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Name of Candidate: _____ () Class: _____



BUKIT PANJANG GOVERNMENT HIGH SCHOOL

Mid-year Examination 2015

Secondary 4 Express

Geography

2236/01

Paper 1

Date:

7th May 2015

Duration:

1 hour 40 minutes

Time:

1100-1240

READ THESE INSTRUCTIONS FIRST

Write your name, class and index number in the spaces provided.

Write in dark blue or black pen on both sides of the paper.

You may use a soft pencil for any diagrams or rough working.

Section A (25 marks)

Answer Question 1.

Section B (25 marks)

Answer **ONE** question from this section.

Write all answers on the foolscap paper provided.

The number of marks is given in brackets [] at the end of each question or part question.

Write the answer to **Question 1(b)(i)** on the Answer sheet provided and attach it to the answers for Section A.

Begin each section on a new piece of paper.

Candidates should support their answers with the use of relevant examples.

Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

At the end of the examination, submit Section A and Section B separately.

Setter: Mrs Sherlyn Pang

[Turn over]

Section A**This question is compulsory**

- 1.** Sentosa, The state of Fun, is an offshore island of Singapore. It is a popular tourist destination with many activities and tourist attractions.

Study the information given and answer the questions that follow.

- (a)** Study Fig. 1 shown in the insert which shows a questionnaire used to interview tourists to Sentosa.
- (i)** With reference to Fig.1, comment on the accessibility of Sentosa. [4]
- (ii)** With reference to Fig.1, comment on the validity of the hypothesis "Tourists visit Sentosa because of its attractions." [3]
- (b)**
- (i)** A Bi-polar survey is another method of collecting data to determine tourists' perceptions of Sentosa. Complete the Bi-polar survey provided in the answer sheet provided with 5 factors that can be used to determine tourists' perception of Sentosa. [4]
- (ii)** Identify one advantage and one disadvantage of using bi-polar surveys to determine tourists' perceptions of Sentosa. [2]

- (c) A group of students tested the hypothesis that “The amount of tourist activities present affects the beach profile of Sentosa.”

Study Fig. 2 which shows part of the coastline at Sentosa, and Fig. 3 which shows the beach profile of Point A and Point B.

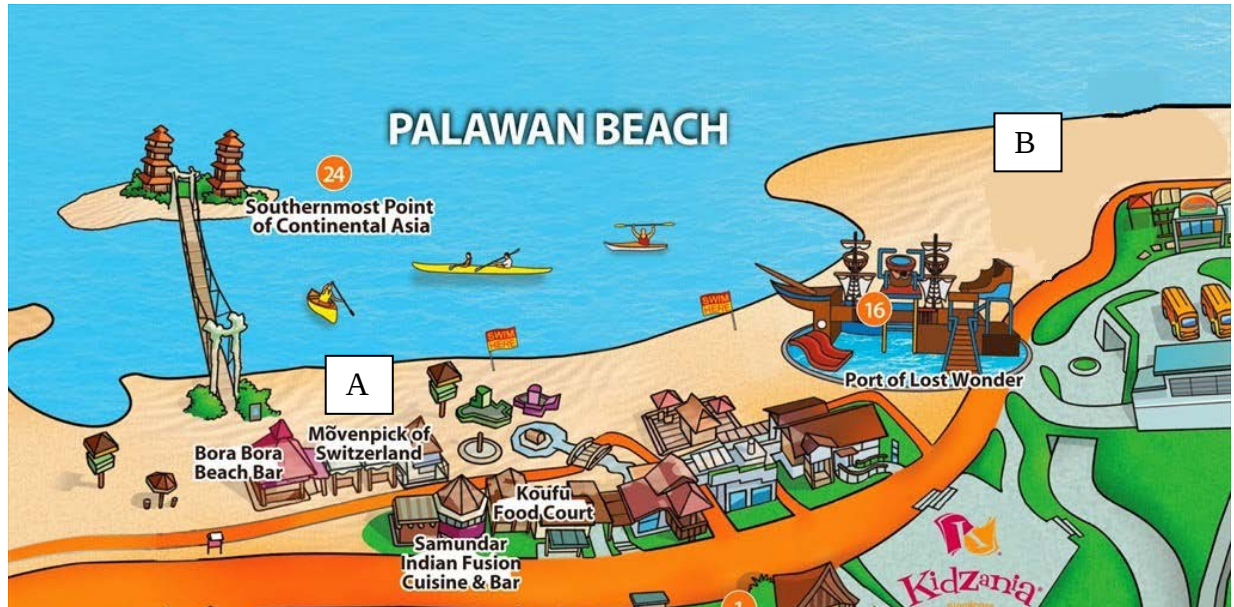


Fig. 2

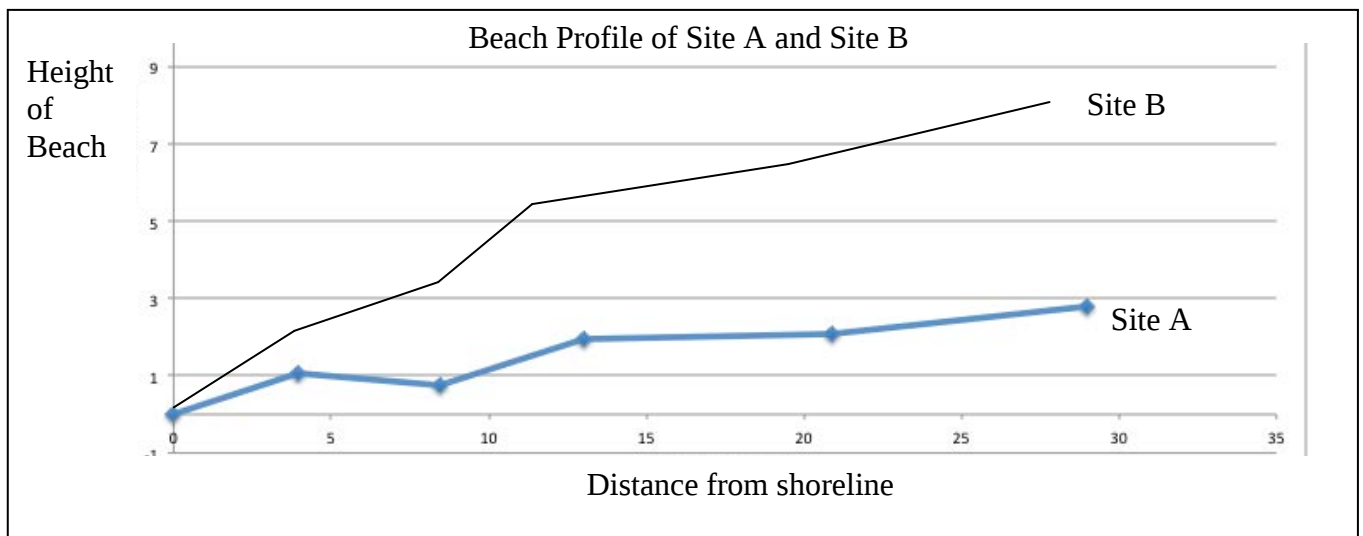


Fig. 3

- (i) The students had to decide which time of the day they would like to test their hypothesis at the beach. Suggest a suitable time of the day and a reason for your choice. [2]
- (ii) Based on Fig. 2 and Fig. 3, describe how the beach profile and the number of tourist activities is related. [3]
- (iii) Describe the steps that have to be taken to measure the beach profile as shown in Fig. 3. [7]

Section B

Answer one question from this section.

2. (a) Study Fig. 4 which shows international tourist arrivals from 1990 to 2010.

<i>International Tourist Arrivals (in millions)</i>							
	1990	1995	2000	2005	2008	2009	2010
Europe	261.5	304.1	385.6	439.4	485.2	461.5	476.6
Asia and the pacific	55.8	82.0	110.1	153.6	184.1	180.9	203.8
Middle east	9.6	13.7	24.1	36.3	55.2	52.9	60.3

Source: BBC

Fig. 4

- (i) With reference to Fig. 4, describe how international arrivals have changed from 1990 to 2010. [3]
- (ii) Account for the changes in international arrivals as described in (i). [4]

- (b) Study Fig. 5 which shows a tour itinerary to Blue Mountains, Australia.

Blue Mountains overnight

from **USD161.00**



Tour style - Active & Adrenaline, Trekking/Hiking, Wildlife & Nature, Chill out & Beach
2 days

Get back to nature on this two day tour of the stunning Blue Mountains! Stand in awe of the incredible views from places like Kings Tableland and Evans look out, take in the majestic sight of rushing Wentworth and Katoomba Falls, and ride up the world's steepest inclined railway. You'll traipse around lush rainforest, explore the charming village of Leura and learn all about Aboriginal history. It'll be the busiest, but most worthwhile, two day trip of your life! Don't think, just book. NB This is a day trip to/from the blue mountains and not all passengers will over night in the blue mountains

[EMAIL ENQUIRY](#) >
Or call **6737 7188**
[< BACK](#)

Day 1 Blue Mountains

It's a busy day today! Head over to Kings Tableland or Evans lookout for breathtaking views, hike from Pleasant Bushwalk to Wentworth Falls, one of the most spectacular waterfalls in the Blue Mountains, and explore the picturesque village of Leura. Nearby beautiful Katoomba is the fascinating Three Sisters rock formation, one of the Blue Mountains' most incredible landmark, an unusual rock formation representing three sisters who were turned to stone according to Aboriginal legend. Next, ride the world's steepest inclined railway to the floor of the canyon and walk around a lush rainforest. Fit in a visit to an Aboriginal site to learn about rock engravings then head back to your hostel – you'll be ready to sleep.



Source: STA Travel

Fig. 5

With the aid of Fig.5 and your own knowledge, discuss the role of tour operators in implementing ecotourism. [4]

- (c) Explain how tourism is subjected to regional fluctuations. [6]

- (d) “The best way to obtain sustainable tourism is by conserving fragile environments.”

How far do you agree?

Support your answer with examples. [8]

3. (a) With the use of specific examples, explain how tourism may be promoted. [4]
- (b) Study Fig. 6 which shows a picture of Milan.



Fig. 6

- (i) Using Fig. 6, suggest what makes Milan a tourist destination. [3]
- (ii) Discuss the impact of tourism in Milan as shown in Fig. 6. [4]

(c) Study Fig. 7 which shows the coastal land use in UK.

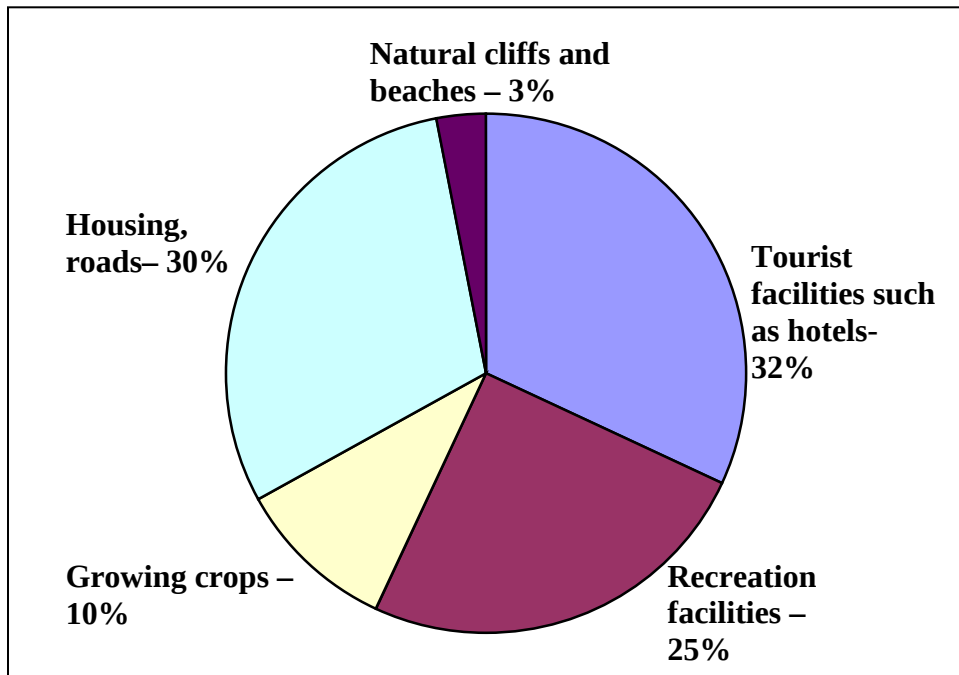


Fig. 7

- (i) With reference to Fig.7, elaborate on how 2 of these uses may threaten the coasts. [2]
- (ii) Explain how coastal management measures can be implemented to protect the coasts in UK. [4]

(d) “Erosional processes are the only processes shaping the coasts.”

How far do you agree?

Support your answer with examples.

[8]

- End of Paper -

INSERT (Qns 1)

	Question	Percentage
1	Sex: M / F	M: 45% F: 55%
2	Age: ☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60-69 ☐ 70 and above	35% 23% 25% 4% 7% 6%
3	What is your country of origin?	Asia: 37% Australia: 23% Europe: 16% Americas: 14% Others: 10%
4	How long is your stay in Singapore? ☐ 1-3 days ☐ 4-6 days ☐ 7-9 days ☐ 10-12 days ☐ More than 12 days	23% 48% 13% 9% 7%
5	How did you get to know about Sentosa? ☐ Advertisement (e.g. newspaper, magazines, television, cinema) ☐ Internet ☐ Travel books (e.g. Lonely Planet, Frommer's) ☐ Business associates ☐ Friends/Family/Relatives ☐ Travel exhibitions ☐ Others	12% 24% 23% 11% 15% 7% 8%
6	How did you come to Sentosa? ☐ Public bus ☐ Tour bus ☐ Private car ☐ Taxi ☐ Monorail ☐ By foot	13% 17% 16% 12% 34% 8%
7	What is/are the reasons for your visit to Sentosa? (Tick those options that apply.) ☐ Business ☐ Attractions such as USS, Adventure Cove, SEA Aquarium ☐ Beach ☐ Casino ☐ Special events/attractions	9% 37% 32% 15% 7%

8	What did you find attractive about Sentosa? ☐ Beaches ☐ Universal Studios Singapore ☐ Adventure Cove ☐ SEA Aquarium ☐ Hotels ☐ Merlion ☐ Port of Lost World ☐ Others (Please specify: _____)	17% 18% 12% 13% 14% 16% 7% 3%
9	Which of these services did you make use of in Sentosa? ☐ Accommodation (hotels in Sentosa) ☐ Shopping facilities ☐ Attractions such as USS, Adventure Cove ☐ Eating outlets	26% 13% 46% 15%
10	How did you to find your way in and around Sentosa and obtain the information that you need to get around?	Walk: 42% Bus: 24% Tram: 34%

Fig. 1

Answer Sheet for Qns 1(b)(i)

Write the answer to **Question 1(b)(i)** on this answer sheet and attach it to the back of the answers for Section A.

Date:

Location: Sentosa

Title:							
Factors	Positive aspects						Negative aspects



BUKIT PANJANG GOVERNMENT HIGH SCHOOL

Mid-Year Examination 2015

SECONDARY 4 EXPRESS

ANSWERS

Section A

This question is compulsory

1. Sentosa, The state of Fun, is an offshore island of Singapore. It is a popular tourist destination with many activities and tourist attractions. Study the information given and answer the questions that follow.

- (a) Study Fig. 1 which shows a questionnaire used to interview tourists to Sentosa
 - (i) With reference to Fig.1, comment on the accessibility of Sentosa. [4]
 - Very accessible
 - different modes of transport to arrive
 - For example, 34% of tourists arrived by monorail, while 17% arrived by tour buses
 - Within sentosa, tourists can easily get around by walking, or taking the bus and tram
 - (ii) With reference to Fig.1, comment on the validity of the hypothesis "Tourists visit Sentosa because of its attractions." [3]
 - Valid
 - 37% of tourists visited Sentosa because of its attractions
 - Based on Qns 9 of the questionnaire, 46% of tourists visited the attractions in Sentosa

- (b) (i)** A Bi-polar survey is a method of collecting data to determine tourists' perceptions of Sentosa. Complete the Bi-polar survey provided in the answer sheet with 5 factors that can be used to determine tourists' perception of Sentosa. [4]

1 mark for each of the following

- Title
- Appropriate adjectives showing positive and negative perceptions Eg. "always present" to "not seen at all".
- Score assigned to adjectives
- Appropriate factors asked Eg. Crime rates, cultural activities, entertainments, interaction between locals and tourists, social conflicts

- (ii)** Identify one advantage and one disadvantage of using bi-polar surveys to determine tourists' perceptions of Sentosa. [2]

- Advantages: allow for easy analysis of perceptions / quick / more accurate as able to determine the degree or extent / easily shows the factors that need improvements / able to easily show overall perception of tourists on Sentosa.
- Disadvantages: may exclude other factors that are important in determining tourists' perceptions of Sentosa / no option for tourists' to include comments, reasons and feedbacks / tourists might just choose "0" as a neutral answer and thus reduce reliability
- Accept other plausible answers

- (c)** A group of students tested the hypothesis that "The amount of tourist activities present affects the beach profile of Sentosa."

Study Fig. 2 which shows part of the coastline at Sentosa, and Fig. 3 which shows the beach profile of Point A and Point B.

- (i)** The students had to decide which time of the day they would like to test their hypothesis at the beach. Suggest a suitable time of the day and a reason for your choice. [2]

- Late morning around 10-11am / evening (accept any plausible answers except in the mid afternoon and at night)
- The weather is not too hot and thus most tourists will engage in activities at the beach around this time of the day.
- Other reasons:
 - o Low tide and thus safer and easier to test the beach profile
 - o Less people in the beach so students can easily test the hypothesis without disturbing tourists.

(ii) Based on Fig. 2 and Fig. 3, describe how the beach profile and the number of tourist activities is related. [3]

- The more human activities there is, the gentler the beach profile.
- In point A where there was less activities, the beach profile was steeper
- In point B where there were more activities, the beach profile was gentler.

(iii) Describe the steps that have to be taken to measure the beach profile as shown in Fig. 3. [7]

1. Identify a line of transect, which is a straight line across the beach that is perpendicular to the shoreline
2. For a beach with constant gradient, mark out 4 points of equal interval of 2m/ For an undulating beach, mark out points where there are significant changes in beach slope
3. Place a ranging pole each at two points: Point A and Point B.
4. To measure the gradient between Point A and Point B, position the protractor clinometer at the top of the ranging pole at Point A and look to the top of ranging pole at Point B.
5. Note the angle where the string crosses the scale of the curved edge of the protractor. Read the angle and record it on Recording Sheet.
6. Measure the distance between Point A and B using a measuring tape.
7. Repeat steps 3 to 6 to measure the gradients of the slope between the remaining points: B and C, and C and D.

Section B

Answer one question from this section.

2. (a) Study Fig. 4 which shows international tourist arrivals from 1990 to 2010.

(i) With reference to Fig.4, describe how international arrivals have changed from 1990 to 2010. [3]

- Overall international tourist arrivals have increased in all regions. For example, in Europe, there was an increase from 261.5 million arrivals in 1990 to 476.6 million arrivals in 2010.
- The region with the highest growth is Middle East with an increase of more than 500%
- The region with the lowest growth is Europe with an increase of only 82%
- A decline was seen in Europe, Asia and the Pacific, and Middle East from 2008 to 2009. For example, arrivals to Europe declined from 485.2 million to 461.5 million.
- Europe experienced the greatest growth in terms of its numbers, increasing from 261.5 million to 476.6 million from 1990 to 2010

(ii) Account for the changes in international arrivals as described in (i). [4]

- Any four reasons below
- Developments in technology have made transport better and affordable, allowing people to travel further within a shorter period of time and at a lower cost.
- More air routes and agreements have made more parts of the world more accessible, such as the open skies agreement and deregulation of airlines. These have also resulted in the emergence of more airline companies and lowering of prices for tourists.
- People are now able to have access to information, book tickets and accommodation, and conduct researches on destination companies, which enable tourists to have more options and control, thus promoting air travel and global tourism.
- Higher disposable income globally as economies grow, resulting in more people being able to afford travelling for leisure
- More leisure time is seen in many countries as people enjoy shorter working weeks, more public holidays and more paid annual leave. This increased availability of leisure time has allowed more people to travel.
- Changing lifestyles as people travel to relax and take a break from their fast-paced lifestyles at work and at home.
- People are also getting fitter due to improvements in healthcare, thus they are able to travel more
- Attractions promoted by governments, tourist authorities and tourism businesses offer a unique experience to tourists, thus attracting them.

- Investments in infrastructure and services such as airports and hotels provide services to tourists to meet their demands and help make their travel more enjoyable and relaxing
- Information provided by destination countries help increase tourist arrivals as tourists are able to obtain enough information they need to have a good holiday. For example, signs in English or various languages provide assurances to tourists.
- Decline in 2008-2009 due to widespread diseases that reduced travel as people did not want to risk contracting the disease.
- Decline in 2008-2009 due to economic recession that reduced travel as people may be unemployed and/or receiving less disposable income. Thus they are not willing to spend money on travel.
- Investments in infrastructure and services such as airports and hotels provide services to tourists to meet their demands and help make their travel more enjoyable and relaxing
- Information provided by destination countries help increase tourist arrivals as tourists are able to obtain enough information they need to have a good holiday. For example, signs in English or various languages provide assurances to tourists.
- Decline in 2008-2009 due to widespread diseases that reduced travel as people did not want to risk contracting the disease.

(b) Study Fig. 5 which shows a tour itinerary to Blue Mountains, Australia.

With the aid of Fig.5 and your own knowledge, discuss the role of tour operators in encouraging ecotourism. [4]

- Need to show how tour operators encourage and negatively affect ecotourism
- Promote natural places and educate tourists on these places.
- Such as the tour promoted in Fig 5 which brings tourists to the Blue Mountains in Australia which shows tourists the Wentworth and Katoomba Falls, and visits to learn more about the Aboriginal history.
- Ensure tour groups do not destroy the natural landscape when going on the tours
- Making tours to natural landscapes affordable so that more tourists can visit these places and promote sustainable tourism there.
- When tour operators do not limit the number of tourists to an area, overcrowding may occur and thus affect the natural landscape.
- *Note: Need to have evidence from the figure*
- *Note: Max 3m if did not explain how it affects sustainable tourism negatively*
- *Note: Max 2m if no examples from the figure and no negative impacts*

- (c) Explain how tourism is subjected to regional fluctuations. [6]
- Disasters: when disaster hits a place, such as an earthquake, properties are destroyed and can cause great loss of lives. Thus, tourists will not want to visit these places as there are greater risks to their safety
 - Disaster: when disaster hits a place, essential tourist infrastructures/ attractions may be destroyed, thus tourists will be deterred from visiting
 - Regional and global recession: A recession is a period of general slowdown in economic activities. Many people experience a loss of income or jobs and thus will cut back on their spending, leading to a decline in goods and services, including travelling.
 - Unfavorable political situations: Political conflicts pose dangers to tourists and residents, thus tourism decline as people cut travel for fear of their life
 - Unfavorable political situations: They disrupt services and cause damage to infrastructure. As a result, it will no longer be attractive for tourists to visit.
 - Unfavorable political situations Governments may also issue travel advisories to discourage citizens from travelling to these places. Thus, tourists will want to avoid travelling to places with conflicts.
 - Outbreak of diseases: when there is a widespread occurrence of diseases in an area, tourists do not want to risk getting infected with a contagious disease.
 - Outbreak of diseases Governments may also issue travel advisories discouraging citizens to the area. Thus, tourism numbers to the area will drop.

- (d) “The best way to obtain sustainable tourism is by conserving fragile environments.” Do you agree? Explain your answer with specific examples. [8]

Level 1 (1-3 m)	Level 2 (4-6 m)	Level 3 (7-8 m)
- Briefly describes how conserving fragile environments help in obtaining sustainable tourism - Identifies two other factors, promoting local products and educating the locals to minimize leakages from tourist revenue, and setting up rules and regulations to protect the environment.	- Explains how conserving fragile environments help in obtaining sustainable tourism (4m) - Explains at least one other factor, promoting local products and educating the locals to minimize leakages from tourist revenue, and setting up rules and regulations to protect the environment. (5m for 1 well explained, 6m for 2 well explained)	Explains clearly all 3 factors.
No examples are given	Uses general examples	Uses detailed examples
No discussion / evaluation	Attempt to evaluate	Balanced argument to evaluate all 3 factors
		Conclusion with sound opinion

Conservation of fragile environments

- Careful management and use of resources in fragile environments such as mangroves and coral reefs
- These environments can be easily disturbed by tourism, for example, by the dumping of waste by tourist facilities
- Conservation can occur with the help of laws and regulations, and the support of local people.
- Example of tourism near the Great Barrier Reef in Australia which has the longest complex of coral reefs and small islands. Stretching 2300km along the northeast coast of Australia, the diverse ecosystem and beauty gave the reef its place on UNESCO's World Heritage list in 1981

Promoting local industries and educating locals to minimise leakages from tourist revenues

- training locals to perform skilled tourism jobs, such as management and marketing
- developing homestay accommodations where visitors can pay local people directly for their accommodations
- promoting local food and drinks in restaurants to provide a market for local food producers and distributors
- example: for every tourist that visits Phuket, only 6 cents goes to the locals. Thus, by promoting local commodities and training the locals, more money can do directly to the locals.

Rules and Regulations to protect the environment

- tourist inflow can damage the attraction itself esp when the attraction becomes too dependent on tourism for income
- need to limit number of visitors to a site to minimize congestion and degradation
- withholding permission to proceed with tourism-related projects that could harm the environment
- employing staff to maintain and repair a site and prevent tourists from tampering with it
- eg of Machu Picchu, Peru which has a rich history and breathtaking landscape, drawing an average of 3300 visitors everyday. Tourists taking the Inca Trail have disturbed the rare indigenous plants and wildlife found along the route and have also polluted the place with their litter. Thus there is a need to manage the problems.

3. (a) With the use of specific examples, explain how tourism may be promoted. [4]

- Explain any 2 groups of people who help in promoting tourism
- Reserve 3 marks for examples.
- Governments can influence the number of visitors and their length of stay, authorize air landings and allow building of infrastructures and facilities such as hotels and airports to encourage tourism.
- Governments may also set up agencies to devise strategies to help promote tourism in the country, through tourism marketing campaigns and promotional events.
 - o The Singapore Tourism Board (STB) was established to promote Singapore as a tourists destination. The STB facilitates tourism-related businesses to invest in Singapore and encourages the development of new attractions such as the River Safari and USS.
- Media: positive reports on television, radio, newspapers and the internet on a particular place, such as the culture and attractive scenery, can encourage more tourists to visit the place.
 - o For example, TripAdvisor voters voting for Italy's beaches being world's best and news on the cherry blossom season in Tokyo will encourage tourists to visit these places.
- Travel writers: travel writers visit and write reviews about places in travel guidebooks, travelogues magazines and the internet. They evaluate the destination for the readers and may inspire readers to travel to destinations that the reader may not have thought of
 - o For example, an article on travelonline.com promotes Fiji as an inviting paradise with many activities and welcoming locals. This article would thus encourage readers to visit Fiji.

(b) Study Fig. 6 which shows a picture of Milan.

(i) Using Fig. 6, suggest what makes Milan a tourist destination. [3]

- Tourists visit Milan because of its culture and heritage. Shown by the historic building in Fig. 6
- The many shops in Fig. 6 suggest that Milan is a popular tourist destination for shopping
- Presence of facilities such as transport facilities make Milan more accessible and thus more popular as a tourist destination. Shown by the metro station/ bus station
- Accept other plausible answers
- Note: Reference to Fig. 6 must be made.

(ii) Discuss the impact of tourism in Milan as shown in Fig. 6.

[4]

- Need to show at least one positive and one negative impact
- Preservation of culture and local customs
 - o Heritage and customs are protected to make a place more attractive to tourists. This enhances the sense of history and belonging to locals. Revenue generated also fund the preservation and restoration of cultural heritages.
- Employment opportunities
 - o Growth of tourism lead to increase in the number of tourism-related jobs, offering many employment opportunities either directly linked or indirectly linked to the tourism sector, such as hotels, transportation, tour agencies.
- Growth in income
 - o Tourism receipts generate large revenues for many countries when services are provided for tourists by the host country, generating income for the country's economy and the individual.
- Increase in foreign exchange
 - o Foreign exchange earned from the spending of international tourists play a big role in the country's economy as it allows the receiving country to purchase goods and services from elsewhere in the world.
- Infrastructure development
 - o Infrastructure development such as transport and communication networks serve the local communities as they enhance tourism, such as roads linking airports to the city and other tourist sites. Sports venues and infrastructure built for major sporting events like the Olympics are useful to the host country even after the event. Developing the infrastructure also create employment for local workers especially during the construction process
- Dilution of culture and local customs
 - o Older buildings can be converted to host commercial activities for tourists, forcing locals to relocate their original activities.
 - o To meet demands of tourists, local cultural festivals and religious rites are sometimes modified
 - o Local communities treated as exhibits
- Increased crime
 - o Tourists carrying valuable items are vulnerable to muggings

(c) Study Fig. 7 which shows the coastal land use in UK.

(i) With reference to Fig. 7, elaborate on how 2 of these uses may threaten the coasts. [2]

- Pollution in the form of indiscriminate waste disposal at the coast when engaging in recreational facilities can destroy the coast and endanger marine life
- Rising populations living within a 100-kilometre strip along the coast will put pressure on the land and water resources, and exploit the coastal resources for food and building materials.
- Coastal development result in loss of habitats and threaten mangrove and coral reef ecosystems when they are converted into aquaculture activities.
- Growing of crops and pastures can lead to pollution of the sea and endanger marine life.
- Accept other plausible answers

(ii) Explain how coastal management measures can be implemented to protect the coasts in UK. [4]

- 2 points well elaborated
- Beach Nourishment
 - o Beach nourishment involves using sand from an external source to replenish the sand on a depleted beach to slow down the erosion of the beach.
- Planting vegetation and stabilising sand dunes
 - o Planting vegetation such as mangroves can absorb wave energy through their dense root system and thus reduce erosion of the coast.
 - o Sand dunes can also be stabilised by planting grasses so that the roots of the grass anchor the sand and prevent erosion.
- Encouraging growth of coral reefs
 - o Coral reefs help weaken wave energy hitting against the coast
 - o This reduces the strength of the waves and thus coastal erosion.
- Breakwaters
 - o Breakwater are built parallel to the coast and help break the force of oncoming waves
 - o This reduces the strength of the waves and thus reduces coastal erosion
- Gabions
 - o Gabions are wire cages filled with crushed rocks built along a shore or behind a beach
 - o These rocks to weakening wave energy hitting on the coasts, thus reducing coastal erosion.
- Seawalls
 - o Seawalls are concrete walls constructed parallel to the coast
 - o They absorb wave energy and thus reduce the strength hitting the coast, reducing erosion.
- Groynes

- o Groyne are low walls constructed at right angles to the shore to retain sediments that might otherwise be removed due to longshore drift
- o This reduces transportation of materials away from the coast and thus maintains it.
- Tetrapods
 - o Tetrapods are four-pronged concrete structures stacked offshore in an interlocking position
 - o They help to dissipate wave energy and thus reduce the energy hitting the coast, reducing erosion.
- Restrict development / limit visitors
- Education / Marine Reserves

(d) “Erosional processes are the only processes shaping the coasts.”

How far do you agree?

Support your answer with examples.

[8]

Level 1 (1-3 m)	Level 2 (4-6 m)	Level 3 (7-8 m)
- Briefly describes how erosion affect the coastline - Identifies two other factors that affect the coast, deposition and transportation	- Explains how erosion affects the coast line in terms of the landforms (4m) - Explains at least one other factor that affects the coast, deposition or transportation (5m for 1 well explained, 6m for 2 well explained)	Explains clearly all 3 factors well.
No examples are given	Uses general examples	Uses detailed examples
No discussion / evaluation	Attempt to evaluate	Balanced argument to evaluate all 3 factors
		Conclusion with sound opinion

Erosion

- Leads to erosional landforms
- Explain how erosion leads to formation of cliff and shore platforms / headlands and bays / caves, arches and stacks

Deposition

- Explain deposition
- Explain how deposition leads to beaches / spits and tombolos

Transportation

- Explain how transportation takes place through longshore drift
- Explain how longshore drift leads to the various landforms.

Name of Candidate: _____ () Class: _____ Calculator Model:



BUKIT PANJANG GOVERNMENT HIGH SCHOOL

Mid-Year Examination 2015

SECONDARY 4 EXPRESS

Geography

2236/02

Paper 2

Date: 12 May, 2015

Duration: 1h 30 min

Time: 1000 – 1130 h

READ THESE INSTRUCTIONS FIRST

Write your name, class and index number on all the work you hand in.
Write in dark blue or black on both sides of the paper.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

This paper consists of two sections: **Sections A and B.**

Section A (25 marks)

Answer **ONE** question.

Section B (35 marks)

Answer **Question 3.**

Write all answers on the foolscap papers provided.

Candidates are encouraged to support your answers with the use of relevant examples.

Sketch maps and diagrams should be drawn whenever they serve to illustrate an answer.

Leave at least one line after each part of a question.

Begin each question/ section on a **FRESH PIECE** of paper.

At the end of the examination, fasten all your work securely together.

Submit Section A and Section B separately.

The number of marks is given in brackets [] at the end of each question or part question.

Setter: MsEleora

[Turn over]

This paper consists of 7 printed pages

Section A

Answer one question for this section.

- 1 (a) Study Figs 1 and 2 which shows the elevation map and rainfall map of United Kingdom (UK) respectively.

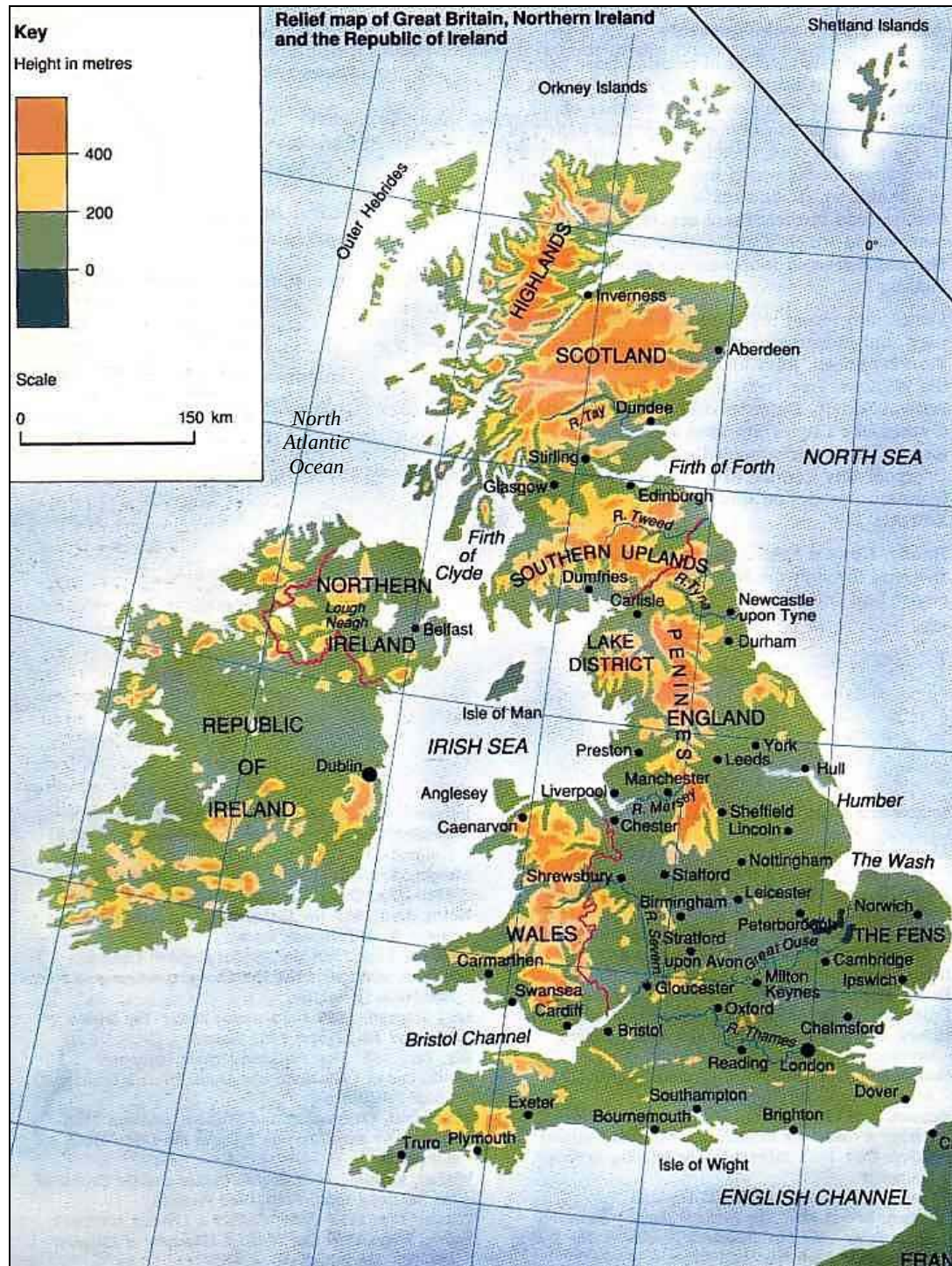


Fig. 1

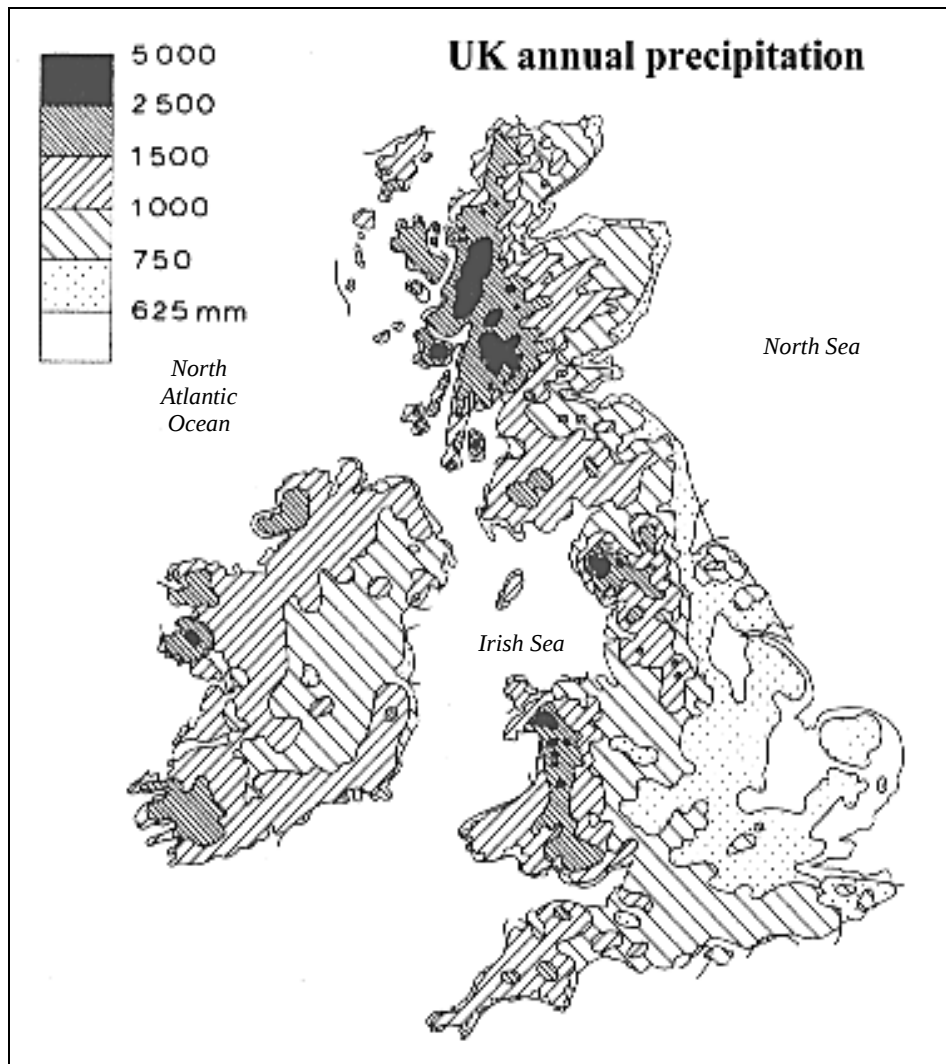


Fig. 2

- (i) With reference to Figs 1 and 2, describe the rainfall distribution in the United Kingdom (UK). [3]
- (ii) Account for the rainfall distribution in the United Kingdom (UK). [4]
- (b) With the use of examples, explain how tropical cyclones can be a threat to humans. [4]

- (c) Study Figs. 3 and 4 which show the location of Washington and Nebraska and their average day time temperature respectively



Fig 3

Country	Avg Daytime Temp
Washington	11.5
Nebraska	24.5

Fig. 4

With the aid of well-labeled diagram(s), explain why Washington experiences a cooler day than Nebraska. [6]

- (d) 'Anthropogenic factors are the only culprits for causing the rise in earth's global temperature.'

How far do you agree with this statement? Support your answer using evidence. [8]

- 2 (a) Study Figs. 5 and 6 which show the climograph of London and Mangalore respectively.

London, England
(51°30'N, 0°08'W)

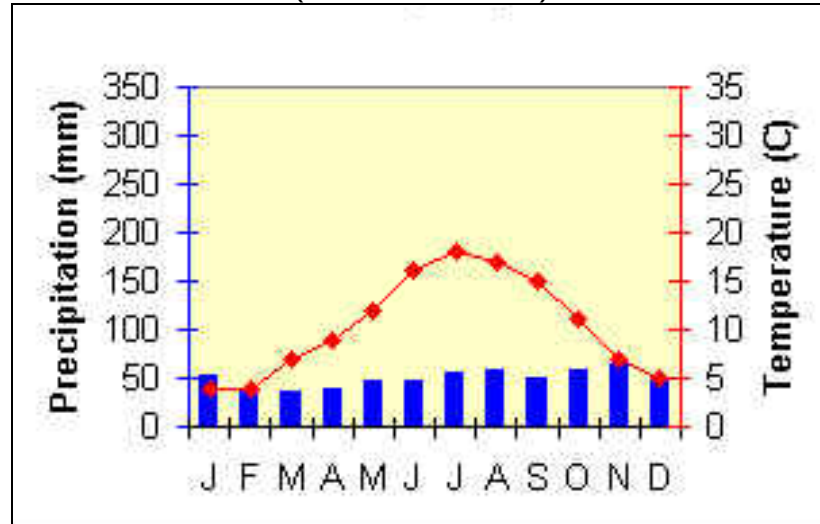


Fig. 5

Magalore, India
(12°51'N, 74°50'E)

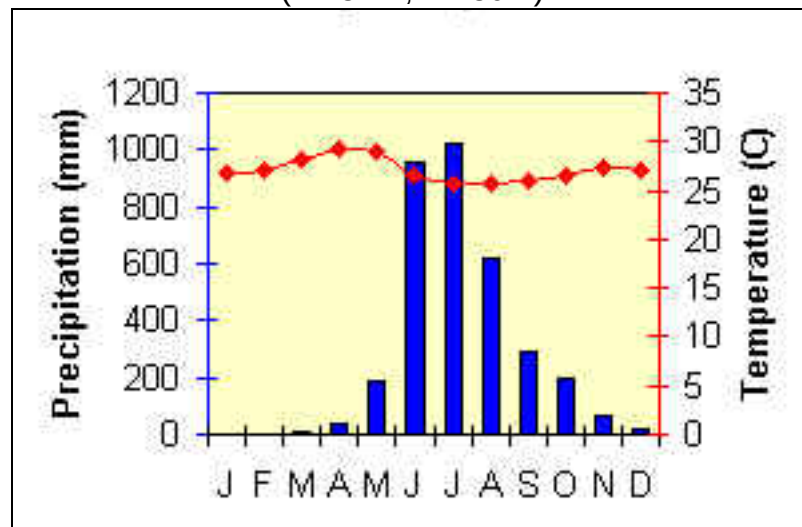


Fig. 6

- (i) With reference to Figs. 5 and 6, compare the climate of London and Mangalore. [3]
- (ii) Account for the differences in climate in London and Mangalore. [4]
- (b) Explain how living near the volcanic areas can be dangerous to humans. [4]

- (c) Study Fig. 7 which shows Mt. St. Helens in the United States.



Fig. 7

With the aid of well-labelled diagram(s), explain how Mt. St. Helens is formed. [6]

- (d) 'Response measures are more important than preparedness measures in dealing with the effects of earthquakes.'

How far do you agree with this statement? Support your answer using evidence. [8]

Section B

Answer Question 3 for this section.

- 3 (a) Study Fig. 8 which shows a table on the consumption patterns in the Developed Countries (DCs) and Less Developed Countries (LDCs).

	Less Developed Countries		Developed Countries	
	2002	2014	2002	2014
Dietary energy intake (kcal/cap/day)	2 567	2 769	3 345	3 399
Cereal (%)	54.2	36.2	28.8	28.2
Sugars, Sweeteners and Fats (%)	16.3	26.3	31.1	30.3
Meat (%)	6.7	10.8	17.6	12.9
Fruits and Vegetables (%)	5.7	5.9	5.0	6.1

Fig. 8

- (i) With reference to Fig. 8, compare the food consumption patterns in the Developed Countries (DCs) and Less Developed Countries (LDCs). [5]
- (ii) Account for the differences in consumption pattern you have identified in (a)(i). [4]
- (b) With the use of examples, explain how food security can be affected. [3]
- (c) Explain how food shortage can affect the development of a country. [5]
- (d) 'Excess consumption of food will only affect an individual.'
To what extent is this true? Give reasons for your answer. [8]

-End of Paper -



BUKIT PANJANG GOVERNMENT HIGH SCHOOL

Mid-Year Examination 2015

SECONDARY 4 EXPRESS

Geography

Paper 2

2236/02

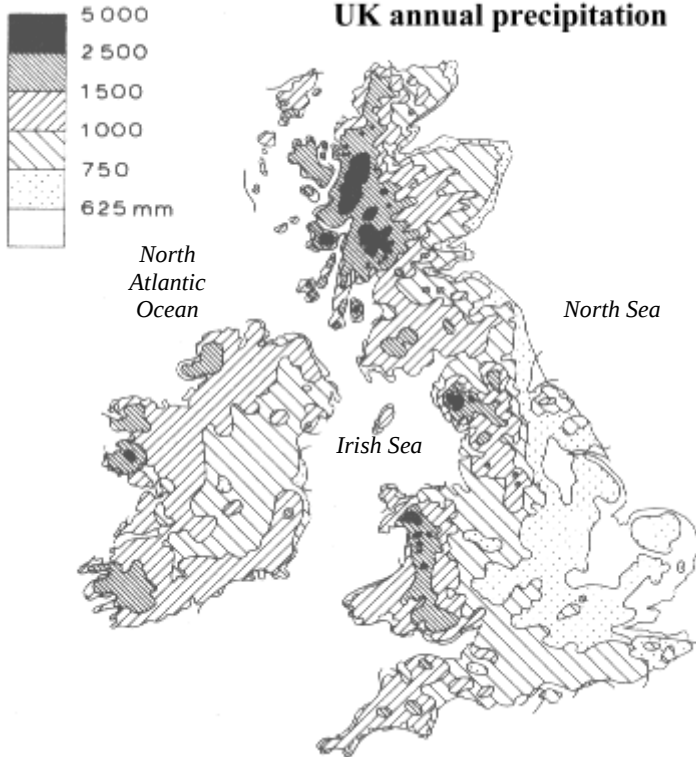
Date: 12 May, 2015

Duration: 1h 30 min

Time: 1000 – 1130 h

ANSWERS

1	(a)	Study Figs 1 and 2 which shows the elevation map and rainfall map of United Kingdom (UK) respectively.	
		Key Height in metres 400 200 0 Scale 0 150 km Relief map of Great Britain, Northern Ireland and the Republic of Ireland Fig. 1	

		 UK annual precipitation Fig. 2	
	(i)	With reference to Figs 1 and 2, describe the rainfall distribution in the United Kingdom (UK).	[3]
		- Higher rainfall (>1500mm) are found along the western coast of UK, for e.g. in Wales and western Scotland. - Lower rainfall (<750mm) are found mainly at the south-eastern / Southern / Eastern part of UK /facing the North Sea, for e.g. in Cambridge - Higher rainfall (>1000mm) are also found at places with higher elevation (highlands) of above 200m - While lower rainfall (<750mm) are found at places of low elevation (<200m) Without quote of country/ figures – 0 m	
	(ii)	Account for the rainfall distribution in the United Kingdom (UK).	[4]
		- A result of relief/ orographic Rain - Warm, moist air from the Irish Sea/ North Atlantic Ocean is forced to rise up the windward side of the highland/ mountain found at Western UK. - As air rises, it cools. When the temperature reaches dew point temperature, condensation occurs and clouds are formed. When the water droplets in the clouds become too big and heavy, they fall as rain on the windward side of the mountain. - The air on the leeward side of the mountain is usually dry as most of the moisture would have fallen on the windward side. Thus, the eastern part of UK (leeward side) receives little/ no rainfall.	
	(b)	With the use of examples, explain how tropical cyclones can be a threat to humans.	[4]
		Disruption of water supply - Flooding caused by tropical cyclones may cause sewage from burst sewage pipes to flow into and contaminate existing water supplies. - The consumption of contaminated water leads to the spread of water-borne diseases such as cholera and typhoid fever.	

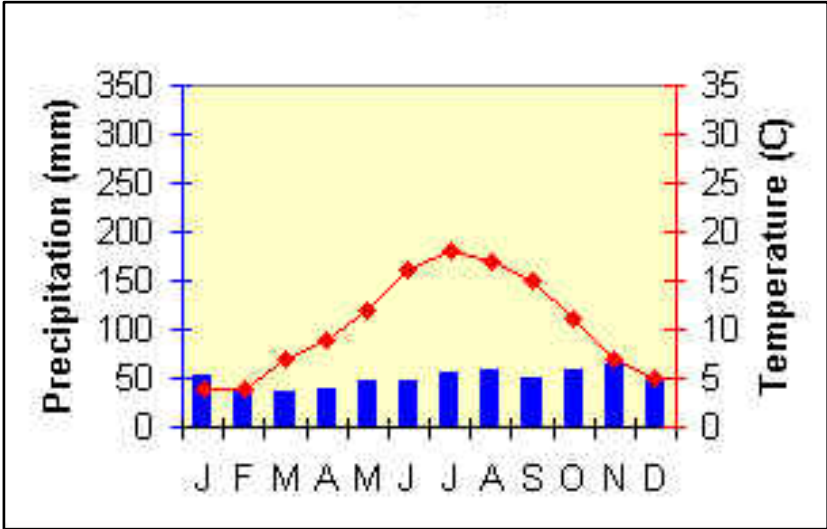
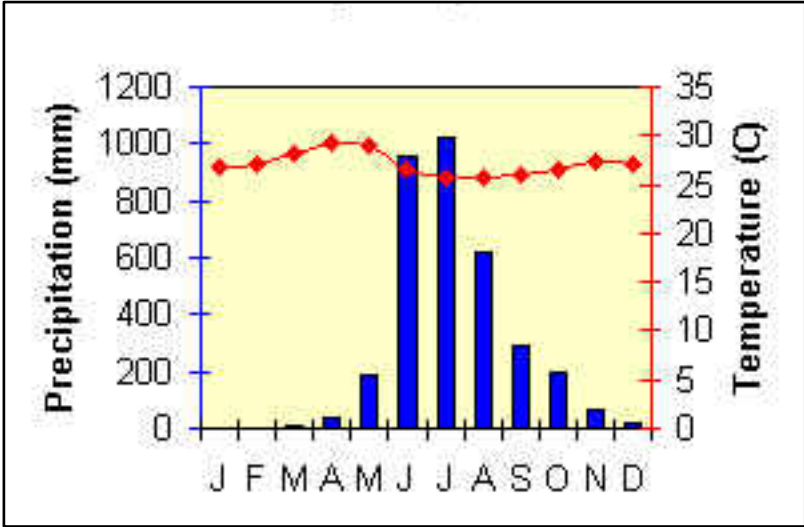
		• In 2009, when Cyclone Alia hit West Bengal India, contaminated water caused a cholera outbreak resulting in about 1000 infected people and 14 deaths. Spread of diseases • Flooding caused by a tropical cyclone may also result in the spread of diseases transmitted by insects. • Cases of dengue fever and malaria increased in Guatemala and Nicaragua after Hurricane Mitch struck in 1998. Displacement of people • Displacement of people from their homes is another social impact. • After Hurricane Katrina struck New Orleans, USA, in 2005, hundreds of thousands of people lost their homes.							
(c)	Study Figs. 3 and 4 which show the location of Washington and Nebraska and their average day time temperature respectively								
		 Fig 3 <table border="1"><thead><tr><th>Country</th><th>Avg Daytime Temp</th></tr></thead><tbody><tr><td>Washington</td><td>11.5</td></tr><tr><td>Nebraska</td><td>24.5</td></tr></tbody></table> Fig. 4	Country	Avg Daytime Temp	Washington	11.5	Nebraska	24.5	
Country	Avg Daytime Temp								
Washington	11.5								
Nebraska	24.5								

		With the aid of well-labelled diagram(s), explain why Washington experiences a cooler day than Nebraska.	[6]															
		Day - Washington experiences a cooler day than Nebraska because it is located at/near the coast and under the influence of sea breeze - During the day, the land heats up faster than its nearby water bodies. - As a result, the land has a higher temperature and lower air pressure than the sea. - As air moves from an area of high pressure to an area of low pressure, cool air will blow from the sea to the land during the day to form a sea breeze, cooling the land temperature in the day. Well-labelled diagram(s) – 2m																
(d)	‘Anthropogenic factors are the only culprits for causing the rise in earth’s global temperature.’ How far do you agree with this statement? Support your answer using evidence.		[8]															
	<table><tr><th>Level 1 (0-3m)</th><th>Level 2 (4-6m)</th><th>Level 3 (7-8m)</th></tr><tr><td>Brief explanation of factors</td><td>Somewhat detailed explanation of at least 2 factors</td><td>Detailed explanation of at least 3 factors</td></tr><tr><td>Includes only either natural or anthropogenic factors</td><td>Includes both natural and anthropogenic factors</td><td>Includes both natural and anthropogenic factors</td></tr><tr><td>No examples are used to support factor</td><td>Supported with general examples</td><td>Supported with specific examples</td></tr><tr><td></td><td></td><td>Opinion – 8m</td></tr></table> <u>Natural Factors</u> - Variation in solar output - The sun emits varying amount of solar radiation due to changes in its magnetic field - The magnetic activity of the sun has a cycle that lasts about 11 years - An increase in magnetic activity results in an increase in solar radiation. An increase in solar radiation results in more sunspots and a higher earth global temperature. - Areas surrounding the sunspots radiate more energy to make up for the cooler sunspot areas		Level 1 (0-3m)	Level 2 (4-6m)	Level 3 (7-8m)	Brief explanation of factors	Somewhat detailed explanation of at least 2 factors	Detailed explanation of at least 3 factors	Includes only either natural or anthropogenic factors	Includes both natural and anthropogenic factors	Includes both natural and anthropogenic factors	No examples are used to support factor	Supported with general examples	Supported with specific examples			Opinion – 8m	
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		Opinion – 8m																

Anthropogenic Factors (Human)

- Burning fossil fuels
 - o Fossil fuel is used to power 80% of the world's energy
 - o Large consumers of fossil fuels include China, the United States of America (USA), Canada and the United Kingdom (UK).
 - o Energy is produced for industries, transportation and domestic and commercial activities.
 - o Due to their high carbon content, fossil fuels contribute to the increase in greenhouse gases by producing large amounts of carbon dioxide
 - o With more greenhouse gases, it is able to trap more heat, thus increasing world's temperature (enhanced greenhouse effect)
- Deforestation
 - o With deforestation, there are fewer trees and other plants to absorb carbon dioxide, leading to an increase in carbon dioxide levels in the atmosphere.
 - o Deforestation exposes soil to sunlight. This increases the soil temperature and the rate of carbon oxidation in the soil. As such, deforestation increases the rate at which carbon dioxide is released from the soil into the atmosphere.
 - o For example, 52 000 km² of forest was lost every year between 2000 and 2010.
 - o Greatest loss of forest occurs in South America, followed by Southeast Asia. Australia and Africa also suffered great losses in forest.
 - o With more greenhouse gases, it is able to trap more heat, thus increasing world's temperature (enhanced greenhouse effect)
- Agriculture
 - o Rice cultivation and padi fields contribute to the increase of greenhouse gases in the atmosphere. For example, tractors run of fossil fuels which release carbon dioxide. The use of inorganic fertilizers increases the amount of nitrous oxide in soil.
 - o Organic matter such as dead leaves and manure releases methane during decomposition.
 - o Cattle farming contribute to greenhouse gas emissions because cattle release millions of tonnes of methane annually as a waste gas.
 - o The slow digestive system of cows makes them a key producer of methane.
 - o With more greenhouse gases, it is able to trap more heat, thus increasing world's temperature (enhanced greenhouse effect)
- Industries
 - o Secondary industries, which are industrial economic activities such as manufacturing, involve the burning of fossil fuels that result in greenhouse gas emissions.
 - o Greenhouse gases are also released as by-products when goods are produced.
 - o Largest carbon emissions from industrial processes are from North and Central America, Europe and Asia (China and India due to rapid industrialization)
 - o With more greenhouse gases, it is able to trap more heat, thus increasing world's temperature (enhanced greenhouse effect)
- Urbanization
 - o Large amounts of fossil fuels are burnt to provide energy for household activities in urban areas. These activities include heating, cooking and lighting.
 - o The high concentrate of cars, buses and other forms of transportation in urban areas also contribute to the amount of greenhouse gases emitted in these areas.
 - o Constructing infrastructure and producing construction materials also release greenhouse gases into the atmosphere.

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2	(a)	Study Figs. 5 and 6 which show the climographs of London and Mangalore respectively.
		London, England (51°30'N, 0°08'W)  Fig. 5 Mangalore, India (12°51'N, 74°50'E)  Fig. 6

		(i)	With reference to Figs. 5 and 6, compare the climate of London and Mangalore.	[3]										
			<table><tr><th>Fig 4 (London)</th><th>Fig 5 (Mangalore)</th></tr><tr><td>Cool Temperate climate</td><td>Tropical Monsoon Climate</td></tr><tr><td>Low to moderate temperature, from 4°C to 20 °C</td><td>High average temperature throughout the year, e.g. above 20°C</td></tr><tr><td>Moderate annual rainfall, approx. 600mm</td><td>High annual rainfall, above 1000mm</td></tr><tr><td>Evenly distributed rainfall throughout the year</td><td>Wet and dry season, wet season from June to Aug, Dry season from Nov-Mar</td></tr></table> *Each comparison 1m (with quotation of data) *No data / comparison: 0m	Fig 4 (London)	Fig 5 (Mangalore)	Cool Temperate climate	Tropical Monsoon Climate	Low to moderate temperature, from 4°C to 20 °C	High average temperature throughout the year, e.g. above 20°C	Moderate annual rainfall, approx. 600mm	High annual rainfall, above 1000mm	Evenly distributed rainfall throughout the year	Wet and dry season, wet season from June to Aug, Dry season from Nov-Mar	
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		(ii)	Account for the differences in climate in London and Mangalore.	[4]										
			- Mangalore is located at a lower latitude of 12°51'N (nearer to equator). As a result, the Sun's rays strike the Earth's surface perpendicularly. - The high angle of incidence causes the solar radiation to be concentrated over a smaller area, causing more intense heat hence the Mangalore experiences a higher temperature - London is located at a higher latitude of 51°30'N , as a result, the Sun's rays strike the Earth's surface at lower angle of incidence. - This causes the solar energy to be spread out over a larger area, hence London experiences a lower temperature - Mangalore experiences the Northeast and Southwest monsoon, thus the wetter season in June to August and a drier season from Nov to March - London does not experience the monsoon winds as it is further up the equator. Therefore, its rainfall is more constant throughout the year											
		(b)	Explain how living near the volcanic areas can be dangerous to humans.	[4]										
			- Lava flows and lahars can destroy settlements / properties and clear areas of woodland or agriculture. - disrupt services such as the supply of electricity, gas and water - cause destruction to many homes/ properties/ crops as buildings collapsed - destroy infrastructure such as roads and bridges - loss of lives/ injuries - aggravate existing respiratory problems - crops are damaged – shortage of food - contamination of drinking water can cause disease to spread - Destroy habitat of animal and kill animals - Fires may start and destroy properties/ infrastructure - The ash particles can cause engine of planes to stall/ the ash particles cause a drop in visibility causing increase risk of flying - Affects economy as money has to be spent to rebuild the city/ people lose jobs/ tourism fall - Sulphur dioxide given out by the volcanic eruption can lead to acid rain - Lava flow may block rivers causing floods - People are displaced as their houses are destroyed. *Accept any plausible answers											

(c)	Study Fig. 7 which show Mt. St. Helens.
	With the aid of well-labelled diagram(s), explain how Mt. St. Helens is formed. [6]
	• When Juan De Fuca Oceanic plate move towards North American continental plate, • the heavier and denser Juan De Fuca oceanic plate will slide beneath the North American continental plate in a process called subduction causing the solid mantle material to melt • The magma will rise to the surface through cracks/ faults forming high silica lava and they flow slowly over a small area before solidifying • Overtime, successive eruptions of ash and lava built up Mount St. Helens which has a slightly concave profile (steeper at top, gentler at base) Well-labelled diagram – 2m Max 3 m if no mention of plates involved

	(d) 'Response measures are more important than preparedness measures in the dealing with the effects of earthquakes.' How far do you agree with this statement? Support your answer using evidence.	[8]																		
	<table border="1" data-bbox="276 315 1374 779"> <thead> <tr> <th>Level 1 (0-3m)</th><th>Level 2 (4-6m)</th><th>Level 3 (7-8m)</th></tr> </thead> <tbody> <tr> <td>Brief explanation of factors</td><td>Somewhat detailed explanation of at least 2 factors</td><td>Detailed explanation of at least 3 factors</td></tr> <tr> <td>Includes only either response or preparedness factors</td><td>Includes both response and preparedness factors</td><td>Includes both response and preparedness factors</td></tr> <tr> <td>No examples are used to support factor</td><td>Supported with general examples</td><td>Supported with specific examples</td></tr> <tr> <td>No mention of effectiveness</td><td>Some assessment of effectiveness (Success and limitations)</td><td>Detailed description of effectiveness (Success and limitations)</td></tr> <tr> <td></td><td></td><td>Opinion – 8m</td></tr> </tbody> </table> <u>Preparedness Measures</u> • Land use regulations; - o Set of rules implemented to restrict developments in certain areas - Build new infrastructure away from earthquake prone areas (California, USA). ▪ Across fault lines ▪ Areas at risk of liquefaction (earthquake cause saturated soil to flow like liquid) • An example would be in Memphis, USA, where maps showing areas at risk of major liquefaction are shown. ▪ Low-lying areas vulnerable to tsunamis (Japan and North America) - unless protective barriers such as seawalls are constructed - o Regulations for the construction of protective measures along such high risk areas - o Authorities can implement guidelines on the location of new infrastructure and set limits on the heights of buildings - o Limitations: ▪ This may need to be carried out in areas which may already be built-up or are privately owned - Costly as government acquire over unsafe land. ▪ Existing owners might be reluctant to give up land ▪ The control of land use is difficult in cities of developing countries where there is high rural-urban migration and the country lacks resources to improve the situation ▪ Poverty causes such migrants to construct their houses illegally on earthquake-prone zones, where they may suffer devastating effects of earthquakes • Building design; - o New infrastructure can be specially designed to withstand strong tremors by making use of the latest technology - o Steel and reinforced concrete: ▪ increases the ductility of the material, allowing buildings to bend considerably without breaking ▪ E.g. Taipei 101, Taiwan - o Damping devices ▪ as shock absorbers ▪ As counterweights which move in opposite direction to the motion of an earthquake ▪ E.g. Taipei 101, Taiwan	Level 1 (0-3m)	Level 2 (4-6m)	Level 3 (7-8m)	Brief explanation of factors	Somewhat detailed explanation of at least 2 factors	Detailed explanation of at least 3 factors	Includes only either response or preparedness factors	Includes both response and preparedness factors	Includes both response and preparedness factors	No examples are used to support factor	Supported with general examples	Supported with specific examples	No mention of effectiveness	Some assessment of effectiveness (Success and limitations)	Detailed description of effectiveness (Success and limitations)			Opinion – 8m	
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		- o Wide and heavy bases ▪ Decrease likelihood of building from collapsing ▪ E.g. Taipei 101, Taiwan - o Base isolation bearings made of rubber or cushion: involves floating a building above its foundation on a system of bearings, springs or padded cylinders ▪ As buffer to prevent building from shaking too much ▪ Absorbs force of earthquake ▪ E.g. SabihaGökçen Airport, Istanbul - o Limitations ▪ Expensive ▪ The Transamerica Pyramid in San Francisco cost S\$75 million to build ▪ People living in LDCs cannot afford to construct such expensive earthquake resistant infrastructure • Strengthening Existing Infrastructure - o Existing infrastructure can be reinforced by wrapping steel frames around the pillars of buildings and bridges, or by placing steel rods in existing structures - o Limitations ▪ Not cost effective to retrofit existing buildings. ▪ The effectiveness of seismic retrofitting is limited as the strengthened infrastructure may not be as strong as new earthquake resistant infrastructure ▪ During the 1994 Northridge Earthquake in USA, many buildings and highways that had been strengthened with steel frames were badly damaged. However, new earthquake-resistant buildings in the same area remained undamaged - o Homes, office buildings and factories fitted with trip switches that ensures all electrical points are switched off in the event of an earthquake – prevent fires from breaking out - o Large underground water tanks act as emergency reservoirs for possible fire fighting after an earthquake ▪ E.g. Kyoto, Tokyo, Kobe, Japan - o Adherence to strict building codes - o Limitations ▪ Costly and untested until earthquakes occur • Emergency drills; - o Creates awareness, reduces panic. - o Ensure that people know what to do in the event of an emergency. ▪ E.g. Japan conducts emergency drills on 1 September to commemorate Disaster Prevention Day - o Governments of earthquake-prone countries also use posters and signs to warn people about areas that are prone to the effects of earthquakes e.g. coastal areas where tsunamis can occur - o Limitations ▪ Based on scale and magnitude of past events and therefore emergency scenario might not be realistic. ▪ People tend to be complacent and may not see the importance of earthquake education especially if earthquakes have not happened in the region for a long time ▪ Research shows that residents in Tokyo are less prepared for earthquakes than residents in other parts of Japan as the last Tokyo earthquake occurred more than 80 years ago in 1923 • Use of technology - o Earthquake monitoring and warning system - o Seismic risk maps: shows likelihood of locations at risk from earth movement or liquefaction produced based on studies on historical incidents - o Success	
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		▪ In Haicheng, China, scientists identified changes in the ground level and increase in small tremors which are signs of an impending earthquake ▪ Authorities were informed and people were warned to evacuate the city ▪ 90 000 people were saved from the magnitude 7.3 earthquake that destroyed 90% of the city's infrastructure - o Limitations ▪ Only gives general indication of frequency and magnitude of earthquakes, do not give precise information about time, location and magnitude of future earthquakes ▪ Authorities may choose to ignore warnings to avoid disruptions to business and tourism as ▪ Predictions of scientists may not always be accurate and turn out to be false alarm - o Earthquake sensors: help monitor frequency of vibrations and detect possible developments of an earthquake - o Limitations ▪ Expensive to obtain, install and use ▪ Earthquake usually occur seconds after a warning is sounded – warning do not provide sufficient time for an evacuation ▪ Noise, lightning or device failure may interfere with seismograph and result in false warning ▪ Difficult to give accurate warnings when multiple earthquakes occur close to each other - o Tsunami monitoring and warning system ▪ E.g. Hawaii, USA, uses a network of pressure sensors seismographs and deep ocean tsunami detectors to monitor and forecast the path of tsunami - o Limitations ▪ Prone to giving false alarms when waves are high ▪ Little time to evacuate once an approaching tsunami is detected <u>Response Measures</u> <u>Short term</u> Rescue and recovery • To quickly locate and free people who are trapped under collapsed building • After earthquake in Tohoku, Japan, in 2011, sniffer dogs and heat sensors were deployed and successfully rescued many who were trapped. • Rescue and evacuation of survivors were of the highest priority. Government agencies sent 100 000 members of the Self-Defence Forces, the police, the Coast Guard and local disaster response teams to the disaster area. • Limitations - o Rescue workers only have limited time of 72 hours (3 days) to find trapped survivors. Without water and food, trapped people are unlikely to survive after 3 days. Providing medical aid, food and water • injured are treated and clean drinking water is provided to help survivors continue with their life • after earthquake in Afyon, in 2002, the Turkish Red Crescent Society immediately responded by delivering 20 000 tents, 50 000 blankets and 3000 heater to the region • Limitations - o Medical supplies, food and water may not be sufficient and this may cause social unrest - o For example, after the earthquake in Haiti in 2010, looting and fighting broke out as people fought for food and medical supplies.	
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	Setting up emergency shelters - tents are set up as temporary housing for those who lost their homes to help them carry on with their lives - Tents accommodated thousands of homeless people after the earthquake in Afyon, Turkey in 2002. They also helped re-establish a sense of community amongst survivors. - Limitations - Living conditions in tent cities may be poor and lead to people dying - For E.g. outbreak of water-borne disease, cholera, killed almost 4000 people in the tent cities of Haiti Humanitarian aid - Foreign and local government may offer money, medical or food aid to an affected area to help rebuild the city - For e.g. two months after the earthquake in Haiti in 2010, governments from all around the world donated US\$2.5 billion and pledged another US\$1.3 billion. - NGOs such as International Red Cross and World Vision International rapidly move into affected areas and began rebuilding the city - Limitations - aid maybe looted or may be delivered late or not be delivered - after earthquake in Turkey in 2011, trucks delivering aid were looted before they reached the disaster area. <u>Long term</u> Compensation - compensation is given out through insurance or direct payments to people who have lost their land and property (helps people to settle down) - For e.g. the Japanese insurance plans are authorized by the government to pay massive amounts to compensate people who have lost their land and property - Limitations - compensations are often insufficient - For e.g. the insurance paid in Japan have an upper limit. This means that the amount paid to people who have lost their land and property may not cover the cost of damage Recovery of economy - Government takes steps to stimulate the economy - For e.g. after the earthquake in Christchurch, New Zealand, in 2011, direct cash payments were made to individuals to allow them to buy necessities. - They also provided income for local traders - The New Zealand government guaranteed bank credit and insurance payments so that reconstruction could start quickly - The repair and building programmes for homes and infrastructure provided employment and income for workers and traders. - Limitations - Recovery of economy may take a long time as a huge sum of money is needed to rebuild infrastructure and services - China took 3 years to rebuild the area hit by the earthquake in Sichuan, China, in 2008 - A huge sum of money of about US\$123 billion were spent on reconstructing schools, hospitals and homes. Improving health options - Health options such as long term counselling are provided - a year after the earthquake in Christchurch, New Zealand, in 2011, significant problems of anxiety and depression were identified and health workers were being deployed to the area to address the issue - Limitations - Challenging to improve health options such as restoring resilience of people after an earthquake - Many survivors in Haiti after the earthquake in 2010 continue to lack access	
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Fruits and Vegetables (%)	5.7	5.9	5.0	6.1																																						
	(i)	With reference to Fig. 8, compare the food consumption patterns in the Developed Countries (DCs) and Less Developed Countries (LDCs) from 2002 to 2014.				[5]																																				
			- Both DCs and LDCs have increased their dietary energy intake. For example, LDCs increase from 2567kcal/cap/day in 2002 to 2769 kcal/cap/day. - However, LDCs increases more than DCs, for e.g. LDCs increase from by 202 kcal/cap/day from 2567kcal/cap/day in 2002 to 2769kcal/cap/day in 2014as compared to DCs who only increases by 54 kcal/cap/day from 3345 kcal/cap/day in 2002 to 3399 kcal/cap/day in 2014 - DCs have a higher dietary energy intake in 2014 of 3399 kcal/cap/day than LDCs's 2769kcal/cap/day - The percentage of cereal in the DC's and LDC's diet have both fallen, for e.g. from 54.2%in 2002 to 36.2% in 2014 in LDCs - The consumption of cereal is higher in the LDC's diet than DCs for e.g. 36.2% in 2014 in the LDCs as compared to 28.2% in 2014 in the DCs - Meat consumption has increased for LDCs from 6.7% in 2002 to 10.8% in 2014 whereas DCs have declined from 17.6% in 2002 to 12.9% - Both LDCs and DCs have increased their consumption of fruits and vegetables from 5.7% in 2002 to 5.9% in 2014 in the LDCs - However, in 2002, LDCs has a higher percentage of fruits and vegetables in their diet at 5.7% as compared to the DCs at 5.0% - Meat consumption is forms a higher percentage of the DC's diet at 12.9% in 2014 as compared to LDC's at 10.8% in 2014. *Accept any plausible answers																																							
	(ii)	Account for the differences in consumption pattern you have identified in (b)(i).				[4]																																				
			- As population increases throughout the world, there is an increase in food consumption throughout the world, thus increasing the energy intake in both DCs and LDCs. - DCs have a higher disposable income than LDCs, thus they have more purchasing power to consume to food. As a result, they have higher food consumption than the LDCs, thus DCs have a higher energy intake than LDCs. - DCs have a higher income thus they are able to afford more meat which are generally more costly than cereals. - DCs also have higher food consumption due to higher food stability. They have the ability to import food and they have the technology to increase food production, thus allowing them to recover faster from any incident that may																																							

		cause a drop in food supply. As a result, they consume more food and energy intake is higher. • Due to education and increasing awareness of health risk and concerns/ obesity, DCs start to decline meat consumption/ increase fruits and vegetables consumption • LDCs consume more vegetables and fruits in 2002 as they are the agricultural producers. Thus, they grow more fruits and vegetables as compared to DCs due to cheaper labour and more land spaces. As a result, they consume more fruits and vegetables. • With globalisation and advantage of convenience and affordability, the LDCs start to increase their consumption of fast food and processed food, thus increasing the percentage of sugar, sweeteners and fats in their diet *Accept any plausible answers	
	(b)	With the use of examples, explain how food security can be affected.	[3]
		• At the height of the civil war in Libya in April 2011, food stocks were rapidly being depleted and were not being replenished. Cities and areas with heavy fighting had food and water shortages. Safety concerns restricted people from venturing out to find or buy food • Food shortage in Zimbabwe in 2008 after a severe drought. Extremely low rainfall destroyed most of the corn harvest. • 'Mad cow disease' outbreak in Europe in the 1990s and in the USA and Canada in 2005 caused a decline in beef stock as the beef were contaminated. US government took actions to prevent its spread and countries also stopped importing beef from US temporarily. • Japan: Earthquake and subsequent nuclear radiation contaminated farmland and water resources in 2011. Seafood imports from Japan to Singapore were restricted for many months to ensure consumer safety. People avoided Japanese cuisine due to news of nuclear contamination *Accept any plausible answers	
	(c)	Explain how food shortage can affect the development of a country.	[5]
		• Food shortage can lead to starvation/ malnutrition and cause a decrease in health. Thus, the workers may take more sick leave or not appear to work. As a result, they may have a lower productivity, thus less goods and services are produced for sale, affecting the income of the company and country. • When the workers are unable to turn up for work, they may receive less income. Thus they have less purchasing power to consume more goods and services. As a result, development in the country slows down. • More money will also have to be channelled to health-related programmes or infrastructures like hospitals to combat the issue of food-related problems/ on agricultural technology to boost food supply. Thus, less money will be available for other areas of development such as education and transport, which are vital for the development of a country. • To cope with starvation/ malnutrition caused by a lack of food, countries may end up taking food aid/ monetary aid from other countries. This food aid/ monetary aid is usually more expensive and countries end up accumulating national debts, thus affecting the development of a country in the long run. • Social unrest/ Political instability may result when there is a food shortage. Thus causing destruction and affects tourism/investment which in turn affect the economy and the development of a country. • Scavenging may also result when there is a shortage of food in the country. This exposes the scavengers to health risk and causes their life expectancy to be low. As such, the government has to spend more money to take care of	

		them/ they are unable to be productive at work, causing a decline in the economy.							
		*Accept any plausible answers							
	(d)	'Excess consumption of food will only affect an individual.'							
		To what extent is this true? Give reasons for your answer.	[8]						
		<table><tr><th>Level 1 (0-3m)</th><th>Level 2 (4-6m)</th><th>Level 3 (7-8m)</th></tr><tr><td>Brief explanation of factors Includes only impacts to either individual or country No examples are used to support factor No mention of effectiveness</td><td>Somewhat detailed explanation of at least 2 factors Includes impacts to both individuals and country Supported with general examples</td><td>Detailed explanation of at least 3 factors Includes impacts to both individuals and country Impacts include social and economic impacts Include both positive and negative impacts Supported with specific examples Opinion – 8m</td></tr></table> <u>Impact to individuals</u> - Obesity and related illnesses - Obesity is the condition of being overweight due to excessive consumption of nutrients which are eventually stored as body fats - Accumulation of body fats over time have adverse impacts on health - Obesity affects most of the body's systems - Obesity leads to health problems, e.g. high blood pressure, coronary heart disease, certain cancers - Obesity may reduce a person's lifespan by 9 years - Obesity is more common in DCs, such as USA, than in LDCs, such as India, due to: - Higher disposable income - Stronger purchasing power - Higher consumption of sweetened beverages, potato chips and fast food - Obesity is increasing in DCs, e.g. USA, Australia, Canada - From 1971 to 2000, obesity rates in the USA rose from 14.5% to 30.9% of the population - Rising income of people in LDCs is causing obesity to become more common - e.g. Brazil, South Africa, China, India - In some LDCs, obesity rates have exceeded average obesity rates of DCs - e.g. Mexico, South Africa - Apart from obesity, excessive food consumption may cause kidney failure, liver diseases, and hypertension - Excessive consumption of salt, sugar, alcohol, processed food and red meat may result in these conditions - Lower productivity/ employment/income - More workers are absent from work due to obesity-related health issues - Absence leads to lower productivity and lower income - Children may fall sick more often, leading to loss of school days and as a result, loss of educational opportunities - This will affect their future employment and cause a fall in their own personal income, thus affecting their purchasing power to afford goods and	Level 1 (0-3m)	Level 2 (4-6m)	Level 3 (7-8m)	Brief explanation of factors Includes only impacts to either individual or country No examples are used to support factor No mention of effectiveness	Somewhat detailed explanation of at least 2 factors Includes impacts to both individuals and country Supported with general examples	Detailed explanation of at least 3 factors Includes impacts to both individuals and country Impacts include social and economic impacts Include both positive and negative impacts Supported with specific examples Opinion – 8m	
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		services. - Higher personal health expenditures - Personal health expenditure increases as a result of treating obesity-related health conditions, e.g. cardiovascular disease, diabetes - Governments have to channel more funds to the health care system - Higher personal health expenditure will cause less money to be available for other areas of needs in their life. - If they do not have enough funds to treat the illnesses, they may resort to borrowing and that can lead to debts. <u>Impacts to country</u> Economic - Lower productivity/ employment/income - More workers are absent from work due to obesity-related health issues - Absence leads to lower productivity and lower income - Children may fall sick more often, leading to loss of school days and as a result, loss of educational opportunities - Employees absent from work due to sickness cost companies millions in productivity and insurance costs - Poor health can make present employees less productive and thus less production of goods and services for sale which will affect the profit level of the company and then the tax revenue received by the country will also decrease. - Poor health can make present employees less productive and thus their personal income will be affected. As a result, they purchase less goods and services, thus affecting the income of the country. - Example: Employees of Duke University - Those with Body Mass Index (BMI) of over 40 were twice as likely to fall sick or be injured while doing work - Companies/ University pays higher compensation claims to workers - Compensation claims: Wages and medical payments to employees who fall sick or are injured while doing work - Higher public health expenditures - Public health expenditure increases as a result of treating obesity-related health conditions, e.g. cardiovascular disease, diabetes - Governments have to channel more funds to the health care system - Higher public health expenditure reduces the amount of funds remaining for economic development Social - Food wastage - Societies may waste food when they have excess food - Consumers in DCs waste as much food as the entire amount of food available in Sub-Saharan Africa for local consumption, i.e. 230 million tonnes each year - Food wastage is a serious problem in DCs - Both food producers and consumers throw away food that is still edible - Amount of wasted food: - DCs: 95–115 kilogrammes per capita - LDCs: 6–11 kilogrammes per capita - Wastage puts more strain on landfills and result in environmental problems such as contamination of ground water - Resources (e.g. water, oil) used to produce the food are wasted as well - Dieting - People may become overweight due to excessive food consumption and may choose to go on a diet to lose weight - Dieting: Practice of regulating the amount of food consumed in order to maintain an ideal body weight - People who are dieting also engage in physical exercise	
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		- o Dieting provides employment and value to an economy, e.g. diet books, medication, medical procedures for losing weight - o Example: In 2012, the weight loss industry in the USA was valued at US\$20 billion - o Dieting has to be done in a healthy manner - o Inappropriate dieting may lead to: ▪ Depression ▪ Dieting-related physical illnesses, e.g. iron-deficiency anaemia	
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