



SUBJECT: **Geography**
DATE: 1st June 2021
TIME: 9:00 a.m. to 12:05 p.m.

Directions to Candidates

Answer a total of **FOUR** questions: **TWO** questions from **EACH** of the two Sections.
The use of non-programmable calculators is permitted. **ALL** questions carry equal marks.

SECTION A: PHYSICAL GEOGRAPHICAL PROCESSES

1. (a) With reference to the drainage basin system, briefly describe the following hydrological components:
- i. precipitation;
 - ii. interception;
 - iii. infiltration. (9)
- (b) Discuss how **TWO** of the hydrological components listed in (a) above, influence the surface-water run-off in a drainage basin. (16)

(Total: 25 marks)

2. (a) Differentiate between the terms: global warming and climate change. (10)
- (b) Discuss **THREE** weather phenomena that indicate climate change. (15)

(Total: 25 marks)

Please turn the page.

3. Figure 1 shows which water-scarce areas in Africa are experiencing (or are at risk of) desertification and their corresponding isohyets (lines of equal rainfall in mm).

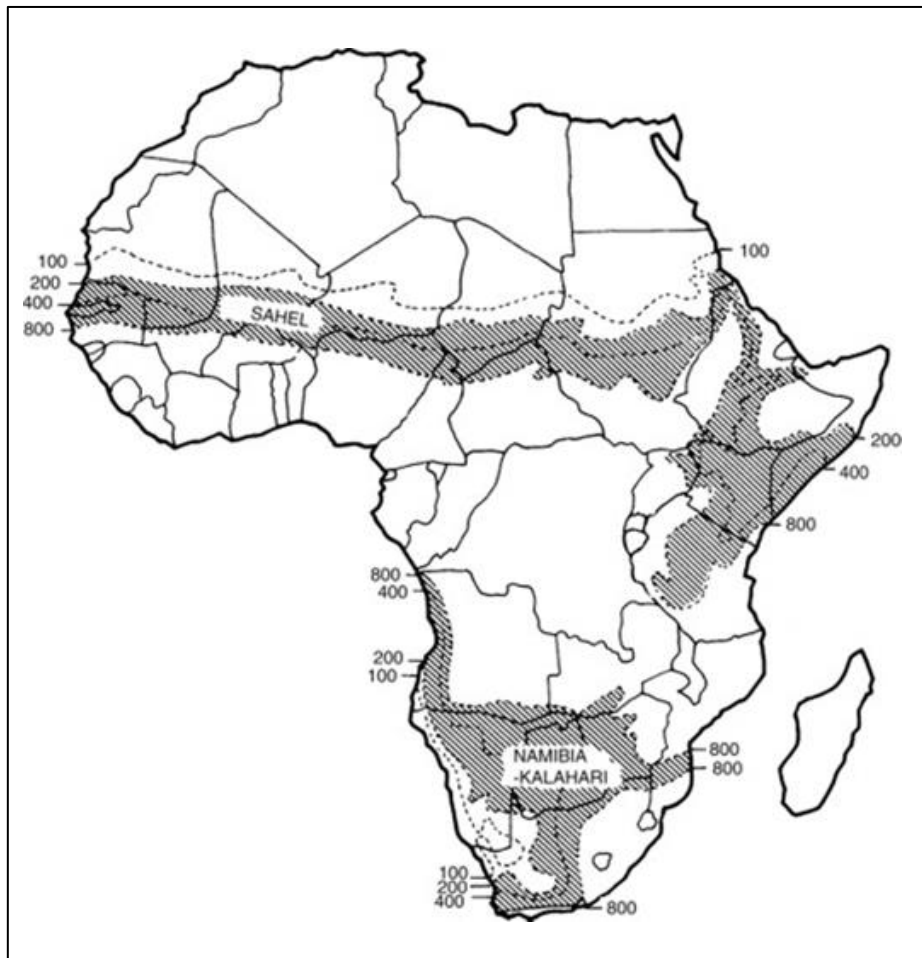


Figure 1: Areas in Africa, suffering (or are at risk of) desertification.
(Source: Kobayashi, 2020)

- (a) What is the connection between rainfall levels and desertification processes occurring in Africa? (5)
- (b) Explain the effect of the following factors on desertification:
i. Land mismanagement;
ii. Climate change. (20)

(Total: 25 marks)

4. (a) With the help of an annotated diagram, explain the main zones subdividing the beach profile. (10)
- (b) Two sets of pebbles were examined on a beach in early spring. The long axis of twenty-four pebbles was measured as a sample: twelve from the eastern side of the beach and another twelve from the western side of the beach. The results are shown in Table 1.

Table 1

Sample no.	Pebble Long Axis (cm)	
	Eastern Side	Western Side
1	0.3	3.4
2	1.2	2.7
3	3.1	7.2
4	0.9	10.8
5	5.1	4.3
6	2.2	8.3
7	1.8	14.7
8	0.8	6.9
9	6.2	16.8
10	5.9	6.7
11	2.4	5.1
12	7.2	8.1

Use the data listed in Table 1 to calculate the following:

- i. The mean and range for each set of pebbles. (4)
- ii. The standard deviation (s) for each set of data using the formula below:

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

All working must be shown. (7)

- (c) From the results obtained, what conclusions might one reach about the depositional behaviour of pebbles by waves? (4)

(Total: 25 marks)

Please turn the page.

5. Table 2 lists, according to latitudes, the following temperature variables: the average annual temperature (°C), the average temperature in January and July (°C), and the annual temperature range (°C).

Table 2: Temperature variables according to latitudes.

Latitude	Average annual temperature (°C)	Average temperature in January (°C)	Average temperature in July (°C)	Annual temperature range (°C)
90°N	-22.7	-41.1	-1.1	40.0
80°N	-18.3	-32.2	2.0	34.2
70°N	-10.7	-26.3	7.3	33.6
60°N	-1.1	-16.1	14.1	30.2
50°N	5.8	-7.1	18.1	25.2
40°N	14.1	5.0	24.0	19.0
30°N	20.4	14.5	27.3	12.8
20°N	25.3	21.8	28.0	6.2
10°N	26.7	25.8	27.2	1.4
Equator	26.2	26.4	25.6	0.8
10°S	25.3	26.3	23.9	2.4
20°S	22.9	25.4	20.0	5.4
30°S	16.6	21.9	14.7	7.2
40°S	11.9	15.6	9.0	6.6
50°S	5.8	8.1	3.4	4.7
60°S	-3.4	2.1	-9.1	11.2
70°S	-13.6	-3.5	-23.0	19.5
80°S	-27.0	-10.8	-39.5	28.7
90°S	-33.1	-13.5	-47.8	34.3

(Source: <http://utexas.edu>)

- (a) Discuss **TWO** reasons why the amount of solar energy intercepting a unit area of the Earth's surface varies markedly with latitude. (10)
- (b) Discuss how human activities have impacted on the Earth's radiation budget during the last century. (15)

(Total: 25 marks)

SECTION B: HUMAN GEOGRAPHICAL PROCESSES

6. Figure 2 shows the Malta Freeport, a transshipment port.



Figure 2: Malta Freeport
(Source: Wikipedia.org)

- (a) Under which sector of the economy is this activity classified? Explain your answer in brief. (5)
- (b) Discuss **TWO** factors that influence the location of this industry. (10)
- (c) Discuss the impact on the environment associated with the industrial activity in a transshipment port. (10)

(Total: 25 marks)

7. (a) Define migration and give **TWO** examples of different types of migration. (6)
- (b) Explain Ravenstein’s theory of migration. (9)
- (c) Discuss Ravenstein’s theory of migration in view of the migration patterns that take place in the Mediterranean region, with specific focus on Malta. (10)

(Total: 25 marks)

Please turn the page.

8. Figure 3 shows an aerial image of London, an example of a primate city



Figure 3: Aerial image of London
(Source: *dailymail.co.uk*)

- (a) Define the terms:
 - i. site;
 - ii. situation. (8)
- (b) Explain the role of rivers in the development of primate cities such as London. (5)
- (c) Briefly discuss the importance of primate cities at both national and international scales. (6)
- (d) Describe **TWO** major environmental issues associated with a primate city such as London. (6)

(Total: 25 marks)

- 9. (a) Define settlement hierarchy and use a clear, well-labelled diagram to support your answer. (10)
- (b) Give an example of a settlement, in the Maltese Islands, which would be classified as a large town. (2)
- (c) Explain why the answer in (b) above is classified as a large town. (8)
- (d) Briefly discuss **TWO** negative environmental repercussions associated with the settlement functions of large towns. (5)

(Total: 25 marks)

10. The COVID-19 pandemic has left a negative impact on the tourism industry in Malta.
- (a) Discuss **TWO** negative impacts of the pandemic on the tourism industry in Malta. (10)
 - (b) Discuss **TWO** ways by which the tourism industry in Malta can recover after this difficult time. (10)
 - (c) Briefly discuss how the reduction in the number of tourists may have benefited the Maltese environment. (5)

(Total: 25 marks)