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Name: ______ Date: _____

SERANGOON JUNIOR COLLEGE JC2 H2 P1 GEOGRAPHY 2018 Preliminary Examination Answer Scheme

Rubric for 12m Essays

Level	Marks	Descriptors				
4	10-12	Response is consistently analytical and comprises purposeful explanations. Response addresses the question fully using accurate and detailed knowledge. Depth of relevant knowledge and understanding is evident throughout. Response is coherent and use of terminology is accurate throughout.				
3	7-9	Response is analytical and explanatory rather than descriptive. There is a clear focus on the question. Response demonstrates relevant knowledge and understanding. The response is coherent and the use of terminology is mostly accurate. A (75%) : 9 B (67%) : 8 C (58%) : 7				
2	4-6	Response includes analysis and explanation but is generally dominated by description. Response reflects understanding of the question and is generally relevant. Some parts of the response may be unclear. Use of terminology is limited. 50% (D) : 6 42 % (S) : 5 33 % (U) : 4				
1	1-3	Response lacks focus on the question. Response is generally fragmentary and lacks a clear structure and organisation. There may be many unsupported, brief or incomplete assertions and/or arguments with some inaccurate use of terminology.				
0	0	No creditworthy response.				

Rubric for 20m Essays

Level	Marks	Descriptor				
5	17-20	Response is perceptive, logical and has strong evaluative elements. Evaluation is relevant and comprehensive. Strong evidence of synoptic thinking where knowledge from different topics is synthesised purposefully. Use of detailed and accurate knowledge reflecting depth of understanding of the subject content. The argument or discussion is coherent and well supported by relevant material. Use of terminology is accurate.				
4	13-16	Response displays a sound evaluative element. There is some evidence of synoptic thinking through synthesising knowledge from different topics. Response is generally focused on the demands of the question and features accurate knowledge, reflecting depth of understanding of the subject content. The argument or discussion is coherent and supported by relevant material. Use of terminology is accurate and appropriate.				
3	9-12	Response is broadly evaluative rather than descriptive. Response addresses the questions and features accurate knowledge, reflecting some understanding of the subject content. Argument or discussion is mainly coherent and supported by material which is largely relevant. Use of terminology is relevant and mostly accurate. 12 B • Content accuracy 12 B • Content accuracy 12 Content accuracy • Rigour of elaboration (use of relevant statistics, reference to models, use of technical terms) for most parts of the essay • Addressing the question consistently • Clear evaluation shown in selected parts of essay (clear argument, supporting evidence, alternative perspectives 11 C • Content accuracy • Rigour of elaboration (use of relevant statistics, reference to models, use of technical terms) for most parts of the essay 11 C • Content accuracy • Rigour of elaboration (use of relevant statistics, reference to models, use of technical terms) for most parts of the essay • Addressing the question consistently • Addressing the question consistently • Attempt at evaluation (clear argument, supporting evidence, alternative perspectives • Rigour of elaboration for some parts of the essay • Addressing the question for most parts of the essay • Addressing the question for most parts of the essay • Addressing the question for most parts of the essay • Addressing the question for mo				
2	5-8	Response is largely descriptive. Response attempts to provide an argument to address the question. The weakest responses in this level may lack balance and/or depth. Response structure is broadly coherent but may lack clarity. Some lapses in use of terminology though generally accurate. 8 (S), < 7 (U)				
1	1-4	Response lacks focus on the question and may be largely irrelevant to it. Response is fragmentary and lacks clarity. There may also be unsupported assertions and/or arguments with limited or no use of relevant terminology.				
0	0	No creditworthy response.				

1 (a) Explain the main land surface geomorphological processes operating in the humid tropical climates. [12]

Geomorphological processes are those that bring about a change in the morphology of landforms and they are influenced by climate. Humid tropical regions would include :

- all-seasons rain equatorial regions (Af)

- seasonal rainfall monsoon (Am) and savannah (Aw) regions

Dominant geomorphic processes: identify and explain

- 1. Chemical weathering
- 2. Mass movement
- 3. Surface erosion

a. on the plains of Aw

Surface erosion is most effective in the tropical savannah (Aw) climate

- Limited vegetation cover (mainly grassland) which offers little protection
- High intensity rain which generates sheet-floods during the summer monsoon erodes surface sediments from the uppermost layers of the regolith in the process called exhumation
- the smooth surface of the savanna plains is progressively being lowered and leads to the gradual exposure of the basal surface of weathering which leads to large-scale exfoliation by dilatation

b. Surface erosion in other humid tropical regions

- on deforested surfaces of the rainforest (Af) and in areas of weak, easily eroded clays where the kinetic energy of high intensity rain causes rainsplash and rill erosion, and where the rills flow together, causing gully erosion. These gullies dissect slopes forming badland topography.

1 (b) Discuss the contribution of events in Pleistocene times to the present-day landforms of tropical regions. [20]

The tropics, like the rest of the world, underwent repeated changes during the Pleistocene epoch which lasted from 2.6mllion to 11,700 years ago which was then followed by the early Holocene epoch. These changes included changes in climate, sea level fluctuations and tectonic uplift. The geomorphological effects of such changes were enormous. While the geologic past is a good guide, for understanding current tropical landforms, it is essential to acknowledge that the processes operating under present climatic conditions also cause geomorphic effects.

Event 1 : Climate change

Event 2: Tectonic uplift and its influence on karst landforms

Event 3 : Sea level fluctuations

Event 4 : Role of present day processes

2 (a) Explain the effects of geology and changes in base level on the long profiles and cross profiles of river valleys. [12]



EFFECT OF BASE LEVEL OF EROSION ON LP

Changes in base level result from:

a- Eustatic (sea level) change

b- **Isostatic** (tectonic) change : e.g. crustal uplift, where land is uplifted due to plate movement activity. Rivers are rejuvenated when the land over which they flow is uplifted, and this sometimes causes waterfalls to develop

CROSS PROFILE

Geology on cross profile

Rock type may modify the local development of valley cross sections, in that, whereas hard coherent rocks (sandstone, granite) are able to support steep valley sides, whereas incoherent rocks undergo collapse, thus resulting in lower slope angle

Geological structure affects valley shape in several ways. Where the river has taken advantage of a weak stratum, like a layer of shale, clay or sand.

Sandstone Shale	Cliff Structural Benches

Fall in the base level of erosion on cross profile : Paired and unpaired terraces

A sequence of such falls will produce a staircase of terraces.

A: **Paired** Terraces - A lowering of base level (sea level) will cause incision of the stream, leaving remnants of the former valley floor standing up as terraces

B: **Unpaired** terraces- are formed when laterally shifting streams are cutting down steadily (probably because base-level is also falling continuously.



Fall in the base level of erosion on cross profile :





19 Incised (A) and ingrown (B) meanders

Effects of base level falls on the cross profile of river meander : Incised menader



2 (b) Assess the role of the ITCZ (inter tropical convergence zone) in determining the distribution of rainfall totals and extreme weather events in the tropics. [20]

Indicative content

ITCZ – a low pressure belt produced by the intense solar heating and uplift of air at a convergence zone. Its position and seasonal migration across the equator are important in determining rainfall totals in the tropics. The ITCZ is also useful to explain extreme weather phenomena such as tropical cyclones, intense rainfall and drought. Other factors, however, are required for a fuller comprehension

P1: Location of ITCZ in determines rainfall totals

P2 : How ITCZ influences tropical cyclone

The shift of the ITCZ across the equator means that it will warm the SST of the seas where it is located. TCs occur most commonly in late summer and early autumn (when sea temperatures reach their maximum) July to October in the NH and Jan-Feb in the southern hemisphere. The heat energy is necessary for the evaporation and convective rise of warm water vapour to reach cloud condensation level, where latent heat is released to fuel the system.

Extreme weather events would include : very high wind speeds (119km/hr and above) and torrential rain concentrated around the eye.

(Note : storm surges, inland and coastal flooding are not extreme weather events)

P3: Other factors affecting rainfall totals

- Continentality
- Subtropical high pressure (latitude 30° N/S)
- Cold ocean currents

P4: Other factors causing extreme weather phenomena

El Nino

Climate change means extreme weather phenomena have become the new normal: more warming causes evaporation and forms more water vapour – a vital ingredient for more intense rainfall and intense tropical cyclones, higher frequency of Category 4 and 5 storms (super typhoons). Higher temperature favours intense, longer drought, heatwaves

3 (a) Examine the validity of Malthus' theory on the relationship between population and resources in low income countries. [12]

P1 : Explain Malthus Theory

P2 : Relevance of Malthusian theory (exponential population growth)

- Examination of two hundred years of demographic history reveal the exponential nature of human population growth in the past centuries, of which the bulk of population growth occurred in the last century.
- •Much of this population growth has occurred in the low-income countries. For example, according to the results of the 2015 Revision of World Population Prospects, total fertility is now 2.5 children per woman globally, but the African continent remains the region with the highest fertility at 4.7 children per woman.

P3 : Relevance of Malthusian theory (projected food shortages)

P3 : Limitations of Malthusian theory

• Malthus asserted that food production would not keep pace with population growth owing to the operation of the law of diminishing returns in agriculture. But by making rapid advances in **technology**, countries have been able to postpone the stage of diminishing returns.

Eg : The Green Revolution in India refers to a period of time when agriculture in India changed to an industrial system due to the adoption of modern methods and technology such as high yielding variety (HYV) seeds, tractors, irrigation facilities, pesticides, fertilizers.

• Cite other limitations

3 (b) To what extent has the use and management of resources been influenced by economics and technology in developing countries ? [20]

Introduction

Define :

- > Resource use: how communities appropriate a resource to meet their needs and wants
- Resource management : how communities regulate their use of resources

Argument/context :

- Many countries of low levels of development enjoy an abundance of natural resources, and the way these resources are used and managed are shaped by a variety of factors
- Economic and technological factors influence the way a resource is appraised, hence changing the way a resource can be mobilised and managed over time
- However, other factors can also influence the appraisal and subsequent use and management of resources

<u>Body</u>

P1 : Technological factors affect use of resources

- P2 : Economic factors affect use of resources
- P3 : Economic and technological factors affect the management of resources

P4 : Political factors affect use and management of resources

P5 : Social factors affect use and management of resources

<u>Conclusion</u>: (has the use and management of resources been influenced by economics and technology in developing countries ?)

- Economics and technology definitely significant factors in the use and management of resources developing countries
- Not the only factors ultimately, interaction and interplay of factors

1) Determining the aspects to be measured : Contested concept

 Such contestations in meaning is reflected in the different ranking criteria used in liveable city rankings such as the Economic Intelligence Unit (EIU), Monocle and Mercer. Although all 3 indicators are geared towards the needs of expatriates, they deploy different indicators. For instance, EIU doesn't have a specific indicator to measure economic aspects. Mercer includes indicator on natural disasters while Monocle and EIU lacks such an indicator.

No	Dimension	EIU	Mercer	Monocle
1	Politics	-stability	-political stability -crime -law enforcement	-international connectivity
2	Economics	No specific mention	-currency exchange -banking services	-business condition
3	Social	-culture -education	-media availability -limitation on personal freedom	-medical care -tolerance
4	Environment	-environment	-climate -record on natural disaster	-environmental issues & access to nature -climate/sunshine
5	Infrastructure	-healthcare -amenities & facilities	-electricity -water -public transport	-public transport -urban design -quality of architecture

Table 3 Five Common Themes of EIU, Mercer and Monocle's Indicators

• Such disagreements point to not only different measurement criteria in determining what a highly liveable city is but also normative judgements about what "good" cities and good urban living environment should look like. Ultimately, as pointed out by Pacione (2009), urban liveability is hard to define because it is a relative term, whose precise meaning depends on the place, time, purpose of the assessment and on the value system of the assessor.

2) Determining the methods of measurement

3) Sourcing for relevant data

5 (b) "Although there are solutions to managing traffic congestion, these solutions often bring other problems". With reference to cities in developed countries, discuss this statement. [20]

Indicative content

Introduction

- Define traffic congestion
- Argument often argued that solutions to managing traffic congestion bring other problems due their inherent limitations
- Balance argument However, not all transport management strategies bring problems ; selected strategies can bring positive impacts

<u>Body</u>

- P1 : Problems associated with supply fix policies
- P2 : Problems associated with demand management policies
- P3 : Problems associated with other strategies

P4 : However, can be argued that some of these problems are short-term and can be easily reversed with specific policies

P5 : Despite these limitations, there are also strategies that bring benefits (positive externalities?) beyond curbing congestion

<u>Conclusion</u>: "Although there are solutions to managing traffic congestion, these solutions often bring other problems".

- Often argued that solutions to managing traffic congestion bring other problems due their inherent limitations. However, not all transport management strategies bring problems; selected strategies can bring positive impacts as well.
- This suggests that implementation of transport management strategies entails a holistic evaluation of various impacts (environmental, economic, social) to ensure that these strategies are sustainable solutions for urban dwellers.

6 (a) With reference to cities in countries at varying levels of development, explain why pluvial floods are considered hazardous. [12]

Overview statement : Pluvial floods considered hazardous as they cause adverse social ad economic impacts

Case study 1 : SG

- Refer to lect book
- However, due to heavy investment in flood management strategies in a HIC city such as SG, pluvial flood episodes are curbed in terms of magnitude and intensity, leading to reduced losses.

Case study 2 : Chennai, India

- Refer to lect book
- As compared to a HIC city, LIC cities such as Chennai suffer more adverse impacts due to poorer flood management strategies that lead to more frequent and extensive pluvial floods. In addition, a large proportion of the urban residents are highly vulnerable (ie : slum dwellers), culminating in greater losses.

6 (b) Evaluate the extent to which changes of catchment characteristics can mitigate the impacts of pluvial floods in urban environments. [20]

<u>Intro</u>

- Define : mitigate impacts (reduce adverse economic and social impacts associated with pluvial floods)
- Argument : Changes to the catchment can mitigate impacts of pluvial floods by reducing the generation of HOF which is a key cause of pluvial floods
- Balance argument :
- However, strategies involving changes of catchment characteristics do have limitations
- In addition, the generation of HOF is not the only cause of pluvial floods; tidal flooding and overwhelmed canals also contribute to pluvial floods, and hence entail other management strategies
- Finally, beyond addressing the cause of floods, strategies that mitigate impacts solely such as flood forecasting and community preparedness are also vital in the management of pluvial floods.

<u>Body</u>

P1 : Strategies involving changes of catchment characteristics

- P2 : Limitations of strategies involving changes of catchment characteristics
- P3 : Other causes of floods entail other management strategies
- P4 : Other management strategies

<u>Conclusion</u> (are changes to catchment characteristics mitigate the impacts of pluvial floods in urban environments?)

- Changes to the catchment are a key strategy in curbing flood impacts as it is the catchment characteristics that contributing to pluvial flooding
- However, strategies involving changes of catchment characteristics do have limitations. In addition, there are other causes of pluvial floods that entail other management strategies. Finally, beyond addressing the cause of floods, strategies that mitigate impacts solely such as flood forecasting and community preparedness are also vital in the management of pluvial floods.
- In conclusion, variety of strategies are needed to reduce impacts of pluvial floods in urban environments