ALBERTA SCIENCE 20 · FINAL EXAM · 50 QUESTIONS

Final Exam — 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 **In a redox reaction, oxidation is best defined as the**

- A gain of electrons
- B gain of protons
- C loss of protons
- D loss of electrons

Understand It with Pulse | Flag a mistake

2 **A student walks 4 m east and then 4 m west, returning to the starting point. The total distance travelled and the total displacement are**

- A Distance: 0 m Displacement: 0 m
- B Distance: 8 m Displacement: 8 m east
- C Distance: 8 m Displacement: 0 m
- D Distance: 0 m Displacement: 8 m west

Understand It with Pulse | Flag a mistake

3 **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

Understand It with Pulse | Flag a mistake

4 **The original source of energy for nearly all ecosystems on Earth is**

A wind

B the Sun

C geothermal heat

D ocean tides

Understand It with Pulse | Flag a mistake

5 **A student dissolves 25 g of salt in water and makes a solution with a total volume of 500 mL. The concentration of the solution, in grams per litre (g/L), is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A car rounds a curve at a constant speed. The car is accelerating because**

A its speed is increasing

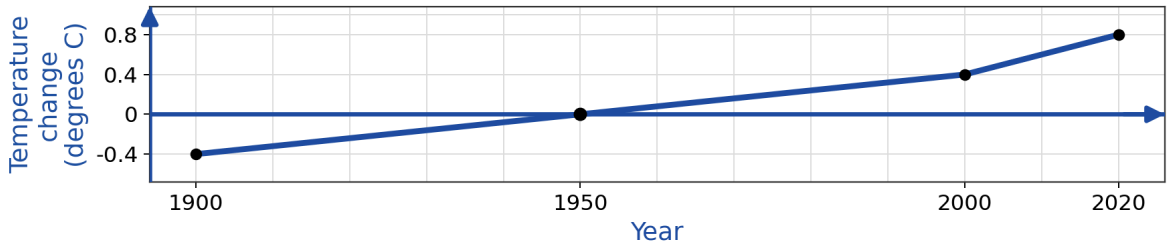
B its speed is decreasing

C its velocity is changing because its direction is changing

D its mass is changing

Understand It with Pulse | Flag a mistake

7 **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

Understand It with Pulse | Flag a mistake

8 **Which process removes carbon dioxide from the atmosphere and stores the carbon in glucose?**

A cellular respiration

B combustion

C photosynthesis

D decomposition

Understand It with Pulse | Flag a mistake

9 **The gas produced by the complete combustion of a fossil fuel that is most responsible for the enhanced greenhouse effect is**

A oxygen

B nitrogen

C water vapour

D carbon dioxide

Understand It with Pulse | Flag a mistake

10 **A book sits at rest on a table. According to Newton's first law, the book remains at rest because**

A the forces acting on it are unbalanced

B the net force acting on it is zero

C no forces act on it

D gravity does not act on objects at rest

Understand It with Pulse | Flag a mistake

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

A animals carry out cellular respiration

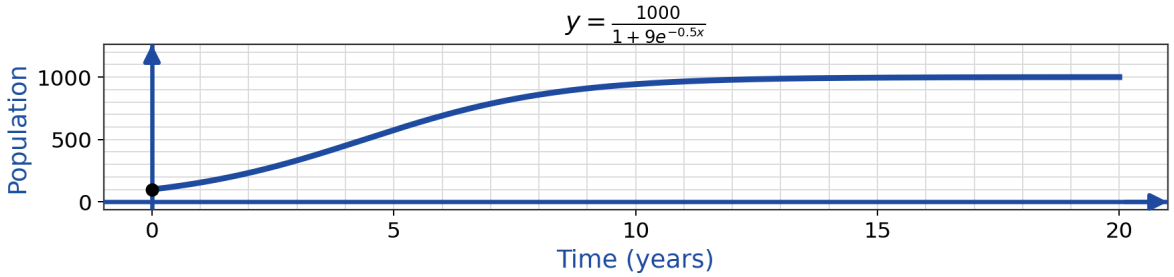
B volcanoes erupt and release gases

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

D wildfires burn large areas of forest

Understand It with Pulse | Flag a mistake

12 **The graph shows a population growing toward its carrying capacity. The carrying capacity shown is about**



A 500

B 1000

C 1500

D 2000

Understand It with Pulse | Flag a mistake

13 **A chemical cold pack becomes cold when the chemicals inside mix because the reaction that occurs is**

- A exothermic, releasing heat
- B a physical change only
- C a neutralization reaction
- D endothermic, absorbing heat from its surroundings

Understand It with Pulse | Flag a mistake

14 **A car travelling at 10 m/s accelerates at 2.0 m/s² for 5.0 s. The distance travelled by the car during this time is**

- A 75 m
- B 50 m
- C 100 m
- D 125 m

Understand It with Pulse | Flag a mistake

15 **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

Understand It with Pulse | Flag a mistake

16 **During nitrification in the nitrogen cycle,**

- **A** nitrogen gas is split apart by lightning
- **B** nitrates are absorbed by plant roots
- **C** bacteria convert ammonia into nitrites and then nitrates
- **D** fungi convert proteins into nitrogen gas

Understand It with Pulse | Flag a mistake

17 **When an acid reacts with a base in a neutralization reaction, the products are**

A a salt and water

B an acid and a salt

C hydrogen and oxygen gases

D a metal and water

Understand It with Pulse | Flag a mistake

18 **A 20 kg box slides across a horizontal floor. The coefficient of kinetic friction is 0.30 and g = 9.81 m/s². The force of kinetic friction on the box is approximately**

A 6.0 N

B 59 N

C 196 N

D 588 N

Understand It with Pulse | Flag a mistake

19 **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

Understand It with Pulse | Flag a mistake

20 **Secondary succession differs from primary succession because secondary succession**

A occurs only in aquatic ecosystems

B begins in an area where soil is already present

C does not lead to a climax community

D takes place much more slowly than primary succession

Understand It with Pulse | Flag a mistake

21 **Most of the sulfur dioxide released into the atmosphere in industrial regions comes from**

A volcanoes

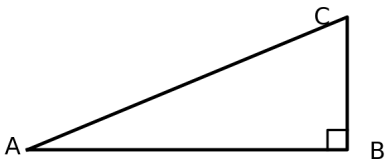
B vehicle air conditioners

C photosynthesis

D burning coal for electricity

Understand It with Pulse | Flag a mistake

22 **A hiker walks 12 m east from A to B, then 5.0 m north from B to C. The diagram shows the path. The magnitude of the displacement from A to C is**



- **A** 5.0 m
- **B** 12 m
- **C** 13 m
- **D** 17 m

Understand It with Pulse | Flag a mistake

23 **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

Understand It with Pulse | Flag a mistake

24 **A keystone species is a species that**

- **A** is the most abundant species in its ecosystem
- **B** has no natural predators
- **C** has an effect on its ecosystem that is much larger than its numbers suggest
- **D** is found at the top of every food chain

Understand It with Pulse | Flag a mistake

25 **A solution has a hydrogen ion concentration that is 100 times greater than a solution with a pH of 6. The pH of the first solution is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

26 **According to Newton's third law, an action force and its reaction force**

A act on the same object

B cancel each other out because they are equal and opposite

C only occur when the two objects are in contact

D act on two different objects

Understand It with Pulse | Flag a mistake

27 **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

Understand It with Pulse | Flag a mistake

28 **Carbon can be stored for millions of years in the form of**

A carbon dioxide in the air

B fossil fuels such as coal and oil

C glucose in plant tissues

D dissolved carbon dioxide in surface ocean water

Understand It with Pulse | Flag a mistake

29 **In a battery that is being used to power a flashlight, energy is converted from**

A electrical to chemical

B light to chemical

C thermal to electrical

D chemical to electrical

Understand It with Pulse | Flag a mistake

30 **Two carts collide on a level track and stick together. In this collision, the quantity that is conserved is**

A speed

B kinetic energy

C force

D momentum

Understand It with Pulse | Flag a mistake

31 **The lithosphere of Earth can best be described as**

- A a liquid layer of molten rock
- B the rigid outer layer of Earth, broken into plates that move
- C a layer of gases surrounding the planet
- D the metallic core at the centre of Earth

Understand It with Pulse | Flag a mistake

32 **In ecology, a community consists of**

- A all the populations of different species living in an area
- B all the members of one species in an area
- C the living and nonliving parts of an environment
- D all the producers in an ecosystem

Understand It with Pulse | Flag a mistake

33 **When blue litmus paper is placed in an acidic solution, it**

A remains blue

B turns red

C turns green

D turns colourless

Understand It with Pulse | Flag a mistake

34 **Which of the following pairs of quantities are both scalar quantities?**

A Speed and distance

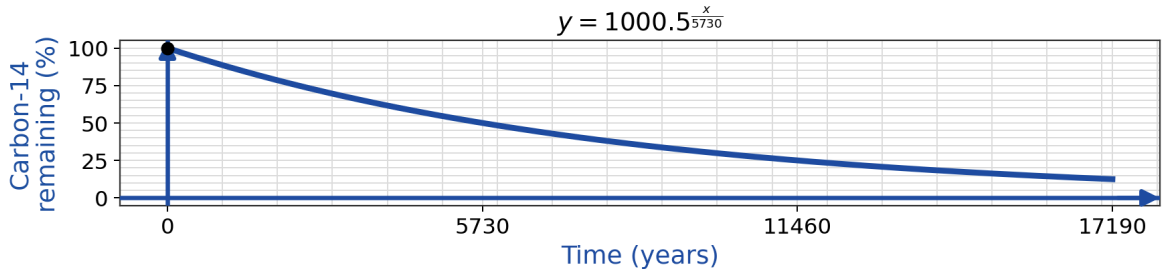
B Velocity and displacement

C Force and acceleration

D Displacement and speed

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35 **The graph shows the percentage of carbon-14 remaining in a sample over time. The percentage remaining after 5730 years is**



A 12.5%

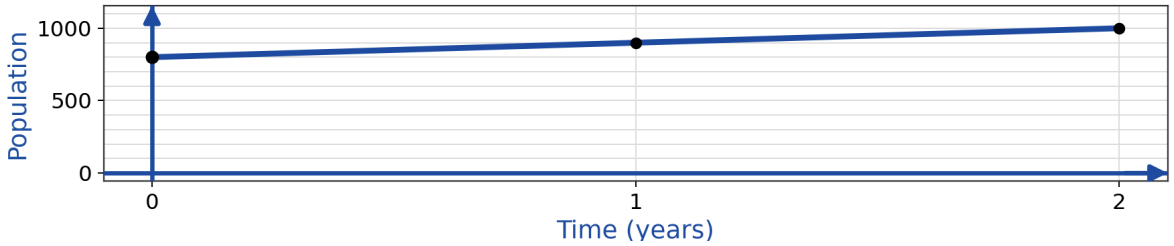
B 25%

C 50%

D 100%

Understand It with Pulse | Flag a mistake

36 **The graph shows a rabbit population over time. The population shown after 2 years is**



A 800

B 900

C 1000

D 1100

Understand It with Pulse | Flag a mistake

37 **Which of the following is an example of oxidation?**

A An iron nail rusting

B Ice melting

C Water boiling

D Sugar dissolving in water

Understand It with Pulse | Flag a mistake

38 **If the net force acting on a moving object is zero, the object will**

A slow down and stop

B speed up

C have to be at rest

D continue moving at a constant velocity

Understand It with Pulse | Flag a mistake

39 **Deforestation increases atmospheric carbon dioxide mainly because it**

A adds more water vapour to the air

B increases the amount of dust in the atmosphere

C warms the soil so that it releases oxygen

D removes trees that would otherwise absorb carbon dioxide during photosynthesis

Understand It with Pulse | Flag a mistake

40 **Which factor is a density-dependent limiting factor for a deer population?**

A a disease spreading through the herd

B a severe winter storm

C a forest fire

D a long drought

Understand It with Pulse | Flag a mistake

41 **Ships protect their steel hulls from rusting by attaching blocks of magnesium to the hull. The magnesium works because it**

A acts as a waterproof paint

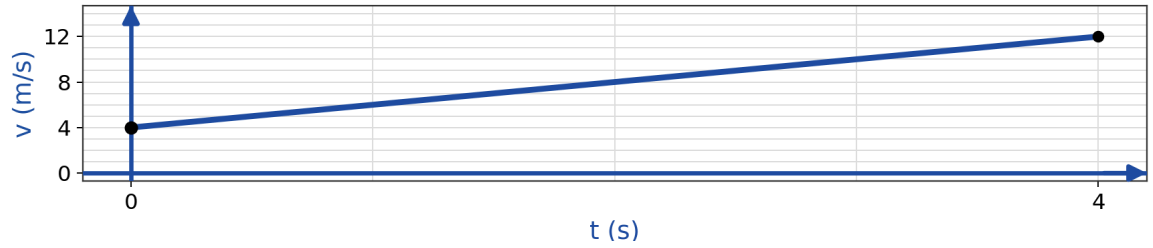
B corrodes more easily than the steel, protecting it

C repels water from the hull

D insulates the steel from the water

Understand It with Pulse | Flag a mistake

42 **The velocity-time graph shows a bicycle speeding up uniformly. The displacement during the first 4 s, in metres, is _____.**



ANSWER _____

Understand It with Pulse | Flag a mistake

43 **Evidence that the continents were once joined into a single landmass comes from the observation that**

A the coastlines of South America and Africa fit together like pieces of a puzzle

B both continents have the same weather today

C the Atlantic Ocean is becoming shallower every year

D the same species of ocean fish live on both coasts today

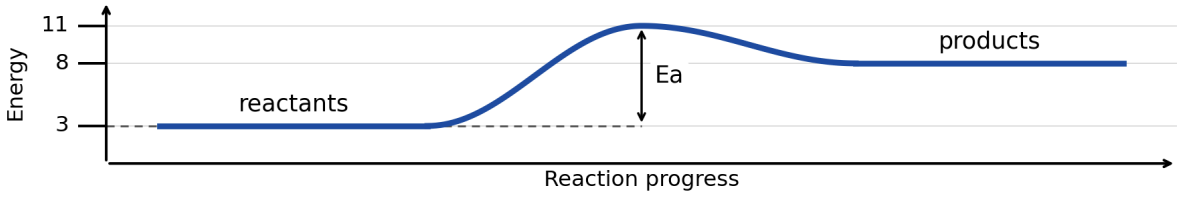
Understand It with Pulse | Flag a mistake

44 **An ecological footprint that is larger than the resources Earth can renew indicates that human activity is**

- **A** unsustainable in the long term
- **B** in balance with nature
- **C** reducing the global population
- **D** restoring biodiversity

Understand It with Pulse | Flag a mistake

45 **The energy diagram shows the energy changes during a reaction. This reaction is**



- **A** exothermic
- **B** endothermic
- **C** a combustion reaction
- **D** a precipitation reaction

Understand It with Pulse | Flag a mistake

46 **The momentum, in kg · m/s, of an 80 kg sprinter running at 9.0 m/s is _____ Record your answer to the nearest whole number.**

ANSWER

Understand It with Pulse | Flag a mistake

47 **Which of the following changes would tend to cool the climate of Earth over long periods of time?**

A More dark ocean surface exposed as ice melts

B Increased snow and ice cover reflecting more sunlight back to space

C Higher concentrations of methane in the atmosphere

D A decrease in the reflectivity, or albedo, of the surface of Earth

Understand It with Pulse | Flag a mistake

48 **Worldwide, the leading cause of species extinction today is**

A natural climate cycles

B habitat destruction and fragmentation

C disease outbreaks in wild populations

D competition between native species

Understand It with Pulse | Flag a mistake

49 **The number of electrons lost when one calcium atom forms a Ca^{2+} ion is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

50 **The kinetic energy, in joules, of a 0.40 kg ball moving at 15 m/s is _____ Record your answer to the nearest whole number.**

ANSWER _____

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	D	**18.**	B	**35.**	C
2.	C	**19.**	A	**36.**	C
3.	C	**20.**	B	**37.**	A
4.	B	**21.**	D	**38.**	D
5.	50	**22.**	C	**39.**	D
6.	C	**23.**	D	**40.**	A
7.	C	**24.**	C	**41.**	B
8.	C	**25.**	4	**42.**	32
9.	D	**26.**	D	**43.**	A
10.	B	**27.**	A	**44.**	A
11.	C	**28.**	B	**45.**	B
12.	B	**29.**	D	**46.**	720
13.	D	**30.**	D	**47.**	B
14.	A	**31.**	B	**48.**	B
15.	A	**32.**	A	**49.**	2
16.	C	**33.**	B	**50.**	45
17.	A	**34.**	A		

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