ALBERTA SCIENCE 10 · 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 **Which of the following is an element?**

- A H_2O
- B CO_2
- C O_2
- D NaCl

Understand It with Pulse | Flag a mistake

2 **Which sequence best describes the energy conversions that take place in a battery-powered flashlight that is switched on?**

- A electrical → chemical → light
- B chemical → electrical → light and thermal
- C thermal → electrical → chemical
- D light → electrical → chemical

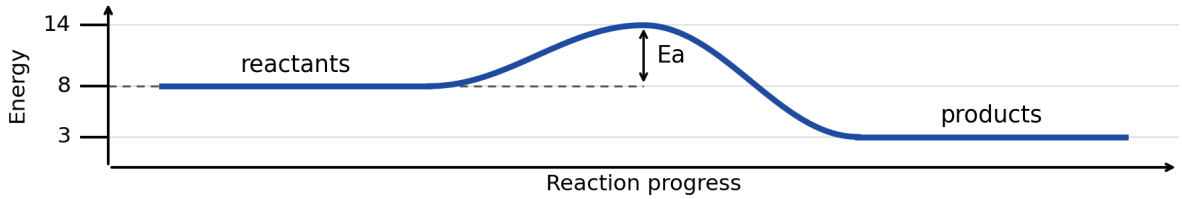
Understand It with Pulse | Flag a mistake

3 **The main role of the cell membrane is to**

- **A** Form a rigid outer support
- **B** Contain the genetic material
- **C** Control the movement of substances into and out of the cell
- **D** Produce proteins

Understand It with Pulse | Flag a mistake

4 **The energy diagram shows the energy changes during a chemical reaction. The reaction is**



- **A** exothermic
- **B** endothermic
- **C** a neutralization reaction
- **D** a decomposition reaction

Understand It with Pulse | Flag a mistake

5 **The kinetic energy of a moving object is calculated using the equation**

A $E_k = mgh$

B $E_k = mv$

C $E_k = \frac{1}{2mh^2}$

D $E_k = \frac{1}{2mv^2}$

Understand It with Pulse | Flag a mistake

6 **Which structure gives a plant cell much of its rigid shape and support?**

A Vacuole

B Chloroplast

C Ribosome

D Cell wall

Understand It with Pulse | Flag a mistake

7 **An atom of sulfur has an atomic number of 16. The number of valence electrons in a sulfur atom is**

A 2

B 16

C 6

D 8

Understand It with Pulse | Flag a mistake

8 **The gravitational potential energy of an object depends on the object's**

A mass and speed

B mass and height above a reference level

C speed and height above a reference level

D speed only

Understand It with Pulse | Flag a mistake

9 **An animal cell is placed in a solution that has a higher solute concentration than the cytoplasm. The most likely result is that**

A Water will enter the cell and the cell will burst

B There will be no net movement of water

C Water will leave the cell and the cell will shrink

D The cell will manufacture salt to balance the concentrations

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10 **Which of the following is a property of ionic compounds?**

A They conduct electricity when molten or dissolved in water

B They conduct electricity in the solid state

C They have low melting points

D They are made up of two nonmetals

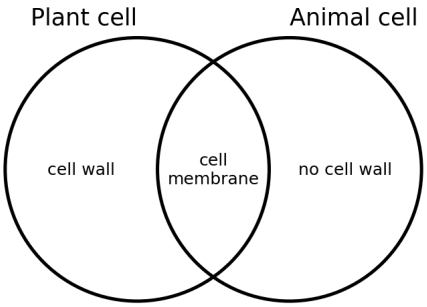
Understand It with Pulse | Flag a mistake

11 **A cart starts from rest and reaches a speed of 24 m/s in 6.0 s. The acceleration of the cart, in metres per second squared, to the nearest tenth, is _____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

12 **The Venn diagram compares a plant cell and an animal cell. The feature shown in the overlap of the two circles is**



A a cell wall

B a cell membrane

C chloroplasts

D a large central vacuole

Understand It with Pulse | Flag a mistake

13 **When the equation $CH_4 + O_2 \rightarrow CO_2 + H_2O$ is balanced, the coefficient in front of O_2 is**

A 1

B 3

C 2

D 4

Understand It with Pulse | Flag a mistake

14 **The efficiency of a device is calculated by**

A dividing the total energy input by the useful energy output

B subtracting the useful energy output from the total energy input

C dividing the total energy input by the time the device operates

D dividing the useful energy output by the total energy input, then multiplying by 100%

Understand It with Pulse | Flag a mistake

15 **Oxygen moves from an air sac in the lung into the blood, where the oxygen concentration is lower. This movement occurs mainly by**

A Facilitated transport powered by ATP

B Endocytosis

C Simple diffusion down a concentration gradient

D Active transport

Understand It with Pulse | Flag a mistake

16 **The reaction $Zn + 2HCl \rightarrow ZnCl_2 + H_2$ is classified as a**

A formation reaction

B decomposition reaction

C double replacement reaction

D single replacement reaction

Understand It with Pulse | Flag a mistake

17 **A 4.0 kg object is moving at a speed of 5.0 m/s. The kinetic energy of the object, in joules, is _____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **Which statement correctly describes transport in a flowering plant?**

A. Xylem transports water and minerals from roots to leaves, while phloem transports sugars from leaves to other parts

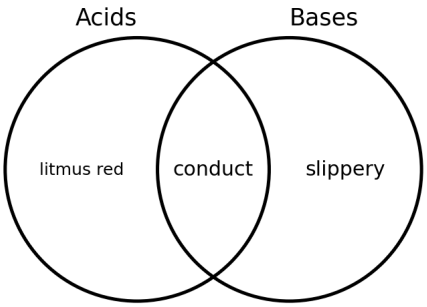
B. Phloem transports water and minerals from roots to leaves, while xylem transports sugars

C. Both xylem and phloem transport only water

D. Xylem transports oxygen, while phloem transports carbon dioxide

Understand It with Pulse | Flag a mistake

19 **The Venn diagram compares acids and bases. The property shared by both acids and bases is that they**



A turn blue litmus paper red

B conduct electricity when dissolved in water

C feel slippery to the touch

D turn red litmus paper blue

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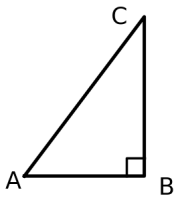
20 **A student walks 30 m east from A to B, then 40 m north from B to C. The diagram shows the path. The magnitude of the displacement from A to C is**



- **A** 10 m
- **B** 70 m
- **C** 50 m
- **D** 120 m

Understand It with Pulse | Flag a mistake

21 **A green plant is kept in darkness overnight. Which process continues in its cells during the night?**

A Photosynthesis accelerates because no light is present

B Cellular respiration continues in the mitochondria

C Diffusion stops because the stomata are in darkness

D Chloroplasts change into mitochondria

Understand It with Pulse | Flag a mistake

22 **When the equation $N_2 + H_2 \rightarrow NH_3$ is balanced using the smallest whole number coefficients, the sum of all the coefficients is _____. Record your answer as a whole number.**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **A lever has an effort arm of 1.2 m and a load arm of 0.30 m. The ideal mechanical advantage of the lever is**

- **A** 0.25
- **B** 2.5
- **C** 6.0
- **D** 4.0

Understand It with Pulse | Flag a mistake

24 **A root hair cell is well adapted for absorbing water and minerals because its**

- **A** Chloroplasts capture sunlight underground
- **B** Interior stores most of the glucose made in the leaves
- **C** Thick cell wall prevents water from entering
- **D** Long extension greatly increases the surface area exposed to the soil

Understand It with Pulse | Flag a mistake

25 **The reaction $2H_2O_2 \rightarrow 2H_2O + O_2$ is classified as a**

A decomposition reaction

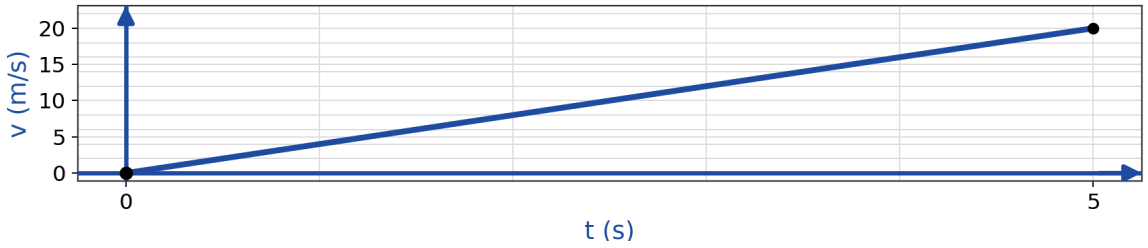
B formation reaction

C combustion reaction

D single replacement reaction

Understand It with Pulse | Flag a mistake

26 **The velocity-time graph shows a car accelerating uniformly. The acceleration of the car is**



A $2.0\ \frac{m}{s^2}$

B $4.0\ \frac{m}{s^2}$

C $5.0\ \frac{m}{s^2}$

D $20\ \frac{m}{s^2}$

Understand It with Pulse | Flag a mistake

27 **Transpiration helps move water through a tall plant because**

A Evaporation of water from the leaves creates a pull that draws water upward through the xylem

B The roots pump sugars into the leaves

C Phloem expands and pushes water upward

D The leaves absorb groundwater directly from the air

Understand It with Pulse | Flag a mistake

28 **When a calcium atom forms an ion, it**

A gains 2 electrons and forms a 2- ion

B loses 1 electron and forms a 1+ ion

C gains 1 electron and forms a 1- ion

D loses 2 electrons and forms a 2+ ion

Understand It with Pulse | Flag a mistake

29 **A machine uses 800 J of energy input and produces 560 J of useful energy output. The efficiency of the machine, as a percentage, is _____.**

ANSWER _____

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30 **At a total magnification of 40× , the diameter of a microscope field of view is 4.0 mm. Assuming the field diameter is inversely proportional to total magnification, the field diameter at 400× , recorded to the nearest tenth of a millimetre, is _____ mm**

ANSWER _____

Understand It with Pulse | Flag a mistake

31 **Solutions of silver nitrate and sodium chloride are mixed together and a white solid forms. The precipitate produced in this double replacement reaction is**

A $NaNO_3$

B $AgNO_3$

C NaCl

D AgCl

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32 **A crane lifts a 50 kg beam 4.0 m at a constant speed. Use g = 9.81 $\frac{m}{s^2}$. The work done by the crane on the beam, in joules, is _____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

33 **Which organelle is the main site of protein production in a cell?**

A Ribosome

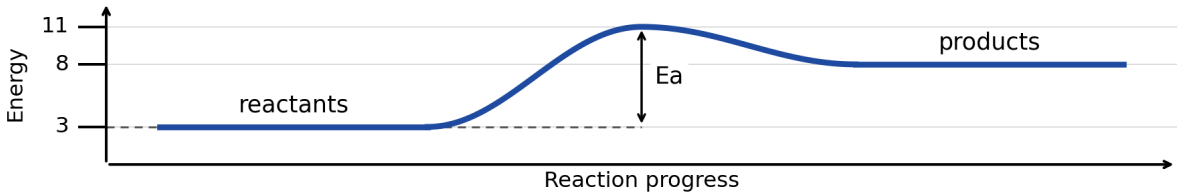
B Vacuole

C Cell wall

D Chloroplast

Understand It with Pulse | Flag a mistake

34 **The energy diagram shows the energy changes as a reaction proceeds. This reaction is classified as**



A a decomposition reaction

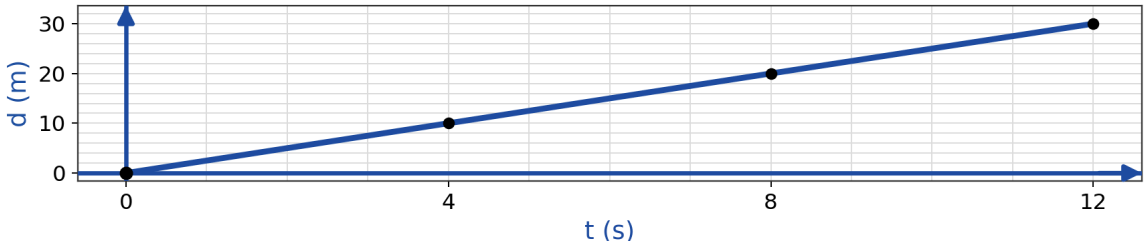
B exothermic

C endothermic

D a neutralization reaction

Understand It with Pulse | Flag a mistake

35 **The distance-time graph shows a cyclist moving at a constant speed. The distance travelled after 8 s is**



- **A** 10 m
- **B** 20 m
- **C** 30 m
- **D** 40 m

Understand It with Pulse | Flag a mistake

36 **Unlike a plant cell, a typical animal cell has**

- **A** A cell wall but no cell membrane
- **B** Neither a cell wall nor a cell membrane
- **C** Both a cell wall and a cell membrane
- **D** A cell membrane but no cell wall

Understand It with Pulse | Flag a mistake

37 **The correct formula for potassium chloride is**

- **A** K_2Cl
- **B** KCl_2
- **C** K_2Cl_2
- **D** KCl

Understand It with Pulse | Flag a mistake

38 **A sprinter runs 200 m in 25 s. The average speed of the sprinter, in metres per second, is _____.**

ANSWER _____

Understand It with Pulse | Flag a mistake

39 **Increasing the temperature of a solution usually increases the rate of diffusion because**

A The particles move faster and collide more often

B The particles become larger

C The membrane becomes completely permeable to every substance

D The concentration gradient disappears

Understand It with Pulse | Flag a mistake

40 **A cleaning solution has its pH changed from 10 to 6. The solution has become _____ times more acidic. Record your answer as a whole number.**

ANSWER _____

Understand It with Pulse | Flag a mistake

41 **A cup of hot chocolate is placed next to a cold metal spoon. Thermal energy will transfer**

- **A** from the warmer object to the cooler object until both reach the same temperature
- **B** from the cooler object to the warmer object until both reach the same temperature
- **C** only if the two objects have the same mass
- **D** in both directions at equal rates at all times

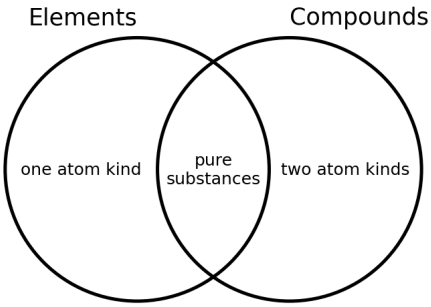
Understand It with Pulse | Flag a mistake

42 **The two substances required for cellular respiration are**

- **A** Carbon dioxide and water
- **B** Oxygen and carbon dioxide
- **C** Glucose and carbon dioxide
- **D** Glucose and oxygen

Understand It with Pulse | Flag a mistake

43 **The Venn diagram compares elements and compounds. The description that applies to both elements and compounds is**



A they contain only one kind of atom

B they are pure substances

C they contain two or more kinds of atoms

D they are mixtures

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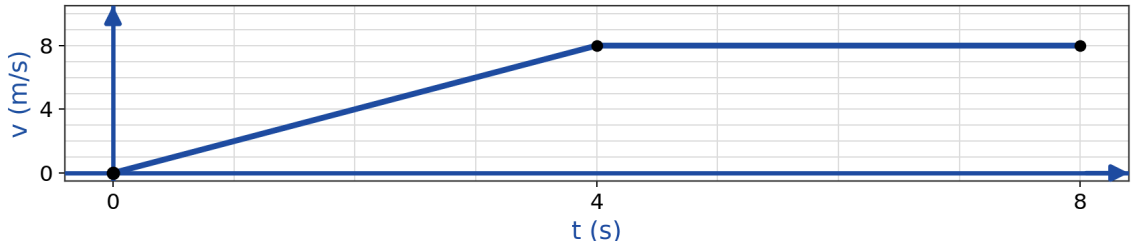
44 **The velocity-time graph shows a ball rolling along a level surface. The displacement of the ball during the first 8 s, in metres, is _____.**



ANSWER

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45 **The waxy cuticle on the surface of a leaf helps the plant by**

A Reducing water loss from the leaf

B Producing seeds

C Absorbing minerals from the air

D Opening and closing the stomata

Understand It with Pulse | Flag a mistake

46 **A strip of magnesium ribbon is burned in air. The white ash that remains has a greater mass than the original ribbon because the magnesium combined with**

- A nitrogen from the air
- B oxygen from the air
- C carbon dioxide from the air
- D hydrogen from the air

Understand It with Pulse | Flag a mistake

47 **A cyclist rides around a circular track at a constant speed. The cyclist is accelerating because**

- A her speed is increasing
- B her speed is decreasing
- C the direction of her velocity is continually changing
- D her mass is continually changing

Understand It with Pulse | Flag a mistake

48 **A student counts the stomata in four microscope fields and records 12, 16, 14, and 18. The mean number of stomata per field, recorded as a whole number, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

49 **The number of oxygen atoms in 2 formula units of $Fe_2(SO_4)_3$ is _____. Record your answer as a whole number.**

ANSWER _____

Understand It with Pulse | Flag a mistake

50 **A roller coaster car moves along a track with very little friction. The car has its greatest gravitational potential energy**

A at the lowest point of the track

B at the highest point of the track

C where it is moving the fastest

D halfway down the first hill

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ANSWER KEY

1. C
2. B
3. C
4. A
5. D
6. D
7. C
8. B
9. C
10. A
11. 4
12. B
13. C
14. D
15. C
16. D
17. 50
18. A
19. B
20. C
21. B
22. 6
23. D
24. D
25. A
26. B
27. A
28. D
29. 70
30. 0.4
31. D
32. 1962
33. A
34. C
35. B
36. D
37. D
38. 8
39. A
40. 10000
41. A
42. D
43. B
44. 48
45. A
46. B
47. C
48. 15
49. 24
50. B

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