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**GEOGRAPHY****2217/22**

Paper 2 Investigation and Skills

**October/November 2017**

MARK SCHEME

Maximum Mark: 90

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**Published**

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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**Section A**

<b>Question</b>	<b>Answer</b>	<b>Marks</b>
1(a)(i)	9	<b>1</b>
1(a)(ii)	3	<b>1</b>
1(a)(iii)	Cuttings Follows shape of hillside	<b>1</b>
1(a)(iv)	Bridge Level crossing	<b>2</b>
1(b)(i)	246758	<b>1</b>
1(b)(ii)	Land is high / higher than surroundings View is all round / 360° Land drops to NW / SE / col / ridge Easy to get to Can see the fort Clear of / above trees / coniferous wood / plantation	<b>2</b>
1(c)	Hill / highest point / higher land / ridge Steep slope Away from other hills / viewpoint	<b>2</b>
1(d)	Cycle trails Parking Picnic sites Walks / trails / paths	<b>3</b>
1(e)	SSW A5 N	<b>3</b>
1(f)	Sand / beach Shingle Flat rock / cliff / wave-cut platform Island / stack Headland / point Bay / cove	<b>4</b>

<b>Question</b>	<b>Answer</b>	<b>Marks</b>
2(a)(i)	Graph completion	<b>1</b>
2(a)(ii)	100 000	<b>1</b>
2(a)(iii)	Germany	<b>1</b>
2(a)(iv)	Puerto Rico	<b>1</b>

Question	Answer	Marks
2(b)(i)	Mexico Canada UK Puerto Rico Germany	1
2(b)(ii)	Canada and Mexico Puerto Rico and UK	1
2(c)	Both increased Both had more rapid increase in 2000–2010 Mexico has larger increase in both decades	2

Question	Answer	Marks
3(a)	Wood / vertical tree trunks / posts / logs to support the structure Wire / metal grid / mesh / gabions / cage to contain the stones Rocks / stones to absorb the water impact / energy Material / sacking to prevent soil being washed through mesh Vegetation to anchor soil / reduce saturation  Reserve 1 for explain	5
3(b)(i)	A – settlement is inland / no settlement at A A – cliffs are hard rock  C – sheltered by headland / from prevailing wind C – shallow water	2
3(b)(ii)	Tax payers in another town – why should they pay when it doesn't affect them? Environmentalists – interferes with habitats / natural processes Tourists – spoils views / may restrict beach access	1

Question	Answer	Marks
4(a)	31 26 5 allow ECF 19 June	5
4(b)(i)	May / June / July / August – any two consecutive	1

Question	Answer	Marks
4(b)(ii)	Angle of the sun Altitude / mountains Distance from sea Winds Ocean currents Cloud cover / sunshine (hours)	2

Question	Answer	Marks
5(a)	Edge of a drainage basin / separates two river systems	1
5(b)(i)	Aqueduct Tunnel / pipe River	2
5(b)(ii)	Named river Reservoir	2
5(c)	South / SSE / SE / flows from the NW / NNW / N Downhill / lower land Downstream / mouth of river Distance up to 250 km	2
5(d)	Industrial waste Ship fuel leakage / oil spill Fertiliser / pesticide Sewage	1

Question	Answer	Marks
6(a)(i)	Does not run out Replaced as fast as used	1
6(a)(ii)	S of equator / tropic of cancer N Europe / 1 / 2 in Europe / Norway / Iceland Central / SE Asia / 3 areas in Asia / Kyrgyzstan / Tajikistan / Bhutan / Laos E of S America / Brazil / Paraguay / Uruguay / Suriname Most in Africa / west / central / east / SE Africa / 4 areas in Africa / named country 1 in Central America 1 in Pacific / Australasia / New Zealand 1 in Atlantic / Iceland	4
6(b)	Geothermal Solar	2
6(c)	Hydro-electric power Water power Energy made by falling water	1

## Section B

Question	Answer	Marks
7(a)	Rope	1
7(b)(i)	<p>Tube / measuring tube pushed / knocked / placed / inserted <u>into</u> soil / ground (1)            Fixed / measured / some water in container (1)            Pour amount / 120 mm into measuring tube (1)            Measure height of water in tube every minute (1)            Use a stopwatch / timer (1)</p> <p style="text-align: right;">(1+1+1) = 3</p>	3
7(b)(ii)	<p>Plot minutes 8 / 55, 9 / 53 and 10 / 50 for site 4 on Fig. 3            1 or 2 correct = 1            3 correct = 2</p> <p style="text-align: right;">(1 + 1) = 2</p>	2
7(b)(iii)	<p><math>\frac{24}{10}</math> or <math>\frac{120 - 96}{10}</math> Allow 24 above dotted line and 10 underneath it</p>	1
7(b)(iv)	Plot infiltration rate of 2.4 at site 7/140 m	1
7(b)(v)	<p>1 mark reserve for correct hypothesis decision (1)</p> <p><u>Evidence</u>            Infiltration rate decreases <u>at each site</u> further away from the river (1)</p> <p>Credit paired data for site/distance and infiltration rate of two sites            e.g. At Site 1 / 20 m from river rate is 15 mm per min but at Site 7 / 140 metres from river to 2.4 mm per min (1 MAX)</p> <p style="text-align: right;">(1HA + 1 + 1) = 3</p>	3
7(c)(i)	<p><u>Negative relationship</u> between distance from the river and infiltration rate along Transect A / Fig. 4 OR constant / regular / certain trend (1)</p> <p><u>No relationship</u> / pattern / trend between distance from the river and infiltration rate along Transect B / Fig. 5 OR the relationship is random / fluctuates / scattered / not constant / irregular (1)</p> <p>Allow 1 max if opposite used, e.g. constant / not constant or scattered / not scattered</p> <p style="text-align: right;">(1 + 1) = 2</p>	2

Question	Answer	Marks
7(c)(ii)	<p><u>Examples:</u> Need to compare two transects land-uses</p> <p>On transect A steeper slope / slope increases away from river, but on transect B gentler slope (1) Infiltration rate decreases on transect A as slope becomes steeper (1)</p> <p>On transect A soil changes from sand to clay away from river, but on transect B soil does not change / mixed sand and clay (1) Infiltration rate is quicker on sandy soil in transect A (1)</p> <p>On transect A the ground is cleared / bare ground away from river, but on transect B grass / trees do not change (1) OR more vegetation in B (1) Infiltration rate is quicker on transect B in area with vegetation away from the river (1)</p> <p style="text-align: right;">(1 + 1 + 1 + 1) = 4</p>	<b>4</b>
7(d)(i)	<p><u>Examples:</u> Credit advantages of method 2 no need for comparison</p> <p>Quick / easy / simple method / easy to do / easy to use / easy to read (1) No need to do calculation / gives instant / direct result / does not need formula (1) Less student error / exact / precise / accurate / reliable (1) Several readings can be taken at once and an average worked out (1) Portable / can be used on site / small amount of equipment (1) Can measure equal / 10 cm / even depths (1)</p> <p style="text-align: right;">(1 + 1 + 1) = 3</p>	<b>3</b>
7(d)(ii)	<p>Plot soil moisture content (4.3%) and infiltration rate (13.2) at Site 3. (Credit IR plot on the line, not close to it)</p> <p style="text-align: right;">(1 + 1) = 2</p>	<b>2</b>
7(d)(iii)	<p><u>Group A on transect A</u> – 1 mark reserve (1)</p> <p><u>Evidence all from transect A</u> transect A – infiltration rate decreases as soil moisture content increases from Site 1 to Site 7 / at all sites / each point / every point as you move away from the river (1)</p> <p>Credit paired data from two sites, e.g. at Site 1 / at start rate is 15 mm per min and 1.6% and at Site 7 / finish to 2.4 mm per min but soil moisture content to 8.8% (1)</p> <p style="text-align: right;">(1HA + 1 + 1) = 3</p>	<b>3</b>
7(e)	<p>How: infiltration rate would be lower / decrease / slower (1) Why: soil is saturated / soil moisture content is higher (1)</p> <p style="text-align: right;">(1 + 1) = 2</p>	<b>2</b>

Question	Answer	Marks
7(f)	<p><u>Examples</u></p> <p>People compress / compact the ground / ground hardens / denser (1)  Water cannot soak into the ground as quickly / less gaps in soil (1)  Lowers infiltration rate / slows down infiltration / harder to infiltrate (1)  Impermeable footpaths may be built for tourists, reducing infiltration (1)</p> <p style="text-align: right;">(1 + 1 + 1) = 3</p>	<b>3</b>

Question	Answer	Marks
8(a)(i)	<p>Used a bi-polar analysis (1)  Write name of area on sheet (1)  Observe / look at / see features (1)  Make a decision about / rate / judge / give a score (1)  Put a tick / fill in the appropriate column / record on sheet (1)</p> <p style="text-align: right;">(1 + 1) = 2</p>	<b>2</b>
8(a)(ii)	<p>Decide whether to survey individually or in a group / pairs (1)  Agree where each group goes / decide which sites to go to (1)  Agree on what descriptions mean / do a pilot or practice survey (1)  Decide when would be best day / part of day to do survey / do it same day (1)  Agree on time of survey / all surveys done at same time (1)  Decide whether to calculate an average score from several students' results / one student decides on the group's scores (1)  Decide whether to repeat on different times / days (1)</p> <p style="text-align: right;">(1 + 1 + 1 + 1) = 4</p>	<b>4</b>

Question	Answer	Marks
8(b)(i)	<p>Credit what the scores mean in terms of quality of the urban environment as in the question <u>better / worse / poorer</u> only accepted in <u>certain features</u> – see below.</p> <p><b>Tettenhall and Pendeford:</b>  <u>Examples: (1 MAX)</u>            More open land in T / less open land in P (1)            More attractive land in T / less attractive land in P (1)            Less vandalism and damage in T / more or worse vandalism in P (1)            More attractive <u>overall</u> in T than P (1)</p> <p><b>Whitmore Reans and Low Hill:</b>  <u>Examples: (1 MAX)</u>            Less maintained / poorer / worse building condition in W / more maintained or better building condition in L (1)            Less open land in W / more open land in L (1)            Less attractive land in W / more attractive land in L (1)            More / worse vandalism in W / less vandalism in L (1)            More / worse noise OR air pollution / noisier in W / less noise OR air pollution in L (1)            Less maintained / poorer / worse roads and pavements in W / more maintained or better roads and pavements in L (1)            Less attractive <u>overall</u> in W than L (1)</p> <p style="text-align: right;">(1 + 1) = 2</p>	<b>2</b>
8(b)(ii)	<p>Completion of bi-polar graph; need both plots and joined accurately for the mark            Noise and air pollution (–1) and roads and pavements (+1)</p>	<b>1</b>
8(b)(iii)	<p>Plotting bar for Whitmore Reans (–5) on Fig. 11</p>	<b>1</b>
8(b)(iv)	<p>Hypothesis is <b>PARTLY TRUE</b> – 1 mark reserve for correct decision (1)</p> <p><u>Evidence</u>            Minus / negative or low scores nearer to centre / positive or high away from centre (1)            e.g. Any two sites that agree: Heath Town close with score of –2 and Pendeford further away with higher score of 10 (1)</p> <p><u>NOTE: 1 Reserve/max mark for anomaly statement or stats.</u>            Anomaly of Tettenhall – higher score nearer centre than areas further from centre (1)            e.g. Tettenhall close with 12 and Fordhouses further away with lower score of 7 (1)            (Could also use Low Hill 3 or Pendeford 10)</p> <p style="text-align: right;">(1HA + 1 + 1 + 1R) = 4</p>	<b>4</b>
8(c)	<p><b>Description:</b> Use random number generator to decide who they ask / ask next person they meet / put numbers in a bag and draw out to decide who they ask (1 MAX)</p> <p><b>Advantage:</b> random numbers avoids bias / equal chance of being selected / reliable / quicker (1 MAX)</p> <p style="text-align: right;">(1 + 1) = 2</p>	<b>2</b>



Question	Answer	Marks
8(d)(i)	Completion of Fig. 12  <b>Park:</b> between 5 and 15 (7 minutes) <b>Secondary school:</b> more than 30 (40 minutes)  <div style="text-align: right;">(1 + 1) = 2</div>	<b>2</b>
8(d)(ii)	<u>Examples</u>  People may not walk / may go by car / bus / mobility scooter / other transport (1) People may not go to the nearest service / more than one service to go to (1) People walk at different speeds / people walk faster on one day than another (1) People walk by different routes (1) Estimated times may be inaccurate / vague / people do not know / guess (1) Takes them longer when it is busy (1) Do not use specific services (1)  <div style="text-align: right;">(1 + 1) = 2</div>	<b>2</b>
8(d)(iii)	<b>Local store = 4 (1)</b> <b>Total = 24 (1)</b> Award total mark if local store is wrong but <u>total correct</u> to avoid ECF (Likely to be combinations of NR / 20; 0 / 20; 1 / 21; 2 / 22; 3 / 23 – give X = 0 for first incorrect figure but TICK = 1 if total is right using the incorrect figure)  <div style="text-align: right;">(1 + 1) = 2</div>	<b>2</b>
8(e)(i)	Completion of pie graph for Fordhouses (45%) or 162° clockwise – allow tolerance of 1% each way, i.e. 158–166° <u>Plot and shading must be correct</u> for the mark	<b>1</b>
8(e)(ii)	Hypothesis is <b>FALSE</b> – 1 mark reserve for correct decision (1)  <u>Evidence:</u> Highest scores increase towards city centre OR access near centre is better <u>nearer</u> to centre (1), e.g. Heath Town near with 91 and Pendeford further / faraway with 51 (1) (Any two examples that work)  <div style="text-align: right;">(1HA + 1 + 1) = 3</div>	<b>3</b>

Question	Answer	Marks
8(f)	<p><u>Examples</u></p> <p>Decide on groups / pairs or individual research (1)            Divide jobs between students / 1 counts other records (1)            Decide on appropriate sites / roads (1)            Decide when to do the traffic counts / time (1)            Decide which days to do it (1)            Decide duration of traffic counts (1)            Go to two sites on each road / opposite sides of road / specific sites (1)            Use stopwatch / watch for timing (1)            Count <u>traffic / vehicles / types of vehicles / all transport types</u> (1)            Use counter / clicker / tally method (1)            Synchronise timing / start and finish at same time (1)            Record on sheet / table / chart (1)</p> <p style="text-align: right;">(1 + 1 + 1 + 1) = 4</p>	<b>4</b>