QUEBEC SCIENCE AND THE ENVIRONMENT, SECONDARY IV · FINAL EXAM

Final Exam — Practice Test

Quebec Science and the Environment, Secondary IV • 50 questions

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 **A reaction produces 2 moles of product for every 1 mole of reactant used. From 3 moles of reactant, the moles of product formed are**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **A contaminant solution of concentration 100 milligrams per litre and volume 2 litres is diluted to 10 litres. Its new concentration, in milligrams per litre, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **A soil sample of mass 400 kilograms contains 12 kilograms of contaminated material. The contaminated share, in percent, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

4

A water sample contains 120 milligrams of contaminant in 4 kilograms of water. Its concentration, in parts per million, is

ANSWER _____

Understand It with Pulse | Flag a mistake

5

A pond holds 2000 kilograms of water with a contaminant concentration of 30 parts per million. The mass of contaminant, in milligrams, is

ANSWER _____

Understand It with Pulse | Flag a mistake

6

Carbon dioxide in air rises from 300 parts per million to 360 parts per million. The percent increase is

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **A solution with a pH below 7 is**

- A acidic
- B neutral
- C basic
- D saturated

Understand It with Pulse | Flag a mistake

8 **A toxicity threshold is 6 milligrams per kilogram of body mass. For an animal of mass 20 kilograms, the threshold dose, in milligrams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

9 **A water body becomes unsafe for drinking when pollutants degrade water quality to such an extent that its**

- A temperature falls
- B balance is permanently changed
- C colour changes
- D depth increases

Understand It with Pulse | Flag a mistake

10 **The gas used with glucose in respiration to release energy is**

- A nitrogen
- B carbon dioxide
- C helium
- D oxygen

Understand It with Pulse | Flag a mistake

11 **A contaminant that does not break down quickly in an ecosystem is likely to**

A accumulate

B disappear at once

C turn into oxygen

D cool the water

Understand It with Pulse | Flag a mistake

12 **Atmospheric circulation moves contaminants around the globe through**

A soil layers

B ocean trenches

C prevailing winds

D rock fractures

Understand It with Pulse | Flag a mistake

13 **An exothermic reaction releases heat**

A from its surroundings

B to its reactants only

C to its surroundings

D from its products only

Understand It with Pulse | Flag a mistake

14 **An ecosystem is a community of organisms together with its**

A weather station

B soil sample

C abiotic environment

D water filter

Understand It with Pulse | Flag a mistake

15 **In eutrophication, excess nutrients accelerate the growth of**

A algae and other plants

B fish only

C rocks only

D glaciers only

Understand It with Pulse | Flag a mistake

16 **Balancing a chemical equation adjusts the**

A subscripts

B atomic numbers

C coefficients

D charges

Understand It with Pulse | Flag a mistake

17 **A chronic pollutant affects ecosystems over a**

A single day only

B single hour only

C single minute only

D long period

Understand It with Pulse | Flag a mistake

18 **Lakes, waterways and wetlands are dynamic systems whose balance can be permanently changed by**

A large amounts of toxic substances

B small amounts of rain

C clear skies

D cold nights

Understand It with Pulse | Flag a mistake

19 **A lake sample is made by dissolving 72 grams of nitrate in 3 litres of water. Its concentration, in grams per litre, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

20 **A contaminant starts at 3 milligrams per kilogram in algae and multiplies by 10 at each of two steps up a food chain. Its concentration at the top level, in milligrams per kilogram, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

21 **A soil sample of mass 300 kilograms contains 18 kilograms of contaminated material. The contaminated share, in percent, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

22 **A soil extract contains 45 grams of solute in 300 grams of solution. Its concentration, in percent by mass, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **A stream sample has a contaminant concentration of 4 grams per litre and a volume of 50 litres. The mass of contaminant, in grams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **Carbon dioxide in air rises from 280 parts per million to 336 parts per million. The percent increase is**

ANSWER _____

Understand It with Pulse | Flag a mistake

25 **A lake sample is made by dissolving 35 grams of nitrate in 5 litres of water. Its concentration, in grams per litre, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

26 **A contaminant solution of concentration 120 milligrams per litre and volume 5 litres is diluted to 20 litres. Its new concentration, in milligrams per litre, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

27 **A soil sample of mass 200 kilograms contains 14 kilograms of contaminated material. The contaminated share, in percent, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

28 **A soil extract contains 28 grams of solute in 400 grams of solution. Its concentration, in percent by mass, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

29 **A pond holds 4000 kilograms of water with a contaminant concentration of 20 parts per million. The mass of contaminant, in milligrams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

30 **Carbon dioxide in air rises from 300 parts per million to 330 parts per million. The percent increase is**

ANSWER _____

Understand It with Pulse | Flag a mistake

31 **A worker pushes a recycling bin with a force of 18 newtons for 5 metres in the direction of the force. The work done, in joules, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

32 **A toxicity threshold is 8 milligrams per kilogram of body mass. For an animal of mass 15 kilograms, the threshold dose, in milligrams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

33 **During an algal bloom the dissolved oxygen in a pond falls from 11 milligrams per litre to 8 milligrams per litre. The drop, in milligrams per litre, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

34 **When salt dissolves in water to form a solution, the change is a**

A chemical change

B nuclear change

C combustion

D physical change

Understand It with Pulse | Flag a mistake

35 **Bioconcentration is the increase of a substance**

A up a food chain only

B within one organism over time

C in rocks only

D in air only

Understand It with Pulse | Flag a mistake

36 **Oxides of sulphur, carbon and nitrogen from fossil fuel combustion are acid precursors that contribute to**

A acid precipitation

B clean rain

C dry soil

D clear skies

Understand It with Pulse | Flag a mistake

37 **Lewis notation shows the**

A protons in the nucleus

B neutrons in the nucleus

C inner electrons only

D valence electrons of an atom

Understand It with Pulse | Flag a mistake

38 **Data on toxicity thresholds help assess whether a pollutant amount is likely to**

A feed an organism

B harm an organism

C cool an organism

D dry an organism

Understand It with Pulse | Flag a mistake

39 **Soil contamination by persistent organic compounds or heavy metals can**

A increase soil fertility

B reduce soil fertility

C purify groundwater

D cool the climate

Understand It with Pulse | Flag a mistake

40 **A covalent bond forms when atoms**

A transfer electrons

B share protons

C transfer neutrons

D share electrons

Understand It with Pulse | Flag a mistake

41 **In the Science and the Environment program students analyse toxicity**

A only by animal testing

B only by taste

C qualitatively from given data

D without any data

Understand It with Pulse | Flag a mistake

42 **Solid and liquid particulates in contaminated air can affect the**

A digestive system

B respiratory system

C circulatory system

D nervous system

Understand It with Pulse | Flag a mistake

43 **The mole is a unit that counts**

A mass

B particles

C volume

D temperature

Understand It with Pulse | Flag a mistake

44 **Studying ecotoxicology helps students judge the long term impact of human activity on**

A tides only

B wind only

C ecosystems

D clouds only

Understand It with Pulse | Flag a mistake

45 **The main human-caused greenhouse gas is**

A carbon dioxide

B oxygen

C nitrogen

D argon

Understand It with Pulse | Flag a mistake

46 **When more ions are present in a solution, its electrical conductivity usually**

- A decreases
- B stays the same
- C increases
- D disappears

Understand It with Pulse | Flag a mistake

47 **The toxicity of a contaminant also depends on the nature of the**

- A rocks nearby
- B organisms exposed
- C clouds above
- D season of sampling

Understand It with Pulse | Flag a mistake

48 **Runoff water carries nutrients at 3 grams per m^3 into a pond of volume 80 m^3. The nutrient mass added, in grams, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

49 **Use the specific heat capacity of water as 4.19 joules per gram per degree Celsius. A sample of 300 grams of water warms by 10 degrees Celsius. The heat absorbed, in joules, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

50 **The toxicity threshold is the smallest amount of a contaminant that**

A causes no effect

B purifies water

C feeds a plant

D causes a harmful effect

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	6	**18.**	A	**35.**	B
2.	20	**19.**	24	**36.**	A
3.	3	**20.**	300	**37.**	D
4.	30	**21.**	6	**38.**	B
5.	60000	**22.**	15	**39.**	B
6.	20	**23.**	200	**40.**	D
7.	A	**24.**	20	**41.**	C
8.	120	**25.**	7	**42.**	B
9.	B	**26.**	30	**43.**	B
10.	D	**27.**	7	**44.**	C
11.	A	**28.**	7	**45.**	A
12.	C	**29.**	80000	**46.**	C
13.	C	**30.**	10	**47.**	B
14.	C	**31.**	90	**48.**	240
15.	A	**32.**	120	**49.**	12570
16.	C	**33.**	3	**50.**	D
17.	D	**34.**	D		

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