ALBERTA SCIENCE 20 · UNIT C · 25 QUESTIONS

The Changing Earth — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1

Which of the following observations provides evidence that the climate of a region has changed over geological time?

A Fossilized remains of tropical plants are found in rock layers in Antarctica

B Ocean water is salty in every part of the world

C The Moon causes tides in the oceans of Earth

D Rivers carry sediment from mountains to the sea

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2 **The hypothesis of continental drift was supported by the observation that**

A ocean currents move warm water toward the poles

B volcanoes are common along the Pacific coast

C fossils of the same freshwater reptile are found in both South America and Africa

D the magnetic field of Earth reverses over time

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3 **The movement of the lithospheric plates of Earth is driven mainly by**

A the gravitational pull of the Moon

B heat driven convection currents in the mantle

C the rotation of the inner core of Earth only

D ocean tides pushing against the continents

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4 **The natural greenhouse effect is essential for life on Earth because it**

- **A** blocks all ultraviolet radiation from the Sun
- **B** creates oxygen in the atmosphere
- **C** prevents all heat from entering the atmosphere
- **D** traps outgoing infrared radiation and keeps Earth warm enough for liquid water

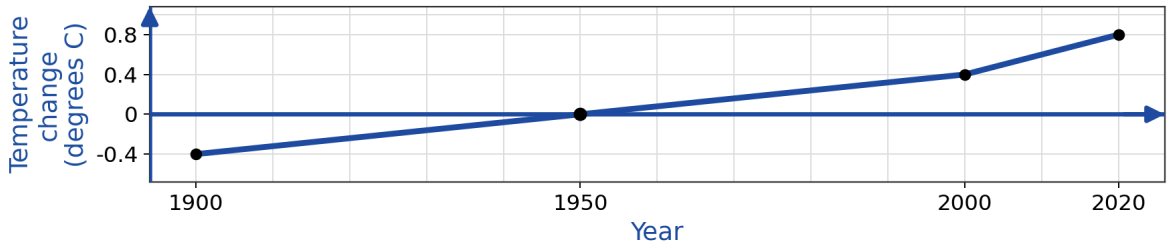
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5 **Earth is about 4.6 billion years old. Compared with the age of Earth, the time during which humans have existed is**

- **A** about half of the history of Earth
- **B** a very small fraction of the history of Earth
- **C** about one quarter of the history of Earth
- **D** longer than the time dinosaurs existed

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6 **The graph shows the change in global average temperature, in degrees Celsius, relative to an earlier average. The change shown for the year 2000 is**



A -0.4

B 0.0

C 0.4

D 0.8

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7 **Scientists determine the composition of the atmosphere of Earth hundreds of thousands of years ago mainly by analyzing**

A air bubbles trapped in ancient glacial ice

B tree rings from trees that are alive today

C fossilized dinosaur bones

D sand collected from present day beaches

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8 **Which of the following is a natural cause of long term climate change?**

A Burning coal in power plants

B Deforestation of tropical rainforests

C Methane released from cattle farms

D Changes in the orbit and axial tilt of Earth

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9 **In the carbon cycle, carbon is removed from the atmosphere for long periods of geological time when**

A animals carry out cellular respiration

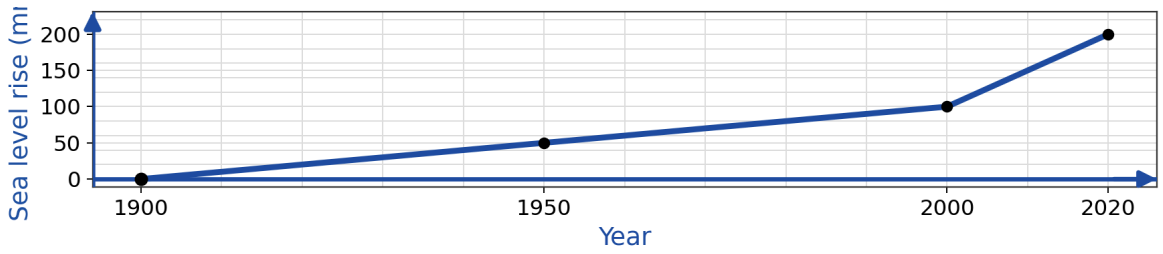
B volcanoes erupt and release gases

C marine organisms die and their shells are buried in sediments that form limestone

D wildfires burn large areas of forest

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10 **The graph shows the rise in global sea level, in millimetres, since 1900. The rise shown by the year 2000 is**



- **A** 0 mm
- **B** 50 mm
- **C** 100 mm
- **D** 200 mm

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11 **Which of the following is a predicted consequence of continued global warming?**

- **A** A decrease in the frequency of drought in every region
- **B** Thermal expansion of ocean water and melting land ice raising sea level
- **C** Thicker Arctic sea ice in the summer
- **D** The complete disappearance of winter in Canada

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12 **The most widely accepted explanation for the repeated ice ages of the past two million years is**

- **A** cyclical changes in the orbit and tilt of Earth that alter the sunlight reaching high northern latitudes
- **B** the gradual cooling of the Sun over time
- **C** the movement of the continents toward the equator
- **D** a steady increase in volcanic eruptions

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13 **Index fossils are useful for dating rock layers because the organisms that formed them**

- **A** lived for a very long time and are still alive today
- **B** are found in only one rock layer in one location
- **C** lived in only one small area of Earth
- **D** were widespread but lived during a short, specific period of time

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14 **Some events in the history of Earth are listed below. 1 Dinosaurs become extinct 2 First life appears in the oceans 3 Earth forms 4 First humans appear The order of these events, from oldest to most recent, recorded as a four digit number, is ____**

ANSWER _____

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15 **A large volcanic eruption can cause global temperatures to drop for one to two years mainly because**

A lava flows cool the water of the oceans

B ash clouds permanently block the Sun

C sulfur gases form aerosols in the stratosphere that reflect sunlight

D eruptions release carbon dioxide that absorbs heat from the air

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16 **As polar ice melts, darker ocean water is exposed. This creates a positive feedback loop because the darker surface**

A absorbs more solar radiation, causing further warming and melting

B reflects more solar radiation, cooling the region

C absorbs more solar radiation, causing further cooling and freezing

D has no effect on the energy balance of Earth

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17 **Which human activity is the largest source of increased atmospheric carbon dioxide?**

A Landfills producing methane gas

B Burning fossil fuels for energy and transportation

C Growing rice in flooded fields

D Cutting down trees for lumber only

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18 **The schematic map highlights one region of Canada. Thawing permafrost is a particular concern in the highlighted region, which is the**



A North

B Prairies

C Atlantic

D Ontario

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19 **The pattern of magnetic stripes in the ocean floor on either side of a mid ocean ridge is evidence that**

A the magnetic field of Earth never changes

B the ocean floor is the oldest part of the crust of Earth

C continents move through the ocean floor like ships

D new crust forms at the ridge and spreads outward, recording magnetic reversals

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20 **Methane is considered a significant greenhouse gas because, molecule for molecule, it**

- **A** is more abundant than carbon dioxide in the atmosphere
- **B** remains in the atmosphere for thousands of years
- **C** traps heat much more effectively than carbon dioxide, though it is less abundant
- **D** is produced only by human activities

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21 **Carbon-14 has a half life of 5730 years. A fossil sample contains $\frac{1}{8}$ of its original carbon-14. The age of the sample, in years, is ____**

ANSWER _____

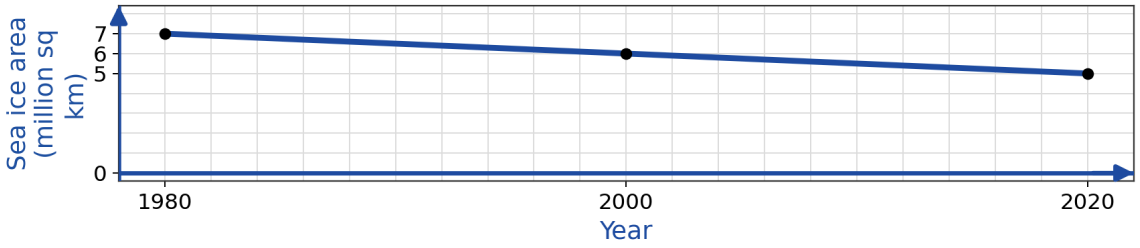
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22 **Which process is an example of the surface of Earth changing slowly through weathering and erosion?**

- **A** A canyon is carved deeper as a river cuts through rock layers
- **B** An earthquake raises a section of coastline in seconds
- **C** A volcano builds a new island in a few years
- **D** A meteor creates a crater in a single impact

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23 **The graph shows the average September area of Arctic sea ice, in millions of km². The area shown for 2020 is**



- **A** 5
- **B** 6
- **C** 7
- **D** 8

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24 **Increasing atmospheric carbon dioxide is causing ocean acidification because**

- **A** warmer water holds more dissolved oxygen
- **B** carbon dioxide dissolves in seawater and forms carbonic acid, lowering the pH
- **C** melting ice adds fresh water that is acidic
- **D** phytoplankton produce acid as they photosynthesize

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25 **The ice sheet of Antarctica holds about 26.5 million km³ of ice. If a glacier system loses 250 km³ of ice per year, the number of years required to lose 1.0% of the ice sheet at this rate, to the nearest year, is ____**

ANSWER _____

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ANSWER KEY

1. A
2. C
3. B
4. D
5. B
6. C
7. A
8. D
9. C
10. C
11. B
12. A
13. D
14. 3214
15. C
16. A
17. B
18. A
19. D
20. C
21. 17190
22. A
23. A
24. B
25. 1060

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