]** e.g. Site 1 average 9.6 cm decreases to 7.4 cm at Site 3 e.g. pebble size from Site 1 to Site 3 decreases by 2.2 cm e.g. the range at Site 1 is 7 to 14 cm, and at Site 3 is 3.5 to 13 cm e.g. Site 1 has 5 pebbles 10 cm or longer, Site 3 only 2 pebbles 10 cm or longer e.g. Site 1 smallest pebble is 7 cm, at Site 3 the smallest pebble is 3.5 cm **Partly supported:** Evidence **[1 mark]** Overall decrease in size/length of pebble **however**, the largest pebble size recorded is at Site 2 and not at Site 1/ **however**, three of the largest four pebbles are at Site 2, **however** Site 2 has the greatest range.	3	**= 0** Yes Agree Repeat of statement **Allow** Conclusion later e.g. at start or end of evidence **1 mark** for correct conclusion **1 mark** for argument **1 mark** for accurate data [use ✓d] **Data must have units (cm)** <table><tr><td>**site**</td><td>**average length of pebble**</td><td>**smallest– largest**</td></tr><tr><td>Site 1</td><td>9.6 cm</td><td>7–14 cm</td></tr><tr><td>Site 2</td><td>8.8 cm</td><td>3.5–14.5 cm</td></tr><tr><td>Site 3</td><td>7.4 cm</td><td>3.5–13 cm</td></tr><tr><td>Change (Site 1–3)</td><td>2.2 cm</td><td></td></tr></table>

Question	Answer	Marks	Guidance
4(d)(iv)	<u>Data</u> **[1 mark]** e.g. largest pebble is at Site 2 which is 14.5 cm e.g. there are four pebbles >13 cm long, three of these are at Site 2 e.g. the range at Site 1 is 7 to 14 cm, at Site 2 is 3.5 to 14.5 cm, at Site 3 is 3.5–13 cm **Not supported:** <u>Evidence</u> **[1 mark]** Largest pebble size is at Site 2 Three of the largest four pebbles are at Site 2 Site 2 has the greatest range of pebble sizes/largest and smallest pebbles <u>Data</u> **[1 mark]** e.g. largest pebble is at Site 2, which is 14.5 cm **= 2 marks (1 + 1)** e.g. there are four pebbles >13 cm long, three of these are at Site 2 e.g. the range at Site 1 is 7 to 14 cm, at Site 2 is 3.5 to 14.5 cm, at Site 3 is 3.5–13 cm		