OCR
Oxford Cambridge and RSA

Wednesday 22 May 2019 – Afternoon

A Level Geography

H481/01 Physical Systems

Time allowed: 1 hour 30 minutes

You must have:
- the Resource Booklet (inserted)
- the OCR 12-page Answer Booklet (OCR12 sent with general stationery)

You may use:
- a scientific or graphical calculator
- a ruler (cm/mm)

INSTRUCTIONS
- The separate Resource Booklet will be found inside this document.
- Use black ink. You may use an HB pencil for graphs and diagrams.
- Section A: Choose **one** option and answer **all** parts of the question in the option.
- Section B: Answer **all** questions.
- Write your answers in the Answer Booklet. The question number(s) must be clearly shown.

INFORMATION
- The total mark for this paper is **66**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended responses will be assessed in questions marked with an asterisk (*).
- This document consists of **8** pages.

Section A – Landscape Systems

Answer **all** questions from **one** option.

Option A – Coastal Landscapes

1 **(a)** Explain the role of flows of energy in the formation of a tombolo. **[8]**

(b) Study **Table 1**, which shows inputs and outputs of sediment for a beach in Cornwall, UK, during 2017.

		Summer	Winter
Input (m^3)	Cliff erosion	43	100
	Fluvial deposition	50	20
	Beach nourishment	50	0
Output (m^3)	Marine erosion	20	69
	Longshore drift	93	130

Table 1 Inputs and outputs of sediment for a beach in Cornwall, UK, during 2017

(i) Find the mode(s) of the data set shown in **Table 1**. **[2]**

(ii) Calculate the sediment budget for each season shown in **Table 1**.
You must show your working. **[2]**

(iii) State whether each season was in a surplus, deficit or equilibrium state. **[2]**

(c) Study **Fig. 1**, Isle of Skye, Scotland, UK; an area that has experienced climate change.

With reference to **Fig. 1**, explain the role of **one** geomorphic process in forming landform **A**. **[3]**

(d)* 'Geology is the most significant influence on coastal landscapes.' To what extent do you agree with this statement? **[16]**

Option B – Glaciated Landscapes

2 **(a)** Explain the role of flows of energy in the formation of an erratic. **[8]**

(b) Study **Table 2**, which shows inputs and outputs of water equivalent for a glacier in Norway during 2017.

		Summer	Winter
Input (cm)	Wind redistribution	1	10
	Direct snowfall	0	40
	Avalanche	0	170
Output (cm)	Melting	120	2
	Evaporation / sublimation	50	10

Table 2 Inputs and outputs of water equivalent for a glacier in Norway during 2017

(i) Find the mode(s) of the data set shown in **Table 2**. **[2]**

(ii) Calculate the mass balance for each season shown in **Table 2**.
You must show your working. **[2]**

(iii) State whether each season was in a surplus, deficit or equilibrium state. **[2]**

(c) Study **Fig. 2**, Tuktoyaktuk, Canada; an area that has experienced climate change.

With reference to **Fig. 2**, explain the role of **one** geomorphic process in forming landform **B**. **[3]**

(d)* 'Geology is the most significant influence on glaciated landscapes.' To what extent do you agree with this statement? **[16]**

Option C – Dryland Landscapes

3 **(a)** Explain the role of flows of energy in the formation of a barchan. **[8]**

(b) Study **Table 3**, which shows inputs and outputs of water equivalent for a desert in Chile during 2017.

		Summer	Winter
Input (mm)	Cold front snowfall	0	194
	Advection snowfall	0	4
	Rainfall	2	1
Output (mm)	Evapotranspiration	2000	8
	River discharge	20	4

Table 3 Inputs and outputs of water equivalent for a desert in Chile during 2017

(i) Find the mode(s) of the data set shown in **Table 3**. **[2]**

(ii) Calculate the water balance for each season shown in **Table 3**.
You must show your working. **[2]**

(iii) State whether each season was in a surplus, deficit or equilibrium state. **[2]**

(c) Study **Fig. 3**, Western Desert, Egypt; an area that has experienced climate change.

With reference to **Fig. 3**, explain the role of **one** geomorphic process in forming landform **C**. **[3]**

(d)* 'Geology is the most significant influence on dryland landscapes.' To what extent do you agree with this statement? **[16]**

Section B – Earth's Life Support Systems

Answer **all** questions.

4 **(a)** Study **Fig. 4**, a climate graph for Yakutsk, northern Russia.

(i) With reference to **Fig. 4**, suggest how variations in temperature influence the size of **one** store in the carbon cycle. **[4]**

(ii) Explain **three** limitations of such climate graphs in representing the climatic conditions of a location. **[3]**

(b) Examine the significance of short term changes to the flows and stores in the water cycle. **[10]**

(c)* 'Reducing emissions is the most effective global management strategy to protect the carbon cycle as a regulator of the Earth's climate.' How far do you agree with this statement? **[16]**

END OF QUESTION PAPER

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