

# Plate tectonics and data page



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Science 10 Examination Booklet 2011/12 Released Exam for T/S Form A DO NOT OPEN ANY EXAMINATION MATERIALS UNTIL INSTRUCTED TO DO SO.

Examination Instructions 1. On your Answer Sheet, fill in the bubble (Form A, B, C, D, E, F, G or H) that corresponds to the letter on this Examination Booklet. 2. Use a pencil to fill in bubbles when answering questions on your Answer Sheet. 3. When the examination begins, remove the data pages located in the centre of this booklet. 4. Read the Examination Rules on the back of this booklet. Contents: 41 pages 80 selected-response questions

Examination: 2 hours Additional Time Permitted: 60 minutes © Province of British Columbia Suggested Time: 120 minutes INSTRUCTIONS: For each question, select the best answer and record your choice on the Answer Sheet provided. Using a pencil, completely fill in the bubble that has the letter corresponding to your answer. You have Examination Booklet Form A. In the box above #1 on your Answer Sheet, fill in the bubble as follows. Exam Booklet Form/ A Cahier d'examen B C D E F G H LIFE SCIENCE SUSTAINABILITY OF ECOSYSTEMS REFER TO DATA PAGES

For this section of the examination, refer to: • Names, Formulae and Charges of Some Polyatomic Ions on Data Page 5 • The Carbon Cycle on Data Page 8 • The Phosphorus Cycle on Data Page 9 • Biomes of the World on Data Page 10 • The Nitrogen Cycle on Data Page 11 Use the following diagram to answer question 1. sun ‡ air ‡ water ‡ herbivores producers carnivores detrivores 1. Which of the following terms describes the sun, air and water in the diagram shown above? A. B. C. D. biotic factors trophic levels abiotic factors bioaccumulation Science 10 – 2011/12 Released Form A

Page 1 2. Which of the following animals is an omnivore? A. B. C. D. 3. Which of the following terms is an abiotic factor that is a limited resource within deep water marine ecosystems? A. B. C. D. light prey food photosynthesis

Page 2 Science 10 - 2011/12 Released Form A 4. Detritivores are organisms that A. B. C. D. are parasites. photosynthesize. feed on producers. feed on plant and animal remains. Use the following information to answer question 5. In the relationship illustrated above, the birds are known for preying on parasites that feed on the hippopotamus.

The hippopotamus allows the birds to safely hunt on its body and in its mouth. From the bird's point of view, this relationship not only provides a ready source of food but also a safe place to eat considering that few predators would dare strike a bird in such close proximity to a hippopotamus. Adapted from an excerpt, " Examples of symbiosis in action," www. wordinfo.

info. 5. What relationship exists between the birds and the hippopotamus? A. B. C. D. predation mutualism parasitism commensalism Science 10 - 2011/12 Released Form A www. wordinfo. info Page 3

Use the following food web to answer question 6. cougar wolf hawk 6. What do the cougar, wolf and hawk all have in common with one another? A. B. C. D. They all hunt deer. They are all parasites. They are all predators. They have a mutualistic relationship. Page 4 Science 10 - 2011/12 Released Form A 7. What process directly converts atmospheric nitrogen,  $N_2$ , into a form that plants can use? A. B. C. D. denitrification sedimentation nitrogen fixation leeching and runoff 8. Which of the following events has the greatest difference between carbon released and carbon stored each year?

A. B. C. D. growth and decay of plant life change in land use for agriculture  
 gas exchange at the surface of the ocean circulation of intermediate and  
 deep ocean water 9. Which of the following relationships is an example of  
 oxygen and carbon dioxide exchange? A. B. C. D. Herbivores use carbon  
 dioxide and produce oxygen. Top predators use oxygen and produce carbon  
 dioxide. Microbes and worms add oxygen to the atmosphere and remove  
 carbon dioxide. Fossil fuel combustion adds oxygen to the atmosphere and  
 removes carbon dioxide. Science 10 - 2011/12 Released Form A Page 5

Use the following diagram to answer questions 10 and 11. 90° Tundra Arctic  
 Boreal forest Subarctic X Forest Temperate Grassland Rainforest Grassland  
 0° Wet Desert Equatorial Y Dry 10. Which of the following factors describes  
 the change represented by the direction of arrow X ? I II III A. B. C. D. I only II  
 only III only I, II and III increasing latitude increasing temperature increasing  
 precipitation 11. Which of the following factors describes the change  
 represented by the direction of arrow Y ? A. B. C. D. increasing latitude  
 decreasing precipitation decreasing temperature increasing diversity in life  
 forms

Page 6 Science 10 - 2011/12 Released Form A Use the following photograph  
 and map to answer question 12. A C B D 12. Where would you expect to find  
 the biome shown in the photograph? A. B. C. D. A B C D Science 10 -  
 2011/12 Released Form A © Steve Bowman / corbis. com Page 7 Use the  
 following graph and information to answer questions 13 and 14. Causes of  
 Deforestation in the Amazon, 2000-2005 Fires, mining, urbanization, road  
 construction, dams, 3% Logging, legal and illegal, 3% Large-scale,

commercial agriculture, 1% Small-scale, subsistence agriculture, 33% Cattle ranches, 60%

The Amazon rainforest is a major player in the amount of carbon dioxide that is removed from the atmosphere. However, deforestation, which provides grazing land for cattle ranches, reduces the number of trees that help to rid the atmosphere of carbon dioxide and other greenhouse gases. Furthermore, the practice of burning to clear woodland leads to a massive release of carbon dioxide into the atmosphere during combustion. Deforestation of the Amazon rainforest leads not only to a reduction of the amount of carbon dioxide taken out of the atmosphere, but also to an increased release of carbon dioxide into the atmosphere.

Plant growth provides a crucial sink for carbon absorption. Graphic: [www.mongabay.com](http://www.mongabay.com) 13. What is the major reason for deforestation in the Amazon? A. B. C. D. logging forest fires agriculture cattle ranches 14. How does deforestation in the Amazon contribute to an increase in the level of carbon dioxide in the atmosphere? I II III A. B. C. D. Page 8 It increases the rate of photosynthesis. It removes plants that act as carbon sinks. It releases carbon dioxide into the atmosphere through combustion. I and II only I and III only II and III only I, II and III

Science 10 - 2011/12 Released Form A Use the following diagram to answer question 15. bird lizard cricket grass Trophic Levels 15. In which of the following organisms would biomagnification result in the highest concentration of pesticides? A. B. C. D. bird lizard cricket grass Use the following cartoon to answer question 16. Now that's what I'm talking about!

16. On which of the following concepts is the cartoon based? A. B. C. D.  
extinction symbiosis natural selection ecological succession  
Science 10 - 2011/12 Released Form A evolution. berkeley. edu

Page 9 Use the following article to answer question 17. Quarter of Mammals  
“ Face Extinction” Siberian tigers may vanish within three decades. The  
destruction of habitats and the introduction of foreign species from one part  
of the world to another are blamed for the loss of biodiversity. More than 11  
000 endangered animal and plant species are facing extinction—including  
more than 1000 mammals, nearly a quarter of the world’s total. The species  
likely to vanish within three decades include the black rhinoceros, the  
Siberian tiger and the Asian Amur leopard.

All of the factors which have led to the extinction of species in recent  
decades have intensified. The encroachment of human settlement into  
wilderness regions, rainforest and wetlands destruction, and the impact of  
industry have had a dramatic impact on the survival of threatened animals  
and plants. Adapted from an article by Corinne Podger, “ Quarter of  
mammals face extinction,” BBC News, May 21, 2002. Photograph: news. bbc.  
co. uk 17. According to the article, which of the following factors led to the  
extinction of plant and animal species on the planet? I II III A. B.

C. D. I and II only I and III only II and III only I, II and III destruction of  
rainforests and wetlands the removal of foreign species from an ecosystem  
destruction of habitats due to the impact of industry Page 10 Science 10 -  
2011/12 Released Form A Use the following article to answer question 18. In  
the spring, deciduous trees begin producing thin, broad, light-weight leaves.

This type of leaf structure easily captures the sunlight needed for food production (photosynthesis). The broad leaves are beneficial when temperatures are warm and there is plenty of sunlight.

However, when temperatures are cold, the broad leaves expose too much surface area which can lead to water loss and tissue damage. To help prevent this damage from occurring, deciduous trees have internal and physical adaptations that are triggered by seasonal changes. Adapted from an excerpt, "Forest Adaptations," [www.rbcarlton.com](http://www.rbcarlton.com). 18. What physical adaptation of deciduous trees is triggered by cooler temperatures? A. B. C. D. Leaves turn green. Trees drop their leaves. Photosynthesis increases. Leaves become needle-like. 19.

Which of the following organisms would be the most likely to first colonize a rocky and barren terrestrial environment? A. B. C. D. grasses coniferous trees lichens and mosses deciduous shrubs and trees Science 10 - 2011/12 Released Form A Page 11 Use the following article to answer questions 20 to 22. If Trees Are Masked by the Wrong Scent, Can Beetles Find Them? The Douglas-fir beetle and the mountain pine beetle may soon be outwitted through the magic of chemistry. Both insects cause havoc in BC forests, damaging fir and pine trees. Beetles tunnel into the bark of trees to lay their eggs. They find the trees they're interested in by scent.

Trees release distinct scents into the air, and the beetles are experts at following them. Beetles tunnelling into the bark of the trees gradually circle all around the tree trunk, through the bark. Once the bark is damaged, the flow of water and nutrients from the roots to the needles is disrupted,

causing the death of the tree. Scientists plan to mask the trees with scents from other types of trees that don't interest the beetles. This way, the beetles won't recognize their host trees. If they can't detect them, they'll leave them alone. Researchers are testing scent compounds to see which work best at fooling the determined beetles.

Single test trees have been successfully protected by "the wrong" scent. Hopefully, in the near future, large stands of trees may be protected.

Adapted from a news release issued by Simon Fraser University, "SFU Researcher Fools Forest Pest into 'Barking up the Wrong Tree'," December 2, 1997. 20. Which of the following statements are supported by the article? I

II III A. B. C. D. Beetles choose trees by scents the trees release. Beetles lay their eggs in the bark of fir and pine trees. Beetles mark trees with their scent, attracting other beetles to the tree. I and II only I and III only II and III

only I, II and III 1. What is the relationship between the beetles and the fir trees? A. B. C. D. parasitism mutualism decomposer commensalism Page 12

Science 10 - 2011/12 Released Form A 22. What method of pest control could cause the most harm to the environment? A. B. C. D. introducing a new species to prey on the beetles using traps with fir or pine scents to attract the beetles breeding new varieties of fir and pine trees that are resistant to the pests disguising fir and pine trees with scents from other trees to fool the beetles PHYSICAL SCIENCE CHEMICAL REACTIONS REFER TO DATA PAGES

For this section of the examination, refer to: • Periodic Table of the Elements on Data Page 2 • pH Scale on Data Page 3 • Alphabetical Listing of the Elements on Data Page 4 • Names, Formulae and Charges of Some Polyatomic Ions, Names and Formulae of Common Acids, and Prefixes on

<https://assignbuster.com/plate-tectonics-and-data-page/>



Data Page 5 23. Which of the following comparisons describes a proton?

Charge A. B. C. D. none positive positive negative Location in the nucleus in the nucleus outside the nucleus outside the nucleus

24. Which of the following elements exists naturally as a covalently bonded molecule? A. B. C. D. gold helium sodium bromine

Science 10 - 2011/12 Released Form A Page 13 Use the following Bohr

diagram to answer question 25. 9p 10n 25. The Bohr diagram represents A.

B. C. D. a sodium ion. a fluoride ion. a helium atom. a fluorine atom. Use the

following Bohr model to answer question 26. 1p 8p 8n 1p 26. What molecule is illustrated above? A. HCl B. H<sub>2</sub>S C. H<sub>2</sub>O D. BeH<sub>2</sub> Page 14 Science 10 -

2011/12 Released Form A 27. An atom of phosphorus has how many valence electrons? A. 1 B. 3 C. 5 D. 15 28. An atom of which of these elements has

the most unpaired electrons? A. B. C. D. neon boron fluorine hydrogen

Use the following Lewis diagram to answer question 29. ? 29. The Lewis

diagram above represents either A. B. C. D. a helium atom or a lithium ion. a neon atom or a fluorine atom. an argon atom or a sulphide ion. a potassium

atom or a calcium ion. 30. How are lone pairs and bonding pairs of electrons similar? A. B. C. D. Both have no charge. Both form ionic bonds. Both form

covalent bonds. Both are valence electrons. Science 10 - 2011/12 Released

Form A Page 15 31. The water from the Great Salt Lake in Utah has the

following effects on acid-base indicators: • Indigo carmine turns blue.

Phenolphthalein turns pink. • Bromthymol blue turns blue. What is its pH? A.

8 B. 10 C. 12 D. 14 32. What colour would bromthymol blue turn in acetic

acid? A. B. C. D. red blue yellow colourless 33. Which of the following

substances, when dissolved in rainwater, cause acid precipitation? A. B. C. D.

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alkali metals metal oxides non-metal oxides alkaline earth metals 34. What is the chemical formula for ammonium oxide? A.  $\text{Al}_2\text{O}_3$  B.  $\text{Am}_2\text{O}_3$  C.  $\text{NH}_4\text{O}$  D.  $(\text{NH}_4)_2\text{O}$  Page 16 Science 10 - 2011/12 Released Form A 35. What is the name of the compound represented by the formula  $\text{Cu}(\text{HCO}_3)_2$ ? A. B. C. D. copper carbonate copper bicarbonate copper(II) carbonate copper(II) bicarbonate 36. What is the written expression for the  $\text{Cr}^{2+}$  ion? A. B. C. D. chromium chromium(I) chromium(II) chromium(IV) 37. When  $\text{Rh}^{4+}$  combines with  $\text{PO}_4^{3-}$ , what is the name of the compound that is formed? A. B. C. D. rhodium phosphate rhodium phosphide rhodium(IV) phosphide rhodium(IV) phosphate 38. What is the formula for the compound dinitrogen pentoxide? A. B. C. D.  $\text{NO}_4$   $\text{NO}_5$   $\text{N}_2\text{O}_4$   $\text{N}_2\text{O}_5$  Science 10 - 2011/12 Released Form A Page 17 39. Which of the following compounds is inorganic? A.  $\text{HCl}$  B.  $\text{CH}_3\text{OH}$  C.  $\text{CH}_3\text{CH}_3$  D.  $\text{HCl}_2$   $\text{C}_2\text{F}_2$   $\text{H}$

Use the following diagram of an experiment to answer question 40.  $\text{NaCl}$  solution  $\text{CaCl}_2$  solution  $\text{Na}_2\text{SO}_4$  solution  $\text{CaSO}_4$  white solid 300. 23 g Reactants 300. 23 g Products 40. What is demonstrated by the procedure shown in the illustration? A. B. C. D. the neutralization of an acid with a base the conservation of mass during a chemical change the effect of a catalyst on the rate of a chemical reaction the effect of surface area in a double replacement reaction Page 18 Science 10 - 2011/12 Released Form A 41. Which of the following molecular diagrams shows the balanced reaction as hydrogen and oxygen combine to produce water?

Legend: hydrogen atom oxygen atom A. B. C. D. Science 10 - 2011/12

Released Form A Page 19 42. What coefficient is needed for  $\text{I}_2$  in order to balance the equation?  $\_\_\_ \text{N}_2 + \_\_\_ \text{I}_2 \rightarrow \_\_\_ \text{NI}_3$  A. B. C. D. 1 2 3 4 43. Which

set of ordered coefficients balances the equation shown below?  $\underline{\quad} \text{KHCO}_3 + \underline{\quad} \text{H}_3\text{PO}_4 > \underline{\quad} \text{K}_3\text{PO}_4 + \underline{\quad} \text{H}_2\text{O} + \underline{\quad} \text{CO}_2$  A. B. C. D. 3, 1, 3, 1, 3, 3, 1,

1, 1, 3, 3, 1, 1, 3, 1, 3, 1, 1, 3, 3 44. What type of reaction is represented by the equation?  $2 \text{C}_8\text{H}_{18} + 25 \text{O}_2 > 18 \text{H}_2\text{O} + 16 \text{CO}_2$  A. B. C. D. synthesis combustion decomposition single replacement Page 20 Science 10 - 2011/12

Released Form A 5. When sodium hydroxide reacts with hydrogen phosphate, two products are formed. You may wish to write the chemical equation in the box provided. What two products are formed? A. B. C. D.

$\text{NaOH}$  and  $\text{H}_2\text{O}$   $\text{Na}_3\text{PO}_4$  and  $\text{H}_2\text{O}$   $\text{NaOH}$  and  $\text{H}_3\text{PO}_4$   $\text{Na}_3\text{PO}_4$  and  $\text{P}(\text{OH})_3$  46. Karen notices that cupcake recipes always have shorter cooking times

than larger cakes. Which of the following factors accounts for this observation? A. B. C. D. presence of a catalyst increased surface area increased temperature increased concentration Science 10 - 2011/12

Released Form A Page 21 PHYSICAL SCIENCE RADIOACTIVITY REFER TO DATA PAGES

For this section of the examination, refer to: • Periodic Table of the Elements on Data Page 2 • Alphabetical Listing of the Elements on Data Page 4 • Common Isotope Pairs Chart and Radioactivity Symbols on Data Page 12 47.

Which of the following choices represents an isotope? A. B. C. D.  $\text{H}_2$  plutonium potassium-40 silver sulphide 48. A rock sample originally contained 8 g of U-235 but now contains only 2 g of U-235. How old is the rock? A. 710 Ma B. 1420 Ma C. 2130 Ma D. 2840 Ma Page 22 Science 10 -

2011/12 Released Form A Use the following diagram of nuclear reactions in a Red Giant star to answer question 49. s converted to helium and converted to isocyanide. Helium. Solid carbon. 49. What type of reactions

provide energy within a Red Giant star? A. B. C. D. fusion fission beta decay alpha decay

Science 10 - 2011/12 Released Form A Page 23 Use the

following information to answer question 50.  ${}_{83}^{214}\text{Bi} \rightarrow {}_{84}^{214}\text{Po} + ?$  50.

Which of the following decay products could complete the nuclear equation?

I II III A. B. C. D. I only II only I and II only I, II and III 0 ? 1? 0 ? 1 e 4 2? 51.

Which reaction occurs when an alpha particle is captured by a beryllium-9

nucleus? A. B. C. D.  ${}_{4}^{9}\text{Be} + {}_{2}^{4}\text{He} \rightarrow {}_{6}^{12}\text{C} + {}_{0}^{1}\text{n}$   ${}_{4}^{9}\text{Be} + {}_{2}^{4}\text{He} \rightarrow {}_{6}^{12}\text{C} + {}_{0}^{1}\text{n} + {}_{2}^{4}\text{He}$   ${}_{4}^{9}\text{Be} + {}_{2}^{4}\text{He} \rightarrow {}_{6}^{12}\text{C} + {}_{0}^{1}\text{n} + {}_{2}^{4}\text{He}$   ${}_{4}^{9}\text{Be} + {}_{2}^{4}\text{He} \rightarrow {}_{6}^{12}\text{C} + {}_{0}^{1}\text{n} + {}_{2}^{4}\text{He}$

${}_{4}^{9}\text{Be} + {}_{2}^{4}\text{He} \rightarrow {}_{6}^{12}\text{C} + {}_{0}^{1}\text{n}$   ${}_{4}^{9}\text{Be} + {}_{2}^{4}\text{He} \rightarrow {}_{6}^{12}\text{C} + {}_{0}^{1}\text{n} + {}_{2}^{4}\text{He}$   ${}_{4}^{9}\text{Be} + {}_{2}^{4}\text{He} \rightarrow {}_{6}^{12}\text{C} + {}_{0}^{1}\text{n} + {}_{2}^{4}\text{He}$   ${}_{4}^{9}\text{Be} + {}_{2}^{4}\text{He} \rightarrow {}_{6}^{12}\text{C} + {}_{0}^{1}\text{n} + {}_{2}^{4}\text{He}$

n Page 24 Science 10 - 2011/12 Released Form A PHYSICAL SCIENCE

MOTION REFER TO DATA PAGES For this section of the examination, refer to:

- Units and Abbreviations and Equations of Motion on Data Page 12 52. In

which of the following situations is the displacement the greatest? A. 2m B.

2m 2m C. 2m 2m 2m D. 2m 2m 2m 2m Use the following information to

answer question 53. distance is to displacement as speed is to ? 53. Which of

the following terms completes the comparison? A. B. C. D. ime velocity

acceleration displacement Science 10 - 2011/12 Released Form A Page 25

Use the following position-time graph showing the motion of an object to

answer question 54. Position (m) I II Time (s) 54. Which of the following

statements correctly compares the motion of the object during time intervals

I and II on the graph? A. During both intervals, the object travels the same

distance. B. During both intervals, the object is travelling the same velocity.

C. During interval I , the object is travelling faster than in interval II . D.

During interval II , the object travels a greater distance than in interval I .

Page 26 Science 10 - 2011/12 Released Form A Use the following graphical

representation of a swimmer to answer question 55. 1600 1400 1200

Position (m) D C B A 100 Time (s) 200 300 1000 800 600 400 200 0 55.

Which part of the graph shows the swimmer resting for 100 s? A. B. C. D. A B

C D 56. A family on vacation drove 200 km in two hours and then travelled only 40 km during the next hour due to a construction zone. What was the family's average velocity during the trip? A. B. C. D. 40 km 70 km 80 km 120

km h h h h Science 10 - 2011/12 Released Form A Page 27 57. Which of the following units is associated with the  $\Delta$  symbol in motion formulae? A. s B. C.

m ms D. m s 2 58. A mosquito flies at 4 m/s covering a distance of 5 m. What calculation determines the time interval? A. B. C. D.  $t = \frac{5\text{m}}{4\text{m/s}}$   $t = \frac{4\text{m}}{5\text{m/s}}$   $t = \frac{5\text{m}}{4\text{m/s}}$   $t = \frac{4\text{m}}{5\text{m/s}}$

59. Light travelling at 300 000 km/s takes about 8 minutes to travel from the sun to the earth. What is the distance from the sun to the earth? A. B. C. D. 37 500 km 225 000 km 2 400 000 km 144 000

000 km Page 28 Science 10 - 2011/12 Released Form A Use the following position vs. time graph for an object travelling in a straight line to answer question 60. Position Time 60.

Which of the following conditions is represented by the graph? A. B. C. D.

uniform motion zero acceleration constant velocity increasing velocity 61. A car moving at +15 m/s pulls onto the highway and accelerates at +1.2 m/s<sup>2</sup> for 8.2 s. What is its final velocity? A. +9.8 m/s B. +16.2 m/s C. +20.7 m/s

D. +24.8 m/s Science 10 - 2011/12 Released Form A Page 29 62. Which of the following graphs represents an object with a positive uniform

acceleration? A. Velocity B. Velocity Time C. Velocity Time

Time Page 30 Science 10 - 2011/12 Released Form A Use the following diagram to answer question 63. 30 km/h 63.

Which of the following graphs shows a car travelling at a constant velocity of +50 km/h, then slowing down to +30 km/h as it enters a school zone? A.

Position (km) d 50 40 30 20 10 0 v 50 Velocity (km/h) Time (h) t B. 40 30 20

10 0 Time (h) t C. Position (km) d 50 40 30 20 10 0 Time (h) t D. v 50

Velocity (km/h) 40 30 20 10 0 Time (h) t Science 10 - 2011/12 Released

Form A Page 31 64. Which of the following situations describes a positive

acceleration? A. B. C. D. a book resting on a desk top a car braking as it approaches a stop sign a speed skater going from rest to 10 m/s in 5 s a

skier sliding down a slope with constant velocity 5. At a safety-testing

facility, a car travelling +30 m/s is brought to rest in 0.5 s. What is the

acceleration of the car during this interval? A. ? 15 m/s<sup>2</sup> B. C. +15 m/s<sup>2</sup> ?

60 m/s<sup>2</sup> D. +60 m/s<sup>2</sup> The following photograph shows astronaut Buzz Aldrin

as he walked on the surface of the moon in 1969. 66. On the surface of the

moon, the acceleration due to gravity is ? 1. 6 m/s<sup>2</sup>. If a ball is thrown

upward at +20 m/s, how long does it take for the ball to reach a velocity of 0

m/s before falling back to the surface of the moon? A. 0.08 s B. 12.5 s C. 20

s D. 32 s Page 32 Science 10 - 2011/12 Released Form A

Photo by: Neil Armstrong. © 1969 National Geographic. Use the following

velocity vs. time graph showing the motion of a gazelle to answer question

67. +30 Velocity (m/s) +20 +10 0 0 -10 -20 -30 Time (s) 5 10 15 20 25 30

35 67. What is the gazelle's change in velocity from 15 s to 25 s? A. ? 40 m/s

B. ? 4 m/s C. 0 m/s D. +40 m/s EARTH AND SPACE SCIENCE PLATE TECTONICS

REFER TO DATA PAGES For this section of the examination, refer to: • Map of

the Pacific Coast of North America on Data Page 6 • World Tectonic Plate

Boundaries Map on Data Page 7 68. At which of the following locations is a spreading ridge most likely to occur?

A. B. C. D. an ocean-ocean divergent plate boundary an ocean-ocean convergent plate boundary a continent-continent transform plate boundary a continent-continent convergent plate boundary Science 10 - 2011/12

Released Form A Page 33 69. Which of the following statements correctly compares the Earth's crust to its mantle? A. B. C. D. It is thicker and denser than the mantle. It is thinner and denser than the mantle. It is thicker and less dense than the mantle. It is thinner and less dense than the mantle. Use

the following illustration of the interior of a recently discovered planet to answer question 70. crust solid mantle liquid core 70. Which of the following seismic waves could be used to determine the depths of the solid mantle and liquid core of this planet? I II III A. B. C. D. II only I and II only I and III only II and III only surface waves primary waves secondary waves Page 34 Science

10 - 2011/12 Released Form A Use the following series of map diagrams for the Pacific Coast of North America to answer question 71. 30 million years ago 20 million years ago Pacific Plate 10 million years ago present JUAN DE FUCA PLATE FARALLON PLATE PACIFIC PLATE NORTH AMERICAN PLATE 71. Which of the following processes accounts for the absence of the Farallon Plate in the final diagram? A. B. C. D. The Farallon Plate moved west along a transform fault. The Farallon Plate collided with the Pacific Plate, forming a larger oceanic plate. The Farallon Plate

NORTH AMERICAN PLATE NORTH AMERICAN PLATE NORTH AMERICAN PLATE FARALLON PLATE Rivera Plate Trench COCOS PLATE Trench COCOS PLATE Trench COCOS PLATE Trench 71. Which of the following processes accounts

for the absence of the Farallon Plate in the final diagram? A. B. C. D. The Farallon Plate moved west along a transform fault. The Farallon Plate collided with the Pacific Plate, forming a larger oceanic plate. The Farallon Plate

subducted beneath the Pacific Plate and parts of it were renamed. The Farallon Plate subducted beneath the North American Plate and parts of it were renamed. Science 10 - 2011/12 Released Form A

NORTH AMERICAN PLATE Pacific Plate Pacific Plate Pacific Plate Pacific Plate

Page 35 Use the following map of South America to answer question 72. P Q

72. What tectonic feature is found in the region from P to Q? A. B. C. D. hot spot rift valley subduction zone transform fault zone 73. Which pair of symbols indicate the presence of a subduction zone? A. and B. and C. and D.

and Page 36 Science 10 - 2011/12 Released Form A Use the following block diagram of a continental-continental convergent plate boundary to answer question 74. an nr ge M nta ou i H pla igh tea u Continental crust Continental crust

crust 4243 14243 Lithosphere Lithosphere Asthenosphere Ancient oceanic crust

74. Which of the following locations is most closely associated with the type of tectonic activity illustrated in the diagram? A. B. C. D. Himalayas East Pacific Rise Cascade volcanoes Yellowstone hot spot

75. Which of the following thermal energy sources are responsible for producing mantle convection? I II III A. B. C. D. I and II only I and III only II and III only I, II and III

decay of radioactive isotopes heat left over from Earth's formation friction from tectonic plate movement Science 10 - 2011/12 Released Form A Page

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Use the following detail map of the East African Rift Zone to answer question

76. EURASIAN PLATE Nile River AFRICA AFRICAN PLATE Atlantic Ocean f Gulf o Aden ARABIAN PLATE LEGEND Volcano Plate boundaries East African Rift Zone

76. What will occur near the Gulf of Aden as the tectonic activity within the East African Rift Zone continues? A. B. C. D. Sea water will flood the East

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African Rift Zone. A subduction zone will form along the Gulf of Aden.

Volcanic activity in the East African Rift Zone will stop. The Arabian Plate will move south along transform faults. Page 38 Science 10 - 2011/12 Released Form A

Use the following map of the Ring of Fire to answer question 77. O F G I Japan Trench R Phillipine Trench N Aleutian Trench F I R E Marianas Trench Middle America Trench Java Trench Tonga Trench Peru-Chile Trench 77. Which of the following processes forms the trenches which outline the Ring of Fire? A. B. C. D. hot spot formation divergence of oceanic crust subduction of continental crust subduction of an oceanic plate Science 10 - 2011/12

Released Form A Page 39 Use the following map of hot spot chains to answer question 78. Hawaii Pitcairn Macdonald Easter LEGEND hot spot chain of volcanoes 78.

Which of the following geological processes causes apparent opposing motion of the Macdonald and Easter Islands hot spots? A. B. C. D. ridge push at the East Pacific Rise slab pull at the Eastern edge of the Pacific Plate divergence of the North America Plate and the Pacific Plate mantle magma rising at several locations along the hot spot island chain 79. Alfred Wegener's Continental Drift Theory was based on which of the following observations? I II III IV A. B. C. D. Page 40 fossil distribution jigsaw puzzle fit of continents matching up of mountain ranges magnetic reversals in the ocean crust

I and II only II and III only I, II and III only I, II, III and IV Science 10 - 2011/12 Released Form A Use the following diagram to answer question 80. Mid-

ocean ridge X Lithosphere Magma Y 80. Ocean crust X is younger than ocean crust Y . A. The statement is supported by the diagram. B. The statement is refuted by the diagram. C. The statement is neither supported nor refuted by the diagram. You have Examination Booklet Form A. In the box above #1 on your Answer Sheet, ensure you filled in the bubble as follows. Exam Booklet Form/ A Cahier d'examen B C D E F G H

END OF EXAMINATION Science 10 - 2011/12 Released Form A www.

colorado. edu Page 41 Examination Rules 1. The time allotted for this examination is two hours. You may, however, take up to 60 minutes of additional time to finish. 2. Answers entered in the Examination Booklet will not be marked. 3. Cheating on an examination will result in a mark of zero. The Ministry of Education considers cheating to have occurred if students break any of the following rules: • • • Students must not be in possession of or have used any secure examination materials prior to the examination session.

Students must not communicate with other students during the examination. Students must not give or receive assistance of any kind in answering an examination question during an examination, including allowing one's paper to be viewed by others or copying answers from another student's paper. Students must not possess any book, paper or item that might assist in writing an examination, including a dictionary or piece of electronic equipment, that is not specifically authorized for the examination by ministry policy. Students must not copy, plagiarize or present as one's own, work done by any other person.

Students must immediately follow the invigilator's order to stop writing at the end of the examination time and must not alter an Examination Booklet, Response Booklet or Answer Sheet after the invigilator has asked students to hand in examination papers. Students must not remove any piece of the examination materials from the examination room, including work pages. • •

- • 4. The use of inappropriate language or content may result in a mark of zero being awarded.
- 5. Upon completion of the examination, return all examination materials to the supervising invigilator.