

Fastrack Revision

Summary at a Glance

- The author, as a part of the programme 'Students on Ice', boarded a Russian research vessel, the Akademik Shokalskiy, which was heading towards Antarctica from Madras. She travelled over 100 hours before setting foot on Antarctica. Six hundred and fifty million years ago there existed a giant southern supercontinent Gondwana. It was centred roughly around the present-day Antarctica. Gondwana thrived for 500 million years. The landmass was forced to separate into countries. India pushed northwards, jamming against Asia and buckling its crust gave rise to the Himalayas. South America drifted off to join North America opening up the Drake Passage and keeping Antarctica cold and desolate.
- Human civilisations have been around for only 12,000 years. We dominated over nature with our villagers, towns, cities and megacities. We burnt fossil fuels and created a blanket of carbon dioxide around the world which is increasing global temperature. A Canadian person Geoff Greens started the programme 'Students on Ice'. He took high school students on this journey. They are the future

generation. They are ready to absorb, learn and act what they see and study on Antarctica.

- Antarctica; because of its simple ecosystem and lack of biodiversity, is the perfect place to study how little changes in the environment can have big repercussions.
- They reached near the Antarctic Circle. The Captain instructed all the inmates to climb down the vessel. They all 52 were kitted out. They walked on a stark whiteness that seemed to spread out forever. There was a metre-thick ice pack under their feet. Below it was salt water where animals were living and breathing. In the periphery Crabeater seals were spreading and sunning themselves on ice floes. It was nothing short of a revelation; everything does indeed connect. They spend two weeks in Antarctica.

Theme

The lesson, written by *Tishani Doshi*, refers to the manner in which geological phenomena enable us to trace the history of mankind. It also tells us about the way in which landmasses and countries are formed. The author emphasises the impact of human endeavour to dominate nature.



Practice Exercise



Extract Based Questions

Directions: Read the extracts given below and answer the questions that follow:

1. **Climate change** is one of the most hotly contested environmental debates of our time. Will the West Antarctic ice sheet melt entirely? Will the Gulf Stream ocean current be disrupted? Will it be the end of the world as we know it? Maybe. Maybe not. Either way, Antarctica is a crucial element in this debate – not just because it's the only place in the world, which has never sustained a human population and therefore remains relatively 'pristine' in this respect; but more importantly, because it holds in its ice-cores half-million-year-old carbon records trapped in its layers of ice.

(CBSE SQP 2023-24)

- (a) How does the absence of a human population in Antarctica make it significant in the climate change debate?
- (b) Why is "climate change" described as a "hotly contested" issue in the extract provided?
This is so, because there
 - (i) Is universal agreement on the causes and implications of climate change
 - (ii) Is a planned path ahead about how to address climate change
 - (iii) are differing views on the causes and implications of climate change
 - (iv) are minimal reports of fresh threats to climate change
- (c) The analogy of a time machine is an appropriate analogy for the role of carbon records in the study of climate change because
- (d) Give one reason why the writing style of the extract can be called factual and informative.

Answers

- (a) The absence of a human population in Antarctica makes it significant in the climate change debate as this makes it an important point for understanding the effects of human activities on the environment and the potential impacts of climate change.
 - (b) (iii) are differing views on the causes and implications of climate change
 - (c) just like a time machine would allow us to observe past events, carbon records allow us to observe past climate conditions.
 - (d) Because the writer presents information in a straight forward and objective manner.
2. Six hundred and fifty million years ago, a giant amalgamated southern supercontinent—Gondwana—did indeed exist, centered roughly around the present-day Antarctica. Things were

quite different then: humans hadn't arrived on the global scene, and the climate was much warmer, hosting a huge variety of flora and fauna. For 500 million years Gondwana thrived, but around the time when the dinosaurs were wiped out and the age of the mammals got under way, the landmass was forced to separate into countries, shaping the globe much as we know it today.

- (a) The writer of the above extract is
- (b) Gondwana is a:
 - (i) giant amalgamated southern supercontinent
 - (ii) giant amalgamated western supercontinent
 - (iii) giant amalgamated northern supercontinent
 - (iv) Antarctica
- (c) What does flora and fauna means?
- (d) Give an antonym of 'thrived'.

Answers

- (a) Tishani Doshi
 - (b) (i) giant amalgamated southern supercontinent
 - (c) Flora and fauna means plants and animals.
 - (d) An antonym of 'thrived' is deteriorated or declined.
3. Human civilisations have been around for a paltry 12,000 years—barely a few seconds on the geological clock. In that short amount of time, we've managed to create quite a ruckus, etching our dominance over nature with our villages, towns, cities, megacities. The rapid increase of human populations has left us battling with other species for limited resources, and the unmitigated burning of fossil fuels has now created a blanket of carbon dioxide around the world, which is slowly but surely increasing the average global temperature.
 - (a) A layer of carbon dioxide around the world is created due to:
 - (i) rapid decrease in human population.
 - (ii) burning of petrol, diesel, natural gas, coal etc.
 - (iii) Both (i) and (ii).
 - (iv) burning of non-conventional fuels.
 - (b) A synonym of 'barely' is
 - (c) Why is global temperature increasing?
 - (d) What is the name of the lesson?

Answers

- (a) (ii) burning of petrol, diesel, natural gas, coal etc.
- (b) hardly
- (c) Global temperature is increasing because of the increasing amount of carbon dioxide around the world.
- (d) The name of the lesson is 'Journey to the End' of the Earth.

4. The reason the programme has been so successful is because it's impossible to go anywhere near the South Pole and not be affected by it. It's easy to be blasé about polar ice-caps melting while sitting in the comfort zone of our respective latitude and longitude, but when you can visibly see glaciers retreating and ice shelves collapsing, you begin to realise that the threat of global warming is very real.

(a) The name of the programme is

(b) Who is going to head the programme?

(i) High school students.

(ii) A group of scientists.

(iii) Geoff Green, a Canadian.

(iv) A group of navy sailors.

(c) Why is it impossible to go to the South Pole?

(d) Give an antonym of 'retreating'.

Answers

(a) Students on Ice

(b) (iii) Geoff Green, a Canadian

(c) It is impossible to go to the South Pole because the temperature is too low there for survival.

(d) An antonym of retreating is advancing.

5. Antarctica, because of her simple ecosystem and lack of biodiversity, is the perfect place to study how little changes in the environment can have big repercussions. Take the microscopic phytoplankton—those grasses of the sea that nourish and sustain the entire Southern Ocean's food chain. These single-celled plants use the sun's energy to assimilate carbon and synthesise organic compounds in that wondrous and most important of processes called photosynthesis.

(a) Why is ecosystem of Antarctica simple?

(i) Due to plenty of biodiversity.

(ii) Lack of oxygen.

(iii) Lack of animals and plants.

(iv) Lack of scientists.

(b) The entire Southern Ocean's food chain is sustained by

(c) By whom is the process of photosynthesis performed in Antarctica?

(d) Give a synonym of 'nourish'.

Answers

(a) (iii) Lack of animals and plants

(b) microscopic marine algae

(c) The process of photosynthesis is performed in Antarctica by phytoplankton.

(d) A synonym of 'nourish' is feed or tend.



Short Answer Type Questions

Q 2. How did the writer feel on reaching Antarctica and why?

Ans. On reaching the Antarctica the writer felt relief, as she had been travelling over 100 hours, to see its expansive white landscape and continuous blue horizon. She also felt great wonder at its immensity, its isolation and mainly at how could ever have been a time when India and Antarctica were a part of the same landmass.

Q 3. Describe the writer's feelings after he had spent two weeks in Antarctica.

Ans. Following were the writer's feelings after she had spent two weeks in Antarctica:

(i) She wondered about the beauty of balance in play on our Earth.

(ii) How would it be if Antarctica were to become the warm place that it once used to be?

(iii) Will we be around to see it, or would we have gone the way of the dinosaurs and other animals of that time?

Q 4. What is the subject that features most in the environmental debates? Why is Antarctica at the centre of such debates?

Ans. Climate change is the subject that features most in environmental debates. Antarctica is at the centre of such debates because it holds in its ice-cores half-million-year-old carbon records caught in its layers of ice.

Q 5. Why has the 'Students on Ice' programme been so successful?

Ans. The reason the programme 'Students of Ice' has been so successful is because it is impossible to go anywhere near the South Pole and not be affected by it. But the students could visibly see glaciers retreating and ice shelves collapsing in this programme.

Q 6. Why is Antarctica the ideal place to study that small changes in environment can have far reaching effects?

Ans. Antarctica, because of its simple ecosystem and lack of biodiversity, is the ideal place to study how small changes in environment can have far reaching effects.

Q 7. How long have the human civilisation been around? What is the human impact on earth and its resources?

Ans. Human civilisation has been around for only 12,000 years. Man has managed to have dominance over nature with villages, towns, cities and megacities. The rapid increase in human population has left man battling with other species for limited resources. He has used all fossil fuels creating a blanket of carbon dioxide around the world.

Q 8. What did Geoff Green get tired of and why? What did he switch over to? How long has he been running this programme?

Or

What did Geoff Green switch over to? Why?

(CBSE 2023)

Q 1. What was the Akademik Shokalskiy? Where was it heading?

Ans. The Akademik Shokalskiy was a Russian research vessel. It was heading towards the coldest, driest, windiest continent in the world : Antarctica.

Ans. Geoff Green got tired of carting celebrities and retired. They could only 'give' back in a limited way. He switched over to the High School students. He has been running this programme for six years now.

Q 9. How do geological phenomena help us to know about the history of humankind?

Ans. Geological phenomena give us understanding of where we have come from and where we could possibly be heading. They help us to understand about the folds and shields, ozone and carbon: evolution and extinction.

Q 10. What are the indications for the future of humankind?

Ans. The rapid increase of human populations has left us battling with other species for limited resources. The complete burning of fossil fuels has now created a blanket of carbon dioxide around the world. This is why the average global temperature is increasing.

Q 11. How was Gondwana different from today's world? Describe it (Journey to the End of the Earth).

(CBSE 2020)

Ans. Six hundred and fifty million years ago, a very large joint of southern supercontinent—Gondwana—did indeed exist, centered roughly around the present-day Antarctica. Things were quite different then: people were not present on earth and the climate was much warmer, hosting a huge variety of plants and animals. For 500 million years Gondwana prospered but around the time when the dinosaurs came to their end and the age of the mammals began, the landmass was forced to separate into countries, shaping the globe much as we know it today.

Q 12. What are Geoff Green's reasons for including high school students in the 'Students on Ice' expedition?

(NCERT)

Or

Why did Geoff Green include young students in his programme?

(CBSE 2023)

Ans. Geoff Green took high school students to the end of the world with him on the journey ship so that he might provide them with inspiring educational opportunities which would help them foster a new understanding and respect for the Earth.

Q 13. What are the significant features of 'Students on Ice' programme?

(CBSE 2023)

Ans. The 'Students on Ice' programme aims at providing young students the opportunity to see and understand the impact of global warming. It also aims at making them understand that they are the policy makers of future and they need to save the environment.

Q 14. What prevented the Shokalskiy from going further? What did the captain instruct the passengers to do?

(CBSE 2023)

Ans. The Shokalskiy managed to wedge herself into a thick white stretch of ice between the peninsula and Tadpole Island which was preventing it from going further. The captain decided to turn around and head back north, but before that he instructed the passengers to climb down the gangplank and walk on the ocean.



Long Answer Type Questions

Q 1. 'The world's geological history is trapped in Antarctica.' How is the study of this region useful to us?

Ans. A giant southern super continent, Gondwana existed roughly around the present-day Antarctica. Humans had not reached there. The climate was warmer. There was variety of plants and animals. For 500 million years Gondwana thrived. Then, the dinosaurs were wiped out. The age of mammals began.

The landmass was forced to separate into countries. Antarctica and India were the part of the same landmass. India pushed northwards, jamming against Asia and formed the Himalayas. South America drifted off and joined North America. The Drake passage opened. It kept Antarctica very cold and left it desolate, and at the bottom of the land.

The visual scale ranged from the microscopic to the mighty. There was 24-hour summer light. There was complete silence. It was broken occasionally by avalanche or splitting off ice sheet. It was a sacred place. There was complete silence. It was broken occasionally by avalanche or splitting off ice sheet. It was a sacred place.

Hence, the study of this region is useful to us.

Q 2. What are the Geoff Green's reasons for including high school students in the Students on Ice expedition?

Ans. Following are the reasons for including high school students in the Student's on Ice expedition by Geoff Green:

(i) 'Students on Ice' expedition aims at providing the high school students opportunities that are inspiring in the field of education.

(ii) These opportunities will help the students foster a new understanding and respect for our planet, Earth.

(iii) Geoff Green first used to cart famous persons in this campaign but they could give their experience back in a limited way. Hence, he preferred high school students instead of those persons.

(iv) The students are the future generation. They are policy-makers. They should have a life-changing experience at their age.

(v) The high school students are ready to absorb the experience. They will learn from this experience.

(vi) The most important thing is that the students will act accordingly.

Q 3. 'Take care of the small things and the big things will fall into place.' What is the relevance of this statement in the context of the Antarctic environment.

(NCERT)

Ans. The old proverb goes, 'Take care of the pennies and the pounds will take care of themselves'. The author Tishani Doshi has changed this proverb the following way: 'Take care of the small things and the big things will fall into place.'

Following is the relevance of this statement in the context of the Antarctica environment:

Antarctica has simple ecosystem. It lacks biodiversity. It is the perfect place to study how little changes in the environment can have big consequence of action. For example, the microscopic grasses of the sea nourish and sustain the whole Southern Ocean's food-chain. They are single-celled plants. They use sun's energy to digest carbon and make organic compounds. Scientists warn that a further reduction in the ozone layer will affect the activities of these microscopic grass plants. Consequently, it will affect the lives of all sea animals and birds of the region, and the global carbon cycle.

Thus, if we take care of these sea grasses, the lives of all sea animals and birds of this region will go on thriving.

Q 4. Why is Antarctica the place to go to understand the earth's present, past and future? (NCERT)

Or

How can a visit to Antarctica be an enlightening experience? (CBSE 2023)

Ans. If we want to study and examine the Earth's present, past and future, Antarctica is the place to go. The absolute burning of natural fuels such as coal or gas has created a blanket of carbon dioxide around the world. It is slowly but surely increasing the average global temperature.

Climate change is one of the most strongly challenged environmental debates of our time. Will the West Antarctica sheet melt entirely? Will the Gulf-stream ocean current be disturbed? Will it be the end of the world? It may be or not. Either way, Antarctica is a decisive element in this debate. Antarctica is the only place in the world, which has never supported physically a human population and therefore remain relatively in its original condition in this respect.

Antarctica holds in its ice-cores half-million-year-old carbon records caught in its layers of ice. It will help us to know the Earth's present, past and future.

Q 5. Why does the author call her trip to Antarctica a 'journey to the end of the earth'? Which expedition did she join?

Ans. The author boarded a Russian research vessel named the Akademik Shokalskiy. She was heading towards Antarctica.

Her journey began 13.09 degrees north of the Equator in Madras. She crossed nine time zones, six check points, three oceans and at least three ecospheres. The vessel was heading towards the coldest, driest and windiest continent in the world. She had travelled over 100 hours. She used a car, an aeroplane and a ship in her journey. Then she actually set foot on the Antarctica continent. It was very immense. It was isolated. It was an expansive white landscape. The continuous blue horizon gave her relief. She joined the expedition 'Students on Ice'. High School students took part in this expedition. The expedition reached 65.55 degrees south. It was just short of the Antarctic circle. Therefore, she calls her trip to Antarctica a 'journey to the end of the Earth'.

Q 6. Describe briefly the walk on the ocean by the members of the expedition 'Students on Ice'.

Ans. When the vessel 'Shokalskiy' was at 65.55 degrees south, she wedged into a thick white stretch of ice between the peninsula and Tadpole Island. It could not go any further.

The captain instructed all the members to climb down the gangplank and walk on the ocean. They were 52 in all. They were kitted out in Gore-Tex and glares. They were walking on a complete whiteness that seemed to spread out forever. There was a metre-thick ice pack under their feet and below that there was 180 metres of living, breathing, salt water. In the periphery Crabeater seals were spreading and sunning on the sheets of the floating ice. It was nothing short of a revelation : everything does indeed connect.



Chapter Test

Extract Based Question

Q 1. Nine time zones, six checkpoints, three bodies of water and many ecospheres later, I was still wondering about the beauty of balanced in play on our planet. How would it be if Antarctica were to become the warm place that it once used to be? Will we be around to see it, or would we have gone the way of the dinosaurs, mammoths and woolly rhinos? Who's to say? But after spending two weeks with a bunch of teenagers who still have the idealism to save the world, all I can say is that lot can happen in a million years, but what a difference a day makes!

(a) 'Bunch to teenagers' is

(b) 'I was still wondering about the beauty of balance in play on our planet'.

Here our planet means:

- (i) Antarctica (ii) The Earth
- (iii) The Mars (iv) The Jupiter

(c) Name the lesson.

(d) What does 'idealism' mean?

Short Answer Type Questions

Q 2. In which debate has Antarctica been at the centre?

Q 3. Write briefly about Gondwana?

Long Answer Type Question

Q 4. Justify the title 'Journey to the End of the Earth'.