INSTRUCTIONS TO CANDIDATES:

(To be read out by the external invigilator)

1. The subject code for Geography is 13

2. There are 16 printed pages in the question booklet.

3. An Electronic Answer Sheet for Section A and 8 printed pages in the answer booklet for Section B are inserted in the centre of the question booklet.

You will be given an extract of the Papua New Guinea Topographic survey map KARKAR 1:100 000 for use in this examination.

4. There are two sections in this paper. Answer all questions.

**Section A: Multiple Choice** (Questions 1-30) 30 Marks

This section will be electronically marked.

All answers to the Multiple Choice Section **MUST** be answered on the Electronic Answer Sheet.

Carefully following the instructions, fill in your Candidate Information and Subject Information.

Choose A, B, C, or D from the alternatives given and use a HB pencil to shade in the correct letter to each question on the Electronic Answer Sheet.

If you make a mistake, rub the shading out completely with an eraser and shade in your correct alternative clearly.

**Section B: Short Answers** (Questions 31-40) 70 Marks

Write down your name, your school and complete your 10 digit candidate number on the Answer Booklet provided for Section B.

5. You are required to write only the correct answers in the space provided on the Answer Booklet.

6. Answers written on the question paper including the rough work paper will not be marked. Write answers neatly in spaces allocated on the answer sheet. Answer **ALL** questions.

7. Correction Fluid is **not allowed** on the answer sheet. Where you have made an error, cross out the wrong answer and start on a new line.

**The Penalty for Cheating or Assisting Others to Cheat in National Examinations is Non-Certification.**

DO NOT TURN OVER THE PAGE

AND DO NOT WRITE UNTIL YOU ARE TOLD TO START.
SECTION A: MULTIPLE CHOICE

(Questions 1 to 30) 1 mark each

Answer each question by shading in with HB pencil, the circle directly under the correct alternative A, B, C, D or E. If you make a mistake, rub it out completely using an eraser rubber and shade the correct answer on the Electronic Answer Sheet.

For questions 1 to 10, use the Topographic map: Karkar 1:100 000 to answer them.

QUESTION 1
What feature is represented by the symbol at grid reference 674637?

A. Reef  B. Wharf  C. Rock bare  D. Light house

QUESTION 2
The contour interval for Karkar Island would be?

A. 20 m  B. 40 m  C. 50 m  D. 80 m

QUESTION 3
What is the approximate direct distance in kilometres, from Sarang Island to Tabel village?

A. 22  B. 22.5  C. 23  D. 23.5

QUESTION 4
Which of the following is the approximate bearing of Cape Croisilles from Mount Uluman?

A. 045°  B. 070°  C. 180°  D. 225°

QUESTION 5
The dominant vegetation type found around Mount Burak (479527) would be?

A. Secondary growth  B. Rainforest
C. Grassland  D. Mangrove

QUESTION 6
Which 4-figure grid square reference is Dumduman Island situated in?

A. 6466  B. 6648  C. 5672  D. 6647
QUESTION 7
What are the two major cash crops cultivated on Karkar Island?
A. Coffee and Tea  B. Oil palm and Cocoa
C. Coconut and Cocoa  D. Coconut and Oil palm

QUESTION 8
At Palas Point (GR 5077) a sand spit has been formed. In which direction has the wind blown to help create this feature?
A. Southeast  B. Southwest  C. Northeast  D. Northwest

QUESTION 9
What direction is Tavultae Point from Mangen (Dove) Point?
A. Southeast  B. Southwest  C. Northeast  D. Northwest

QUESTION 10
Which 6-figure grid square reference is Tokain Agricultural Station located?
A. 801945  B. 711992  C. 584699  D. 468802

QUESTION 11
Tides are the result of the
A. gravitational pull of the Earth.  B. wind lashing the sea surface.
C. movement of the oceanic crust.  D. gravitational pull of the moon and sun.

QUESTION 12
Which of these is the chief agent of erosion in tropical deserts?
A. Temperature  B. Wind  C. Water  D. Ice

QUESTION 13
The lines drawn on the map through all places that have the same rainfall are called
QUESTION 14
Which two letters represent points of erosion on the river?

QUESTION 15
Which letter represents the 'point bar'?
A. J  B. K  C. L  D. M

QUESTION 16
Which of these winds blow from 90°N to 60°N?
A. Northeast polar  B. Southeast polar
C. Northeast trade  D. Southeast trade
QUESTION 17
An Anemometer is a weather instrument used to measure
A. wind speed. B. wind direction.
C. air pressure. D. relative humidity.

Refer to the diagram below to answer questions 18 and 19.

LIMESTONE LANDFORM

QUESTION 18
Which of these types of weathering is dominant in the area shown above?
A. Carbonation B. Insolation C. Oxidation D. Freeze-thaw

QUESTION 19
The rocks that form the crust of this area are normally found at sea level. However, in Papua New Guinea, the topography shown in the diagram can be found in the Simbu Province. Which of these is the cause of these rocks being found in Simbu Province?
A. Volcanic eruption B. Continental drift
C. Folding of the crust D. Deposition

QUESTION 20
Which of these modes of transportation would be the most suitable in transporting oil and gas from Hela, Enga and Gulf Provinces to the port of shipment?
A. Land B. Sea C. Railway D. Pipeline
QUESTION 21

Oil is naturally found on the bedding planes of

A. Sedimentary rocks.      B. Metamorphic rocks.
C. Igneous rocks.          D. Sandstones.

Study the diagram to answer questions 22 and 23

Plane of the ecliptic

QUESTION 22

Which of the statements below is correct?

A. There are 12 hours of sunlight and 12 hours of night in Japan on March 22\textsuperscript{nd}.
B. There are more than 12 hours of sunlight and less than 12 hours of sunlight in New Zealand on March 22\textsuperscript{nd}.
C. There are less than 12 hours of sunlight and more than 12 hours of night in China on September 23\textsuperscript{rd}.
D. There are less than 12 hours of sunlight and more than 12 hours of night in the Republic of South Africa on September 23\textsuperscript{rd}.

QUESTION 23

According to the diagram which of these statements is correct?

A. There will be low pressure systems developing over the continents in the Northern Hemisphere in December.
B. There will be high pressure systems developing over the oceans in the Northern Hemisphere in June.
C. There will be low pressure systems developing over the continents in the Southern Hemisphere in December.
D. There will be low pressure systems developing over the oceans in the Southern Hemisphere in December.
For questions 24 and 25, refer to the world map below

Latitude and Longitude pinpoint on a map

**QUESTION 24**

Genevieve Jenkin departed Port Moresby’s Jacksons airport at 6:00am on Tuesday 22\textsuperscript{nd} May 2012. She is on a direct flight bound for Heathrow airport, London England. When will she arrive at Heathrow?

A. 8:00 am on Monday 21\textsuperscript{st} May 2012  
B. 8:00 pm on Monday 21\textsuperscript{st} May 2012  
C. 4:00 am on Wednesday 23\textsuperscript{rd} May 2012  
D. 8:00 pm on Wednesday 23\textsuperscript{rd} May 2012

**QUESTION 25**

Samantha Israel departed Port Moresby’s Jacksons airport at 6:00 am on Tuesday 22\textsuperscript{nd} May 2012. She is on a direct flight bound for Tokyo. The flight takes a total of 3 hours. When does she arrive in Tokyo?

A. 3:00 am on Tuesday 22\textsuperscript{nd} May 2012  
B. 9:00 am on Tuesday 22\textsuperscript{nd} May 2012  
C. 3:00 am on Wednesday 23\textsuperscript{rd} May 2012  
D. 9:00 pm on Wednesday 23\textsuperscript{rd} May 2012
QUESTION 26
Which of the following factors can have the greatest influence on the temperature of Madang town?

A. Ocean current  
B. Altitude  
C. Distance from the sea  
D. Aspect

Study the type of rainfall shown below and answer questions 27 and 28

QUESTION 27
What type of rainfall is shown in the diagram above?

A. Relief  
B. Frontal  
C. Orographic  
D. Convectional

QUESTION 28
Which of these statements is not true about this type of rainfall?

A. It never occurs in Papua New Guinea.  
B. Occurs due to the presence of a cold air mass and a warm air mass.  
C. Normally occurs in summer.  
D. Normally occurs in winter.
Use the diagram below to answer questions 29 and 30.

GLACIAL LANDFORM

**QUESTION 29**
What feature is represented by letter B?
A. Hanging valley  
B. Pyramid peak  
C. Cirque  
D. Scree slope

**QUESTION 30**
What feature does letter E represent?
A. Hanging valley  
B. Pyramid peak  
C. Cirque  
D. Scree slope

**SECTION B: SHORT ANSWER**  
(Questions 31 to 40)

For questions 31 to 33 use the same topographic map: KARKAR 1:100 000 to answer the questions.

**QUESTION 31**
(a) Write down the 4-figure grid square references for
i) Namu School  
ii) Karim bridge  
iii) Karkar Airfield  
iv) Medibur Aid posit
(b) Write down the 6-figure grid square references for

i) Mangar No.1 village

ii) Trig station (PCP67)

iii) Yalo village

QUESTION 32

Below are seven grid square references from the map, labelled A, B, C, D, E, F and G; and seven types of social, cultural and economic land uses that can be found on the map.

<table>
<thead>
<tr>
<th>Grid references:</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>5668</td>
<td>4480</td>
<td>8296</td>
<td>7976</td>
<td>6465</td>
<td>4977</td>
<td>6451</td>
</tr>
</tbody>
</table>

Identify the grid square from this list in which the following land use types can be found, and write the letter, A, B, C, D, E, F or G, next to the name of the land use.

(i) Numerous small gardens

(ii) Cultivation

(iii) Karkar Air field

(iv) Dogowan Plantation

(v) Mugii Mission

(vi) Coconut Plantation

(vii) Cocoa Plantation

QUESTION 33

(i) What is the distance, to the nearest kilometres, from the top of Mount Uluman (850871) to Mom village (796894)?

(ii) What are the altitudes of these two locations?

   a) Mount Uluman

   b) Mom village

(iii) What is the change in altitude, to the nearest 100 m, from the top of Mount Uluman to Mom village?

(iv) Using your answers from (i) and (iii), calculate the approximate average gradient from the top of Mount Uluman to Mom village. (Show your working out)
QUESTION 34

Study the two climatic graphs to answer the following questions

(i) Which hemisphere is probably Station B located? (1 mark)

(ii) Give a reason why Station B is located at that hemisphere to support your answer in question (i). (1 mark)

(iii) Explain why Station A has a very low annual average mean rainfall between the months of July to September? (2 marks)

(iv) What type of vegetation would be found in Station B? (1 mark)

(v) Name the climate type for each Station? (2 marks)
QUESTION 35

Study the schematic map of the northern hemisphere in December. It shows intense centres of highland low pressure occupying opposing quadrants.

(i) What is the season experienced in December? (1 mark)
(ii) Explain where the Siberian High pressure has developed and explain why. (2 marks)
(iii) Explain the direction of surface air movement (wind) between the 4 pressure zones. (1 mark)
(iv) What would the pressure systems be like in June? (1 mark)
(v) What kind of air pressure is found at the sub-arctic and why. (1 mark)
(vi) Name a natural phenomena that would be associated with the movement of air masses from the region of high pressure areas to the low pressure areas. (1 mark)

QUESTION 36

Manufacturing industry can be thought of as a system. For a factory to manufacture or produce a product, it requires a certain number of inputs. There are various industrial factors considered besides location before establishing a business.

Below are seven business activities, for each activity, state the main industrial factor for its location.

(a) Napa Napa oil refinery in Port Moresby. (1 mark)
(b) Coffee factory in Goroka. (1 mark)
(c) Second hand car dealer in Port Moresby. (1 mark)
(d) Oil palm Estate in West New Britain. (1 mark)
(e) Diana tuna tin fish factory in Madang. (1 mark)
(f) Atlas steel industry in Lae. (1 mark)
(g) Ramu sugar in Ramu (1 mark)
QUESTION 37

Below is the Antarctic food web. In the Antarctic ecosystem, the ecosystem is balanced and connected. This ecosystem is centred on the presence of phytoplankton and krill. You can see from the food web how different Antarctic marine creatures depend on it as food source.

ANTARCTIC FOOD WEB

(a) Phytoplanktons are primary producers in marine food webs. However, change in temperature is threatening these organisms and their role in marine food webs. Name the current global environmental issue that is threatening phytoplanktons. (1 mark)

(b) Explain how the environmental issue in question ‘a’ is likely to affect individual animals in the Antarctic food web as well as the entire food web itself. (2 marks)

(c) Explain how temperature affects animals who are part of the biosphere. (2 marks)

(d) Discuss two causes for the environmental issue in question ‘a’. (2 marks)
QUESTION 38

Study the map below on plate tectonics and answer the questions.

(a) What kind of landform is formed at the 'boundaries' of these plates?

(i) American Plate and Eurasian Plate  
(1 mark)

(ii) Pacific Plate and Nazca Plate  
(1 mark)

(iii) Describe the type of plate movement taking place between the American and Eurasian Plates.  
(1 mark)

(iv) Describe the type of plate movement taking place between the Pacific and Nazca Plates.  
(1 mark)

(b) Name the type of rocks likely to be found at the boundaries of the four plates.  
(1 mark)

(c) At which plate boundary are you likely to find volcanoes?  
(1 mark)

(d) Explain the underlying cause for plate movements.  
(1 mark)
QUESTION 39

Study the diagram below on shifting cultivation and answer the questions.

THE CYCLE OF SHIFTING CULTIVATION

(i) Is shifting cultivation an **intensive** or an **extensive** agricultural practice?  (1 mark)

(ii) Explain your reason to question (i).  (1 mark)

(iii) After a plot has been cleared (Middle Right Picture), which two natural risks is the cleared area exposed to? (2 marks)

(iv) Rainforests are cleared rapidly in hectares throughout the equatorial areas for various economical activities. Name one commercial practice found in Papua New Guinea.  (1 mark)

(v) ‘Shifting cultivation’ can also be known as __________.  (1 mark)

(vi) Explain why rainforest do not recover?  (1 mark)
QUESTION 40

Study the illustration below and answer the questions.

The change between day and night temperatures in hot deserts

i) State two reasons why hot deserts experience a high diurnal temperature range? (2 marks)

ii) Give two main contributing factors why continental deserts are very dry? (2 marks)

iii) Which type of weathering is dominant in the desert region? (1 mark)

iv) Name one depositional and an erosional feature found in the desert landform? (2 marks)
Write your name, your province and school codes and your candidate number correctly and clearly in the space provided below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Province</th>
<th>School</th>
<th>Candidate No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Candidate Name: ____________________________

School Name: ____________________________

ANSWERS WRITTEN ON THE QUESTION PAPER OR ANY OTHER PAPER WILL NOT BE MARKED. WRITE ANSWERS NEATLY IN THE SPACES AS PROVIDED IN THIS ANSWER BOOKLET.

FOR MARKERS USE ONLY

<table>
<thead>
<tr>
<th>Score</th>
<th>Markers Initials</th>
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<td></td>
<td>M1</td>
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| Question 31 |       |     |
| Question 32 |       |     |
| Question 33 |       |     |
| Question 34 |       |     |
| Question 35 |       |     |
| Question 36 |       |     |
| Question 37 |       |     |
| Question 38 |       |     |
| Question 39 |       |     |
| Question 40 |       |     |

TOTAL |     |     |
**SECTION: B  SHORT ANSWERS**

For questions 31 to 33 use the same topographic map: KARKAR  1:100 000 to answer these questions.

<table>
<thead>
<tr>
<th>QUESTION 31</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)Write down the 4-figure grid square for</td>
<td>(1)</td>
</tr>
<tr>
<td>i) Namu school</td>
<td>_________________</td>
</tr>
<tr>
<td>ii) Karim bridge</td>
<td>_________________</td>
</tr>
<tr>
<td>iii) Karkar Airfield</td>
<td>_________________</td>
</tr>
<tr>
<td>v) Medibur Aid posit</td>
<td>_________________</td>
</tr>
</tbody>
</table>

(b) Write down the 6-figure grid reference for | (1) |

| i) Manga No.1 village | _________________ |
| ii) Trig station (PCP67) | _________________ |
| iii) Yalo village | _________________ |

For Markers Use Only | Q31 TOTAL
**QUESTION 32**

Write the letter next to the name of the land use.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Numerous small gardens</td>
<td></td>
</tr>
<tr>
<td>ii) Cultivation</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>vii) Cocoa Plantation</td>
<td></td>
</tr>
</tbody>
</table>

(1)

**QUESTION 33**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td></td>
</tr>
<tr>
<td>ii) (a) Mount Uluman</td>
<td></td>
</tr>
<tr>
<td>(b) Mom village</td>
<td></td>
</tr>
<tr>
<td>iii)</td>
<td></td>
</tr>
<tr>
<td>iv) average gradient:_____________</td>
<td></td>
</tr>
</tbody>
</table>

(1 mark) (show your working out) (2 marks)

(3)
### QUESTION 34

(i) Station B ________________________

(ii) _______________________________________________________________________

(iii) _______________________________________________________________________

(iv) _______________________

(v) Station A ________________________
    Station B ________________________

#### For Markers Use Only

<table>
<thead>
<tr>
<th>Question</th>
<th>Mark</th>
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<tbody>
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</table>

### QUESTION 35

(i) _______________________________________________________________________

(ii) _______________________________________________________________________

(iii) _______________________________________________________________________

(iv) _______________________________________________________________________

(v) _______________________________________________________________________

(vi) _______________________________________________________________________

#### For Markers Use Only

<table>
<thead>
<tr>
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<tr>
<td>Question</td>
<td>Description</td>
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<td>-----------------------------------------------------------------------------</td>
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<tr>
<td>(a)</td>
<td>Napa Napa oil refinery in Port Moresby.</td>
</tr>
<tr>
<td>(b)</td>
<td>Coffee factory in Goroka.</td>
</tr>
<tr>
<td>(c)</td>
<td>Second hand car dealer in Port Moresby.</td>
</tr>
<tr>
<td>(d)</td>
<td>Oil palm Estate in West New Britain.</td>
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<td>Diana tuna tin fish factory in Madang.</td>
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<td>Atlas steel industry in Lae.</td>
</tr>
<tr>
<td>(g)</td>
<td>Ramu sugar in Ramu.</td>
</tr>
</tbody>
</table>
**QUESTION 37**

(a) ________________________  
(b) ______________________________________________________________________________ 
_______________________________________________________________________________  
__________________________________________  
                                                                                       
(c) ______________________________________________________________________________  
_______________________________________________________________________________  
_______________________________________________________________________________  
_______________________________________________________________________________  
(d) i. ____________________________________________________________________________  
_______________________________________________________________________________  
                                                                                       
 ii. ____________________________________________________________________________  
                                                                                       

<table>
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<th>For Markers Use Only</th>
<th>Q37 TOTAL</th>
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</tbody>
</table>
QUESTION 38

(a)

(i) ______________________ (1)

(ii) ______________________ (1)

(iii) ___________________________________________ (1)

(iv) ___________________________________________ (1)

(b) ______________________ (1)

(c) ______________________ (1)

(d) ___________________________________________ (1)

For Markers Use Only

Q38 TOTAL
### QUESTION 39

(i) ____________________________  

(ii) ____________________________________________________________________________  

(iii) 1. ____________________________  2. ____________________________  

(iv) ____________________________  

(v) ____________________________  

(vi) ______________________________________________________________________________

### QUESTION 40

(i) a. ____________________________  

   b. ____________________________  

(ii) a. ____________________________  b. ____________________________  

(iii) ____________________________  

(iv) Depositional feature ____________________________  

   Erosional feature ____________________________