

Dynamic Planet Exam
2017-2018
Metea Valley High School

Multiple Choice/True-False	_____/35
Matching	_____/10
Fill in the Blank	_____/16
Short Answer/Free-Response	_____/25
Total	_____/86

Directions: You have 50 Minutes to answer the questions on this test.

Part 1. Multiple Choice/True-False (Circle the best answer for each question)

- 1) A Mid-Oceanic Ridge is formed at:
 - a) Divergent boundaries
 - b) Convergent boundaries
 - c) Transform boundaries
 - d) None of the above

- 2) What is the difference between lava and magma?
 - a) Lava is when molten rock has been erupted from a volcano, whereas magma is found underground.
 - b) Magma is when molten rock has been erupted from a volcano, whereas lava is found underground.
 - c) Lava has average temperatures of 2400-3000 degrees Fahrenheit, whereas magma has average temperatures of around 700-1200 degrees Fahrenheit.
 - d) Magma is the solid form of lava.

- 3) True or False: Forearc and Backarc Basins are found at convergent boundaries
 - a) True
 - b) False

- 4) What is tephra?
 - a) Lava that evaporates once it has been expelled from a volcano
 - b) Another name for Silicon Dioxide (SiO₂)
 - c) Pyroclastic material ejected from a volcano
 - d) Sediment built up at the crests of mid-oceanic ridges

- 5) What is the name of the single huge ocean that existed at the time of Pangaea?
 - a) Pacific
 - b) Panthalassa
 - c) Vaalbara
 - d) Nostramarus

- 6) Anticline is to Syncline as Compression is to:
- a) Liquefaction
 - b) Tension
 - c) Normal Stress
 - d) Shear Stress
- 7) Pressure is simply one special variety of:
- a) Subduction
 - b) Stress
 - c) Convection
 - d) Infinitesimal Strain
- 8) Glass is an example of a substance that is:
- a) Elastic
 - b) Ductile
 - c) Brittle
 - d) Cushioned
- 9) Ductile objects that undergo compression form:
- a) Folds
 - b) Reverse Faults
 - c) Normal Faults
 - d) Ductile Shear Zones
- 10) Laurentia, a structure that forms the ancient geological core of the North American continent, is an example of a/an:
- a) Foreland Basin
 - b) Block
 - c) Nappe
 - d) Craton
- 11) Which substance is the best example of having plasticity?
- a) Mantle
 - b) SiO₂
 - c) Pahoehoe
 - d) Glacier
- 12) True or False: Tension forces rocks to pull apart
- a) True

b) False

13) The Himalayan Mountains were formed by:

- a) Transform boundaries
- b) Continental-Oceanic Faults
- c) Continental-Continental Faults
- d) Oceanic-Oceanic Faults

14) True or False: Basaltic magma tends to have lower viscosity:

- a) True
- b) False

15) What is an orogeny?

- a) The processes which form a mountain
- b) The creation of tectonic plates
- c) The processes which form lava
- d) This is not a real term

16) What is a nappe?

- a) A severely folded and faulted rock
- b) A small crater
- c) A rock with a high concentration of silicon dioxide
- d) d

17) Which of these is a supercontinent?

- a) Asia
- b) Pangaea
- c) Africa
- d) Botswana

18) Metea Valley High School Science Olympiad member David James is looking at a seismogram. What will he see indications of first?

- a) S waves
- b) P waves
- c) Surface waves
- d) None of the above

19) The _____ acts as a heat source for convection currents.

- a) Inner Core
 - b) Outer Core
 - c) Mantle
 - d) Asthenosphere
- 20) What was the magnitude of the most powerful earthquake ever recorded?
- a) 9.0
 - b) 9.3
 - c) 9.5
 - d) 9.7
- 21) Where did that earthquake occur?
- a) Sumatra, Indonesia
 - b) San Francisco, California
 - c) Tokyo, Japan
 - d) Lumaco, Chile
- 22) Which of the following is not a type of fault?
- a) Convergent
 - b) Transform
 - c) Trivergent
 - d) Divergent
- 23) What is the Lehmann Discontinuity?
- a) The boundary between the crust and mantle
 - b) The boundary between the outer core and mantle
 - c) The boundary between the outer core and inner core
 - d) The boundaries between the tectonic plates
- 24) Which of the following is a curve which represents the elevation of a geographical area?
- a) Bathymetric curve
 - b) Hypsometric curve
 - c) Isometric curve
 - d) Elevation curve
- 25) Hot spots exist in the
- a) Asthenosphere
 - b) Lithosphere
 - c) Crust

- d) Outer core
- 26) An accumulation of rock removed from the down-going plate in a subduction zone is called a/an:
- a) Sill
 - b) Aquifer
 - c) Consolidated structure
 - d) Accretionary wedge
- 27) What type of lava has low viscosity?
- a) Basaltic
 - b) Rhyolitic
 - c) Andesitic
 - d) Igneous
- 28) What rock primarily makes up continental crust?
- a) Basalt
 - b) Granite
 - c) Obsidian
 - d) Silicon
- 29) What rock primarily makes up oceanic crust?
- a) Basalt
 - b) Granite
 - c) Obsidian
 - d) Silicon
- 30) What is the most abundant element in magma?
- a) Silicon
 - b) Oxygen
 - c) Sulfur
 - d) Carbon
- 31) The boundary between which of the following plates represents an example of a convergent fault?
- a) South American plate and Nazca plate
 - b) North American plate and Eurasian plate
 - c) North American plate and Pacific plate
 - d) South American plate and African plate

- 32) Fractures in the Earth's crust where rocks on either side of the crack have slid past each other are known as:
- a) Floodplains
 - b) Faults
 - c) Grabens
 - d) Laccoliths
- 33) Which one is a real example of a volcanic island chain created by a hot spot?
- a) The Philippines
 - b) Hawaiian Islands
 - c) Aleutian Islands
 - d) Japanese Islands
- 34) Which of the following once existed across the Bering Strait?
- a) Aulacogen
 - b) Floodplain
 - c) Land Bridge
 - d) Dyke
- 35) Sea-Floor Spreading is a process that takes place at
- a) Trenches
 - b) Mid-ocean ridges
 - c) Continental-Continental Boundaries
 - d) Volcanoes

Part 2. Matching - Match each scientist with his or her theory/contribution. Write the corresponding letter in the blank provided for each question.

- | | |
|------------------------|--|
| 1) Alfred Wegener | a) Sea Floor Spreading |
| 2) Jason Morgan | b) Proposed the idea of convection cells |
| 3) Andrija Mohorovicic | c) Expanding Earth hypothesis |
| 4) Bishop James Usher | d) Theory of Catastrophism |
| 5) Arthur Holmes | e) wrote the first paper defining the mathematical principles of plate tectonics on a sphere |
| 6) James Hutton | f) Discovered the inner core |
| 7) S Warren Carvey | g) Discovered the boundary between the crust and mantle |
| 8) Inge Lehmann | h) Uniformitarian Principle |

16) If you were to stick a high-tech thermometer into the outer core, you would find the reading to be around _____ K.

Part 4. Short Answer/Free Response

1) Explain how convection currents work.

2) Compare and Contrast Shield Volcanoes and Stratovolcanoes. Give at least 1 example of each.

3) What is an aulacogen and how does it relate to a triple junction?

4) Explain the Wilson Cycle.

5) Label 10 of the Tectonic Plates on the picture below.

