Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) The _____ is the thinnest layer of the Earth. 1) _____
A) outer core B) inner core C) crust D) mantle

Answer: C
Explanation: A)
B)
C)
D)

2) Consider the tectonic plates on either side of an oceanic-ridge boundary. How are the plates moving with respect to the boundary? 2) _____
A) sliding along it B) moving away from it
C) falling into it D) moving toward it

Answer: B
Explanation: A)
B)
C)
D)

3) Earth's two chief energy sources for all of its heat and geologic processes are _____. 3) _____
A) wind and ocean currents
B) oil and coal
C) tidal forces and wind
D) external solar radiation and internal decay of naturally radioactive elements

Answer: D
Explanation: A)
B)
C)
D)

4) _____ was an a Scottish physician and farmer who wrote Theory of the Earth and is credited with being the father of modern geology because he was the first to promote the theories of uniformitarianism and the vastness of geologic time. 4) _____
A) Charles Lyell B) James Ussher C) James Hutton D) William Stokes

Answer: C
Explanation: A)
B)
C)
D)

5) The northern extension of North America's great Paleozoic Appalachian mountain belt is now found in _____. 5) _____

A) the rugged landscape of Western Greenland
B) the Alps of Southern Europe
C) the Mid Atlantic Ridge north of Iceland
D) the Caledonides of the British Isles and Scandinavia

Answer: D
Explanation: A)
B)
C)
D)

6) The acceptance of the 18th century concept of uniformitarianism inevitably led to the acceptance of _____. 6) _____

A) an extremely old age for the Earth
B) Darwin's theory of evolution
C) Ussher's calculations
D) a geologic evolution for Earth that was free from catastrophes

Answer: A
Explanation: A)
B)
C)
D)

7) "The physical, chemical and biological processes that operate today have operated throughout geologic time" is a restatement of James Hutton's theory of _____. 7) _____

A) uniformitarianism
B) gradualism
C) catastrophism
D) recidivism

Answer: A
Explanation: A)
B)
C)
D)

8) The continental crust is heterogeneous but is predominantly made of _____ and is _____ thick. 8) _____

A) granite, 35 to 70 km
B) granite, 3.5 to 7 km
C) basalt, 7 km
D) metasedimentary rocks, 600 km

Answer: A
Explanation: A)
B)
C)
D)

9) Time scales and intervals of importance to geologic processes _____. 9) _____

A) range only from days to millions of years
B) range from less than a millisecond to billions of years
C) must be shorter than seismic wave vibrations or longer than mantle convection cycles but nothing in between
D) must be at least as long as the epochs in the geologic time scale

Answer: B
Explanation: A)
B)
C)
D)

10) A typical rate of lithospheric (tectonic) plate movement is _____. 10) _____

A) 20 metres per year
B) 5 centimetres per year
C) 0.1 centimetres per year
D) 2 metres per year

Answer: B
Explanation: A)
B)
C)
D)

11) _____ is the process by which rocks breakdown in place to produce soils and sediments. 11) _____

A) Lithification
B) Metamorphism
C) Weathering
D) Subduction

Answer: C
Explanation: A)
B)
C)
D)

12) _____ rocks always originate at the surface of the Earth. 12) _____

A) Igneous B) Secondary C) Metamorphic D) Sedimentary

Answer: D
Explanation: A)
B)
C)
D)

13) The Phanerozoic Eon corresponding to the age of complex multicellular life as recorded in fossils encompasses _____. 13) _____

A) only the first 50 million years of the Cambrian Period
B) the first 4.6 billion years of Earth history
C) only the latest 56 million years of Earth history
D) roughly the last 12% of Earth history

Answer: D
Explanation: A)
B)
C)
D)

14) The continental shelf is located _____. 14) _____

A) between the continental slope and continental rise
B) seaward of the continental slope
C) between the continental rise and the abyssal plains
D) landward of the continental slope

Answer: D
Explanation: A)
B)
C)
D)

15) _____ are the three, basic categories of rocks in the rock cycle. 15) _____

A) Sedimentary, igneous, and metamorphic B) Sedimentary, igneous, and volcanic
C) Crustal, lithospheric, and transform D) Weathered, sedimentary, and volcanic

Answer: A
Explanation: A)
B)
C)
D)

16) The _____ forms the relatively cool, brittle plates of plate tectonics. 16) _____

A) astrosphere B) eosphere C) lithosphere D) asthenosphere

Answer: C
Explanation: A)
B)
C)
D)

17) What was Wegener's dramatic paleoclimatic evidence linking all of the southern hemisphere continents between 300 and 220 million years ago? 17) _____

A) massive reef limestones in Alberta and the Eastern Arctic
B) tropical Carboniferous coal swamps across the Northern Hemisphere, particularly the Eastern U.S. and central Europe, where the fossil trees lacked annual growth rings
C) massive crossbedded red sandstones suggesting former tropical deserts
D) striated and grooved bedrock overlain by Paleozoic tillites in South American and African areas now within 30° of the equator

Answer: D
Explanation: A)
B)
C)
D)

18) In correct order from the centre outward, Earth includes which units? 18) _____

A) inner core, crust, mantle, hydrosphere B) core, crust, mantle, hydrosphere
C) core, inner mantle, outer mantle, crust D) inner core, outer core, mantle, crust

Answer: D
Explanation: A)
B)
C)
D)

19) Why are the youngest mountains formed either in the circum Pacific belt or the Alps-Himalayas belt? 19) _____

A) Because this is where the oldest and strongest rocks are exposed.
B) Because these are the stable shield areas.
C) These are the regions with the greatest political pressure.
D) These are areas of maximum plate convergence today.

Answer: D
Explanation: A)
B)
C)
D)

20) That fossil organisms succeed one another in an orderly and definite sequence is _____. 20) _____

A) the principal of fossil succession
B) the law of superposition
C) the law of the geologic time scale
D) the Phanerozoic principal

Answer: A
Explanation: A)
B)
C)
D)

21) The Earth's atmosphere serves to _____. 21) _____

A) protect us from alien invasion
B) generate Earth's gravitational field
C) generate Earth's magnetic field
D) reduce ultraviolet radiation, trap solar heat, and regulate climate

Answer: D
Explanation: A)
B)
C)
D)

22) Compared to the age of Earth accepted as correct today, how did 17th and 18th century proponents of catastrophism envision the Earth's age? 22) _____

A) They believed Earth to be much older than it really is.
B) They believed Earth to be a few hundred years younger than it really is.
C) They accepted Bishop Ussher's calculation but explained the differences in landforms and geology by violent catastrophes.
D) They were right on the money, give or take a few million years.

Answer: C
Explanation: A)
B)
C)
D)

23) The process by which magmas cool and solidify to rock is termed _____. 23) _____

A) plutonism B) thermal metamorphism
C) volcanism D) crystallization

Answer: D
Explanation: A)
B)
C)
D)

24) The total length of the spreading ridge system in the world's ocean basins is about _____. 24) _____

A) 70,000 km B) 700 km C) 700,000 km D) 7,000 km

Answer: A
Explanation: A)
B)
C)
D)

25) In addition to the dominant iron and nickle, the core is thought to contain _____. 25) _____

A) minor amounts of oxygen, silicon and sulphur
B) minor amounts of heavy metals such as gold, lead, and uranium
C) major amounts of oxygen, silicon and sulphur
D) large resources of diamonds

Answer: A
Explanation: A)
B)
C)
D)

26) Which of the following paleoclimatic evidence supports the idea of the late Paleozoic super continent in the Southern Hemisphere? 26) _____

A) tillites in South Africa and South America
B) lithified loess deposits in the deserts of Chile, Australia, and Africa
C) thick sediments in the Amazon and Congo deltas of South America and Africa
D) cold water fossils in the deep-water sediments of the South Atlantic abyssal plain

Answer: A
Explanation: A)
B)
C)
D)

27) Shallowest to deepest, the primary *compositional* layers within the Earth are _____. 27) _____

A) crust, mantle and core
B) basalt, crust, mantle, asthenosphere, core
C) lithosphere, asthenosphere, mesosphere, outer core, inner core
D) sedimentary, metamorphic and igneous

Answer: A
Explanation: A)
B)
C)
D)

28) The composition of the core of Earth is thought to be _____. 28) _____

A) iron-nickel alloy B) peridotite
C) granite D) basalt

Answer: A
Explanation: A)
B)
C)
D)

29) The _____ is thought to be the only molten, metallic portion in the Earth's interior. 29) _____

A) lithosphere B) mantle C) outer core D) inner core

Answer: C
Explanation: A)
B)
C)
D)

30) The _____, about 100 km thick, is the coldest, most rigid, and most brittle layer in the Earth. 30) _____

A) inner core B) lithosphere C) mesosphere D) asthenosphere

Answer: B
Explanation: A)
B)
C)
D)

31) Observing Earth from beyond the moon's orbit, the most apparent features are _____. 31) _____

A) vast areas of ocean and swirling cloud patterns
B) plumes of erupting volcanoes
C) the boundaries between the continents and the oceans
D) white polar ice caps, green rain forests and brown deserts

Answer: A
Explanation: A)
B)
C)
D)

32) _____ rocks form by crystallization and consolidation of molten magma. 32) _____

A) Indigenous B) Primary C) Sedimentary D) Igneous

Answer: D
Explanation: A)
B)
C)
D)

33) The asthenosphere is actually a part of the _____ of the Earth. 33) _____

A) crust B) outer core C) mantle D) inner core

Answer: C
Explanation: A)
B)
C)
D)

34) _____, a popular natural philosophy of the 17th and early 18th centuries, was based on a firm belief in a very short geologic history for Earth. 34) _____

A) Uniformitarianism
B) Catastrophism
C) Exoschism
D) Ecospherism

Answer: B
Explanation: A)
B)
C)
D)

35) Why is Mt. Vesuvius considered so hazardous? 35) _____

A) People fear that it may imminently repeat the type of ash eruptions that buried Pompeii and Herculaneum in AD 79.
B) It is made of very steep unstable ash deposits that are always generating landslides.
C) The city of Naples and Bay of Naples surround it so that any renewal of activity threatens people.
D) It is constantly erupting.

Answer: C
Explanation: A)
B)
C)
D)

36) The continental crust extends _____. 36) _____

A) beneath about half of the ocean basins wherever it is shallow
B) only to where their shorelines occur; beyond that is oceanic crust
C) deep into the mantle wherever there are subduction zones
D) beneath the continental shelf through to the toe of the continental slope

Answer: D
Explanation: A)
B)
C)
D)

37) The most prominent features on the ocean floor are the _____. 37) _____

A) oceanic ridges
B) lava plateaus
C) seamounts
D) deep-ocean trenches

Answer: A
Explanation: A)
B)
C)
D)

38) According to Wegener, where was southern Africa located during the Late Paleozoic? 38) _____

A) 30° south of the equator
B) over the south pole
C) up by the north pole
D) along the equator

Answer: B
Explanation: A)
B)
C)
D)

39) New seafloor is created at _____ plate boundaries. 39) _____

A) hot spot B) transform C) divergent D) convergent

Answer: C

Explanation: A)
B)
C)
D)

40) The _____ theory is the leading hypothesis that describes the formation of the Sun, Earth, and other planets of the solar system. 40) _____

A) solar flareup B) nebular C) planoassemblar D) astrostellar

Answer: B

Explanation: A)
B)
C)
D)

41) Ocean waves are directly created by _____. 41) _____

A) evaporation
B) the pull of the Moon's gravity
C) the drag of air across open water and water's interaction with the shoreline and sea bed
D) the revolution of the planet

Answer: C

Explanation: A)
B)
C)
D)

42) Human activities like damming rivers, building seawalls, tilling land, strip mining, refining ores, burning fossil fuels, and disposing of garbage _____. 42) _____

A) are all inherently evil and must cease at any cost
B) mainly affect the landscape but not the physical environment, weather or ocean
C) have little influence beyond their immediate area of disruption
D) can substantially influence natural systems and geologic processes both locally and globally

Answer: D

Explanation: A)
B)
C)
D)

43) Sir William Edmond Logan was appointed the first Director of The Geological Survey of Canada in 1842 and is noted for his observations and maps of _____. 43) _____

A) gold in Prince Edward Island
B) sandstones in Nunavut
C) granites in Saskatchewan
D) coal beds in Wales, Nova Scotia, and copper deposits in Ontario

Answer: D

Explanation: A)
B)
C)
D)

44) In the rock cycle, the transported natural chemical and mechanical residues of weathering are termed _____. 44) _____

A) turbidites B) soils C) debitage D) sediments

Answer: D

Explanation: A)
B)
C)
D)

45) A *geologic* understanding of natural resources includes _____ of extraction or usage for water, soil, metallic, non-metallic, and energy resources. 45) _____

A) the conditions of formation and the environmental impact
B) the size of deposits and cost
C) the current corporate or political objective and most expedient means
D) the economic value and geographic location

Answer: A

Explanation: A)
B)
C)
D)

46) Today, of all the continents, _____ is closest to the same geographic position it occupied during the Late Paleozoic. 46) _____

A) India B) Australia C) Antarctica D) South America

Answer: C

Explanation: A)
B)
C)
D)

47) _____ used the Bible to calculate that the Earth was created in 4004 B.C. 47) _____

A) Saint Torquemada B) Father Hutton
C) Bishop Ussher D) Brother Lyell

Answer: C

Explanation: A)
B)
C)
D)

48) _____ was never proposed as evidence supporting the existence of the Pangaea supercontinent. 48) _____

A) Late Paleozoic glacial features
B) Geometric fit between South America and Africa
C) The Glossopteris flora
D) Islands of Proterozoic rocks along the Mid-Atlantic Ridge

Answer: D

Explanation: A)
B)
C)
D)

49) In geologic theory, volcanic eruptions, earthquakes, landslides, floods, and tsunamis are all _____. 49) _____

A) divine punishments sent to discourage us of our evil ways
B) unique phenomena that can neither be predicted nor understood
C) exceptions to the theory of uniformitarianism
D) naturally recurring geologic hazards from ongoing physical processes

Answer: D
Explanation: A)
B)
C)
D)

50) Of the hydrosphere, 97% is contained in _____. 50) _____

A) lakes and streams
B) groundwater
C) the oceans
D) glaciers

Answer: C
Explanation: A)
B)
C)
D)

51) Pangaea was _____. 51) _____

A) a huge mountain range that formed when Africa pushed northward into Europe in Eocene time
B) a large, ocean basin that opened in the Triassic and closed in the Paleocene
C) a large, Precambrian shield area in Africa and South America that broke apart late in the Proterozoic Eon
D) a super continent that formed in the late Paleozoic and broke apart in Triassic time

Answer: D
Explanation: A)
B)
C)
D)

52) _____ is often paraphrased as "the present is the key to the past." 52) _____

A) Biblical prophecy
B) Uniformitarianism
C) Catastrophism
D) Aristotelian logic

Answer: B
Explanation: A)
B)
C)
D)

53) Compared to the age of the Universe of about 14 billion years, the currently accepted age of Earth is about _____ years as determined by using radioactivity for dating rocks and minerals. 53) _____

A) 13.7 billion
B) 4.6 thousand
C) 5.4 million
D) 4.6 billion

Answer: D
Explanation: A)
B)
C)
D)

54) Tethys was _____. 54) _____

A) a huge mountain range formed when Africa pushed northward into Europe in Eocene time
B) a super continent that formed in the late Paleozoic and broke apart in Triassic time
C) a large, ocean basin that opened in the Triassic and closed in the Paleocene
D) a large, Precambrian shield area in Africa and South America that broke apart late in the Proterozoic Eon

Answer: C
Explanation: A)
B)
C)
D)

55) "The present is the key to the past" is the uniformitarian concept that _____. 55) _____

A) the rates of geologic processes (erosion, sedimentation, volcanism) are invariant
B) geologic processes give rise to the same types of products and features
C) each mountain that is eroding today to produce river sediment has always done so
D) rivers, seas, mountains, etc. are perpetual features of an unchanging landscape

Answer: B
Explanation: A)
B)
C)
D)

56) Molten silicate material that forms at appropriate conditions of temperature and pressure for rocks to melt within the earth is called _____. 56) _____

A) magma B) vesuvianite C) ignimbrite D) obsidian

Answer: A
Explanation: A)
B)
C)
D)

57) Which sequence is in the correct order through time for "fossil succession" assuming strata successively from: Late Precambrian, Cambrian, Silurian, Jurassic, Tertiary 57) _____

A) land plants, insects, marine plants, trilobites, humans
B) multicelled organisms, hardbodied marine invertebrates, first land plants, dinosaurs, mammals
C) one-celled organisms, first fishes, first amphibians, reptiles, dinosaurs
D) flowering plants, birds, reptiles, first trees, first fishes, blue green algae

Answer: B
Explanation: A)
B)
C)
D)

58) The _____ proposes that the bodies of our solar system formed at essentially the same time from a rotating cloud of gases and dust. 58) _____

A) Heliocentric theory
B) Nebular hypothesis
C) Big Bang theory
D) Plate Tectonics theory

Answer: B
Explanation: A)
B)
C)
D)

59) The idea that all of the tremendous geologic changes in Earth's history were concentrated in a few brief millennia is termed _____. 59) _____

A) uniformitarianism
B) Ussherism
C) gradualism
D) catastrophism

Answer: D
Explanation: A)
B)
C)
D)

60) _____ includes the study of how rocks and minerals form and change according to physical, chemical, and biologic processes which affect everything from Earth's internal structures and tectonic plates to landscape evolution and crystal forms. 60) _____

A) Manifest destiny
B) Historical geology
C) Teleology
D) Physical geology
E) Catastrophism

Answer: D
Explanation: A)
B)
C)
D)
E)

61) Earth's human population now is best described by which one of the following statements? 61) _____

A) larger than it has ever been and increasing at a very high rate
B) increasing very rapidly in advanced, western countries and falling rapidly in third-world areas such as Latin America and Africa
C) larger than it has ever been but will stabilize within the next 10 years
D) just beginning to approach the world's population before the Second World War

Answer: A
Explanation: A)
B)
C)
D)

62) Rocks that have been recrystallized under stress, or changing conditions of heat and pressure are termed _____. 62) _____

A) metamorphic B) rudimentary C) igneous D) sedimentary

Answer: A

Explanation: A)
B)
C)
D)

63) The world population is currently growing at about +_____ people per year. 63) _____

A) 10 million B) 10 billion C) 100 million D) 1 billion

Answer: C

Explanation: A)
B)
C)
D)

64) What are the basic differences between the disciplines of physical and historical geology? 64) _____

A) Physical geology involves the study of rock strata, fossils, and deposition in relation to plate movements in the geologic past; historical geology charts how and where the plates were moving in the past.

B) Physical geology is the study of fossils and sequences of rock strata; historical geology is the study of how rocks and minerals were used in the past.

C) Historical geology involves the study of rock strata, fossils, and geologic events, utilizing the geologic time scale as a reference; physical geology includes the study of how rocks form and of how erosion shapes the land surface.

D) None; physical geology and historical geology are essentially the same.

Answer: C

Explanation: A)
B)
C)
D)

65) The _____ refers to the sum total of all life on Earth. 65) _____

A) biosphere B) asthenosphere C) atmosphere D) hydrosphere

Answer: A

Explanation: A)
B)
C)
D)

66) Most geologic processes like erosion, sedimentation, uplift, and plate motion _____. 66) _____

A) occur quickly in fits and starts, but mostly nothing is happening

B) take place gradually but don't add up to much change in the long run

C) take place during cataclysmic floods and violent upheavals that transform Earth

D) take place gradually but given the vastness of geologic time add up to big effects

Answer: D

Explanation: A)
B)
C)
D)

67) What age plant and animal fossils were identical for the southern hemisphere continents, causing Wegener to hypothesize Pangaea? 67) _____

A) Late Paleozoic and Early Mesozoic
B) Late Mesozoic and Early Cenozoic
C) Early and Late Proterozoic
D) Hadean and Earliest Archean

Answer: A
Explanation: A)
B)
C)
D)

68) _____ was the first to clearly formulate the concept of uniformitarianism. 68) _____

A) Charles Playfair
B) Charles Darwin
C) James Hutton
D) Sir James Ussher

Answer: C
Explanation: A)
B)
C)
D)

69) Fossils of armour headed fishes and trilobites would be found in marine sedimentary rocks of _____. 69) _____

A) the Proterozoic Eon
B) the Mesozoic Era
C) the lower part of the Paleozoic Era
D) the Carboniferous Period

Answer: C
Explanation: A)
B)
C)
D)

70) In sedimentary rocks, lithification includes _____. 70) _____

A) crystallization and cooling
B) compaction and transportation
C) compaction and cementation
D) cementation and weathering

Answer: C
Explanation: A)
B)
C)
D)

71) Which one of the following observations and inferences is most consistent with the idea of uniformitarianism? 71) _____

A) The number of erupting volcanoes is constant throughout geologic time, so this is not a big influence on changing climates.
B) Sand rolls along a stream bottom at the same rate every hour, every day, year in, year out.
C) Meteorite impacts always occur at regular intervals and this has forced biologic evolution.
D) Mountains are dissolved and/or eroded mechanically one ion and one mineral grain at a time and carried down to the sea.

Answer: D
Explanation: A)
B)
C)
D)

72) The law of superposition establishes _____. 72) _____

A) the relative ages in a layered sedimentary or volcanic sequence
B) the absolute age of any strata
C) the oldest deposits are always on top
D) why the oldest rocks are never found in the bottoms of deep canyons

Answer: A
Explanation: A)
B)
C)
D)

73) Which one of the following statements is not correct? 73) _____

A) Sedimentary rocks may weather to igneous rocks.
B) Metamorphic rocks may melt to magma.
C) Magmas crystallize to form igneous rocks.
D) Igneous rocks can undergo metamorphism.

Answer: A
Explanation: A)
B)
C)
D)

74) The natural chemical and mechanical decomposition of rocks at Earth's surface is termed _____. 74) _____

A) weathering B) decrepitation C) de-lithification D) solifluction

Answer: A
Explanation: A)
B)
C)
D)

75) The biggest driving force for natural resource development is _____. 75) _____

A) the size of the deposit
B) exponential population increase and human expectations for goods and profits
C) finding local deposits to meet each country's needs
D) local needs for employment and viable industry

Answer: B
Explanation: A)
B)
C)
D)

76) What is the age of most of the continental crust, especially the exposed shield areas in continental interiors? 76) _____

A) Precognition
B) Younger than the ocean basins because it is still high
C) Precambrian; with parts exceeding 4 billion years.
D) Paleozoic and younger

Answer: C
Explanation: A)
B)
C)
D)

77) In the rock cycle, the series of processes that transform unconsolidated sediment into sedimentary rocks is termed _____. 77) _____

A) compaction B) lithification C) cementation D) dewatering

Answer: B
Explanation: A)
B)
C)
D)

78) The mantle is made of dense rock _____ called _____. 78) _____

A) ~3.3 g/cm^3, peridotite B) <3.0 g/cm^3, basalt
C) <2.9 g/cm^3, granite D) >3.4 g/cm^3, shergottite

Answer: A
Explanation: A)
B)
C)
D)

79) Early during Earth's history what two things contributed heat that led to the internal melting and formation of the core? 79) _____

A) a hotter proto-sun and the burning off of Earth's early hydrogen atmosphere
B) tidal forces and friction between moving unconsolidated meteorite debris
C) chemical reactions between early unstable elements
D) kinetic energy of impacts from nebular debris and decay of radioactive elements

Answer: D
Explanation: A)
B)
C)
D)

80) The word "Geology" is derived from Greek meaning _____. 80) _____

A) rocks form all lands B) geographic theology
C) the logic of rocks D) discourse of the Earth

Answer: D
Explanation: A)
B)
C)
D)

81) Canada's highest mountain is _____. 81) _____

A) Mount Waddington in the Coast Mountains of B.C.
B) Mount Washington on Vancouver Island
C) Mount Logan 5959 m elevation in the southwest corner of Yukon
D) Mount Rundle in the Canadian Rockies

Answer: C
Explanation: A)
B)
C)
D)

82) Which of the following best describes the fundamental concept of superposition? 82) _____

A) Older strata generally are deposited on younger strata without intervening, intermediate age strata.
B) Strata with fossils are generally deposited on strata with no fossils.
C) Any sedimentary deposit accumulates on older rock or sediment layers.
D) Older fossils in younger strata indicate a locally inverted geologic time scale.

Answer: C
Explanation: A)
B)
C)
D)

83) _____ involves the study of Earth's origin and development through time based on sequences of strata, fossils, and geologic events, utilizing the geologic time scale as a reference. 83) _____

A) Physical geology
B) Uniformitarianism
C) Catastrophism
D) Historical geology

Answer: D
Explanation: A)
B)
C)
D)

84) As a self-contained planet, Earth is divided into several interacting systems called _____. 84) _____

A) the atmosphere, hydrosphere, geosphere, and biosphere
B) the geosphere, atmosphere, cryosphere, and gaiasphere
C) the solid earth, the liquid earth, the gaseous earth and the living planet
D) the aerosphere, aquasphere, terrasphere, and ecosphere

Answer: A
Explanation: A)
B)
C)
D)

85) Which of the following is closest to the currently accepted age of the Earth? 85) _____

A) 5 billion years
B) 100,000 years
C) 5 million years
D) 10 billion years

Answer: A
Explanation: A)
B)
C)
D)

86) The term igneous is _____. 86) _____

A) Armenian for "containing many crystals"
B) Polish for "rock that flows"
C) Greek for "full of fire"
D) Latin for "rock from below"

Answer: C
Explanation: A)
B)
C)
D)

87) Why did Sir Edward Bullard's 1960's fit of the 900 m bathymetric contour show some areas of overlap between South America and Africa ? 87) _____

A) The work was actually done by a graduate student and Bullard never checked the details before he published it.
B) Massive erosion has modified the entire coastlines since 200 Ma so it is a wonder they still fit so well.
C) Large volumes of sediment have accumulated in the deltas and fans from the Congo, Amazon, Parana, and Rio de Plata rivers to outbuild the continental shelves and slopes.
D) Inaccurate bathymetry was all that was available to him prior to our modern multibeam sonar techniques.

Answer: C
Explanation: A)
B)
C)
D)

88) The early geologic process that formed the primitive: atmosphere, crust, mantle and core within the first few million years of Earth history was _____. 88) _____

A) meltdown
B) stratification
C) absolution
D) chemical differentiation or segregation

Answer: D
Explanation: A)
B)
C)
D)

89) The Earth's core was formed from _____. 89) _____

A) a massive nickle iron asteroid that was the nucleus upon which Earth condensed
B) the left over nickle and iron that would not fit into the earlier formed crust and mantle
C) high density radioactive carbon
D) molten iron and nickle that separated from silicates and sank due to its higher density

Answer: D
Explanation: A)
B)
C)
D)

90) On the average, lithospheric plates are _____ thick. 90) _____

A) 10 km B) 1000 km C) l km D) l00 km

Answer: D

Explanation: A)
B)
C)
D)

91) The principle goal of physical geology is to study _____. 91) _____

A) Earth's evolution with time
B) physical processes that affect the earth and its resources as opposed to chemical or biologic processes
C) mankind and the environment
D) ongoing natural processes and the products they create

Answer: D

Explanation: A)
B)
C)
D)

92) The _____ is not a part of the Earth's physical environment. 92) _____

A) geosphere B) hydrosphere C) atmosphere D) astrosphere

Answer: D

Explanation: A)
B)
C)
D)

93) Shallowest to deepest, the primary layers within the Earth as defined by contrasting physical properties are _____. 93) _____

A) crust, mantle, core
B) sedimentary, metamorphic, igneous
C) basalt, crust, mantle, asthenosphere, core
D) lithosphere, asthenosphere, mesosphere, outer core, inner core

Answer: D

Explanation: A)
B)
C)
D)

94) The series of processes by which one rock type can transform to another, and record Earth's internal or external past environmental conditions as it does so, is called _____. 94) _____

A) the Wilson cycle B) the tricycle
C) the rock cycle D) the uniformitarian cycle

Answer: C

Explanation: A)
B)
C)
D)

95) Paleontologic evidence for the existence of Pangaea comes from _____, a cold-loving, sub-polar, fossil fern with large seeds that was widely distributed throughout the Late Paleozoic of: Africa, Australia, India and South America 95) _____

A) Mesosaurus
B) Glossopteris
C) Halitosis
D) Platanus acerifolia

Answer: B
Explanation: A)
B)
C)
D)

96) The oceanic crust is made of mafic rock called _____ and is about _____ thick on average. 96) _____

A) granite, 35-40 km
B) basalt, 7 km
C) basalt, 70 km
D) marine sedimentary rocks, 25 km

Answer: B
Explanation: A)
B)
C)
D)

97) The _____ division of the geologic time scale is an era of the Phanerozoic Eon. 97) _____

A) Proterozoic B) Permian C) Paleozoic D) Paleocene

Answer: C
Explanation: A)
B)
C)
D)

98) Which one of the following is a logical consequence of the rapidly growing human population? 98) _____

A) Terrestrial, aquatic, and marine habitats will be unaffected by the rapid growth.
B) Reduced government regulation and spending and the application of new technologies will increase living standards and lessen environmental concerns.
C) Everybody will have much more fun because parties will be larger and more frequent.
D) Competition for nonrenewable natural resources will intensify.

Answer: D
Explanation: A)
B)
C)
D)

99) Older mountain belts are found where former continent-continent collision occurred making thickened, low density crust like in _____ where erosion has exposed deformed Precambrian rocks from deep in the crust. 99) _____

A) the Aleutians
B) the Mid Atlantic Ridge
C) the Cascades
D) the Appalachians and the Urals

Answer: D
Explanation: A)
B)
C)
D)

100) The two layers inside the Earth which contain significant amounts of molten material are _____. 100) _____

A) crust and inner core
B) crust and mesosphere
C) asthenosphere and outer core
D) mesosphere and inner core

Answer: C
Explanation: A)
B)
C)
D)

101) Wegener's supercontinent that began to break up about 200 million years ago was named _____. 101) _____

A) Rodinia B) Gondwanaland C) Pangaea D) Laurasia

Answer: C
Explanation: A)
B)
C)
D)

102) The Precambrian (Hadean, Archean and Proterozoic Eons) accounts for _____. 102) _____

A) the segment of geologic time prior to uniformitarianism taking effect
B) all of the periods after the Permian
C) the first 8% of Earth history
D) the first 88% of Earth history and the geologic time scale

Answer: D
Explanation: A)
B)
C)
D)

103) _____ was an aquatic, carnivorous reptile that was found both in eastern South America and southern Africa; lending support to the idea of a former land connection. 103) _____

A) Glossopteris B) Mesosaurus C) Anomalocaris D) Arbustosaurus

Answer: B
Explanation: A)
B)
C)
D)

104) The inference that the Earth had been created in 4004 B.C. was attributed to James Ussher who _____. 104) _____

A) was the Irish geologist to first attempt absolute dating of rocks
B) had this revealed to him by the Archangel Gabriel in a divine dream
C) carefully counted the generations and "begats" in the Bible
D) was a religious crackpot whom nobody believed

Answer: C
Explanation: A)
B)
C)
D)

105) _____ are the places where most sediments are ultimately deposited. 105) _____

A) Dunes B) Swamps C) Oceans D) Floodplains

Answer: C

Explanation: A)
B)
C)
D)

106) The Mantle extends from < 100 km to about _____ and is bounded at both its top and bottom by _____. 106) _____

A) 290 km, the asthenosphere
B) 2900 km, material of identical composition but contrasting temperature
C) 600 km, layers of molten rock
D) 2900 km, layers of markedly different chemical composition

Answer: D

Explanation: A)
B)
C)
D)

107) What paleoclimatic evidence disproved worldwide cooling as a cause for the "tropical glaciations" between 300 and 220 million years ago? 107) _____

A) tropical paleosols and laterites in Antarctica
B) massive reef limestones in Alberta and the Eastern Arctic
C) massive crossbedded red sandstones suggesting former tropical deserts
D) tropical Paleozoic coal swamps across the Northern Hemisphere, particularly the Eastern U.S. and central Europe

Answer: D

Explanation: A)
B)
C)
D)

108) In the early part of the 20th century, _____ argued forcefully for continental drift. 108) _____

A) Alfred the Great B) Alfred Wegener
C) Edwin Rommel D) Karl Wagner

Answer: B

Explanation: A)
B)
C)
D)

109) The San Andreas fault in California and the Alpine fault in New Zealand are good examples of _____. 109) _____

A) divergent oceanic crust
B) emergent ocean basins
C) transform faults that cut continental crust
D) convergent margins between oceanic plates

Answer: C
Explanation: A)
B)
C)
D)

110) Ocean crust is generally lower in elevation _____. 110) _____

A) entirely because of the great weight of the overlying sea water
B) and relatively featureless due to flat seafloor and sediments that drape everything
C) averaging about 380 metres below sea level
D) and contains prominent ridges, chains of volcanoes, deep canyons, and large plateaus

Answer: D
Explanation: A)
B)
C)
D)

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

111) Name Earth's internal layers that are capable of convection in the *solid* state. 111) _____

Answer: weak partially molten asthenosphere and hot solid mesosphere. The outer core is entirely liquid.
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

112) A) Big Bang B) solar nebula C) protosun D) protoplanets 112) _____

Answer: Big Bang
Explanation:

113) A pyroclastic flow contains _____ . 113) _____

Answer: rock, ash, and gas
Explanation:

114) List the three, basic categories of rocks as defined in the rock cycle. 114) _____

Answer: igneous, sedimentary, metamorphic
Explanation:

115) What type of rock comprises most of the exposed surface of Earth (roughly 75%)? 115) _____

Answer: sedimentary
Explanation:

116) The _____ states that fossil organisms succeed one another in a definite and determinable order. 116) _____

Answer: principle of fossil succession
Explanation:

117) The _____ is the weak zone in the mantle below the lithosphere. 117) _____

Answer: asthenosphere
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

118) A) hydrosphere B) stratosphere C) atmosphere D) geosphere 118) _____

Answer: stratosphere
Explanation:

119) A) catastrophism B) relative dating C) superposition D) fossil succession 119) _____

Answer: catastrophism
Explanation:

120) The thin, outer layer of Earth, from 7 to 40 km in thickness, is called the _____. 120) _____

Answer: crust
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

121) A) East Pacific B) Mid-Atlantic C) Peru-Chile D) Mid-Indian 121) _____

Answer: Peru-Chile
Explanation:

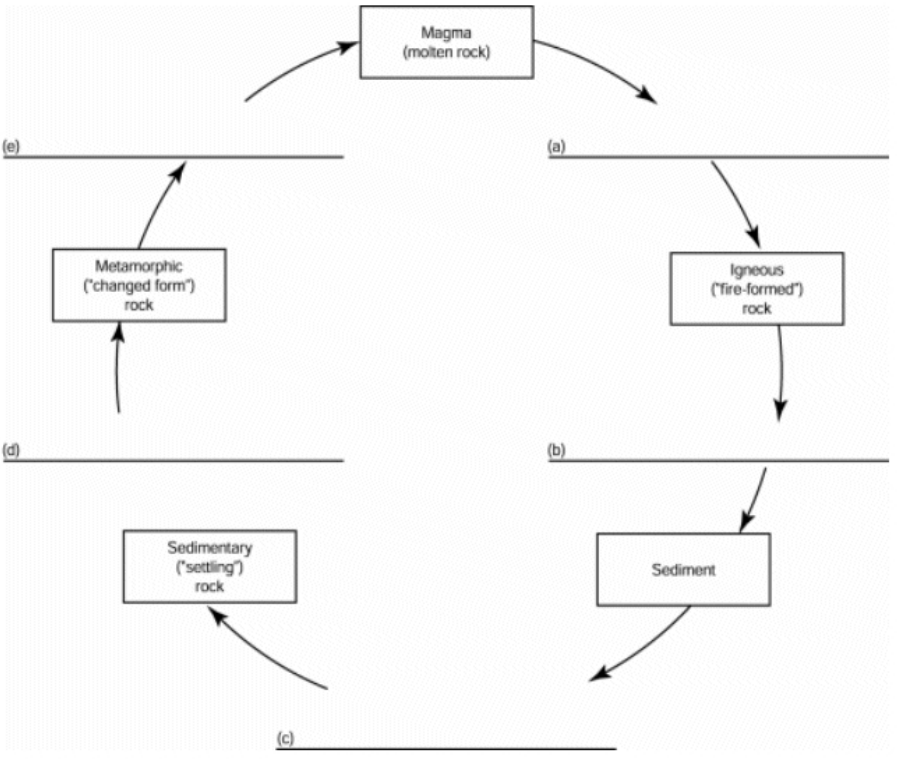
122) The _____ is the solid, rocky shell between the crust and outer core. 122) _____

Answer: mantle
Explanation:

123) List three possible ways that land animals could have travelled from one continent to another in the distant geologic past. 123) _____

Answer: any three: 1) rafting, 2) land links like an isthmus, 3), island hopping, or 4) continental rifting and drifting since they were all together
Explanation:

124) In the spaces provided, describe what happens during the rock cycle. 124) _____



Answer: a) cooling and crystallization b) weathering, transportation, and deposition c) compaction and cementation d) heat and pressure e) melting
Explanation:

125) List the two, broad, traditional subject areas of geologic study. 125) _____

Answer: physical and historical geology
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

126) A) divergent boundary B) mid-ocean ridge C) seafloor spreading D) subduction 126) _____

Answer: subduction
Explanation:

127) Who discovered transform plate boundaries? 127) _____

Answer: Canadian geophysicist John Tuzo Wilson
Explanation:

128) Why does oceanic crust subduct under continental crust at a convergent plate margin? 128) _____

Answer: oceanic crust is more dense
Explanation:

129) What is the estimated temperature of Earth's inner core? 129) _____

Answer: 6700 degrees Celsius
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

130) A) Cretaceous B) Cambrian C) Jurassic D) Triassic 130) _____

Answer: Cambrian
Explanation:

131) The convective flow of liquid, metallic iron in the _____ is thought to generate Earth's magnetic field. 131) _____

Answer: outer core
Explanation:

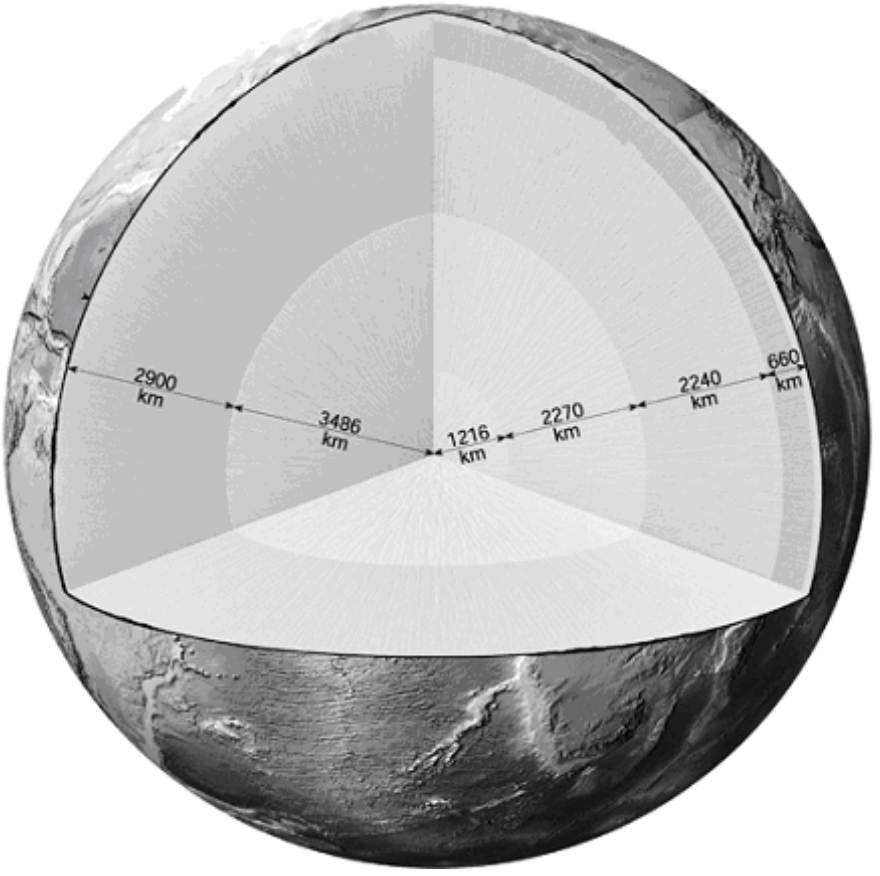
132) Sea-floor spreading occurs at _____ boundaries. 132) _____

Answer: divergent
Explanation:

133) What is the average density of continental crust? 133) _____

Answer: 2.7 grams per cubic centimetre
Explanation:

134) Label the layers of Earth's interior on the diagram below. 134) _____



Answer: See figure 1.19
Explanation:

135) The mass of relatively cool air held by gravity to surround the Earth is called the _____. 135) _____

Answer: atmosphere
Explanation:

136) A comprehensive theory held with high confidence and respect is called a _____ . 136) _____

Answer: paradigm
Explanation:

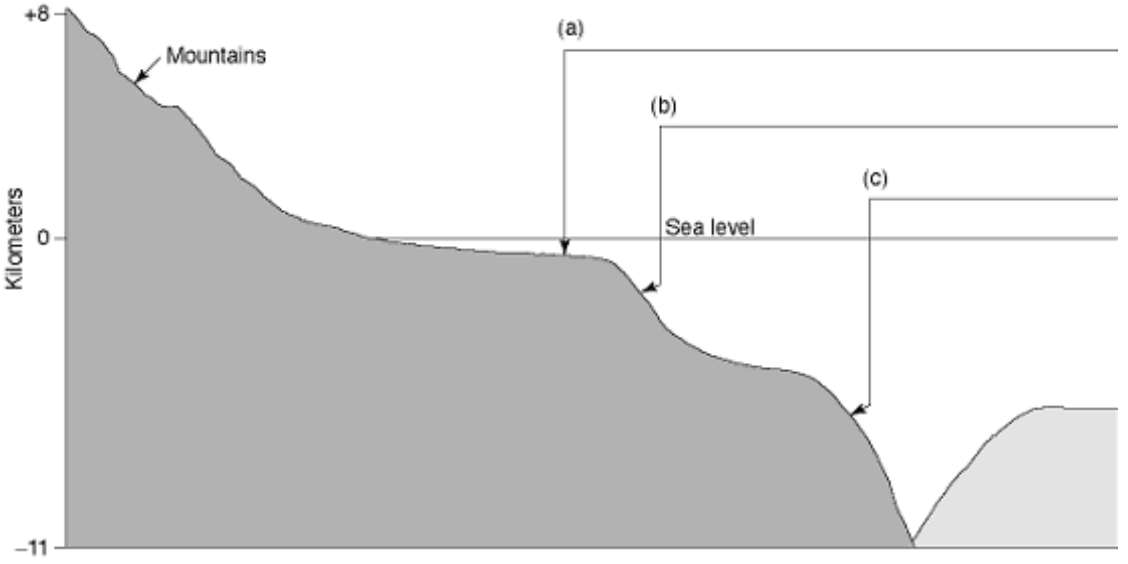
137) What were Wegener's three main lines of evidence to support his continental drift hypothesis? 137) _____

Answer: any three: 1) the fit of Africa and South America's coasts, 2) wide geographic distribution of fossils, 3) rock structures like mountain belts, 4) ancient climates
Explanation:

138) The statement "the present is the key to the past," describes what basic geologic concept or doctrine? 138) _____

Answer: uniformitarianism
Explanation:

139) On the seafloor profile below, fill in the blanks with the correct name of the feature that is labelled. 139) _____



Answer: a) continental shelf b) continental slope c) oceanic trench
Explanation:

140) What is the average thickness of Earth's lithosphere? 140) _____

Answer: 100 kilometres
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

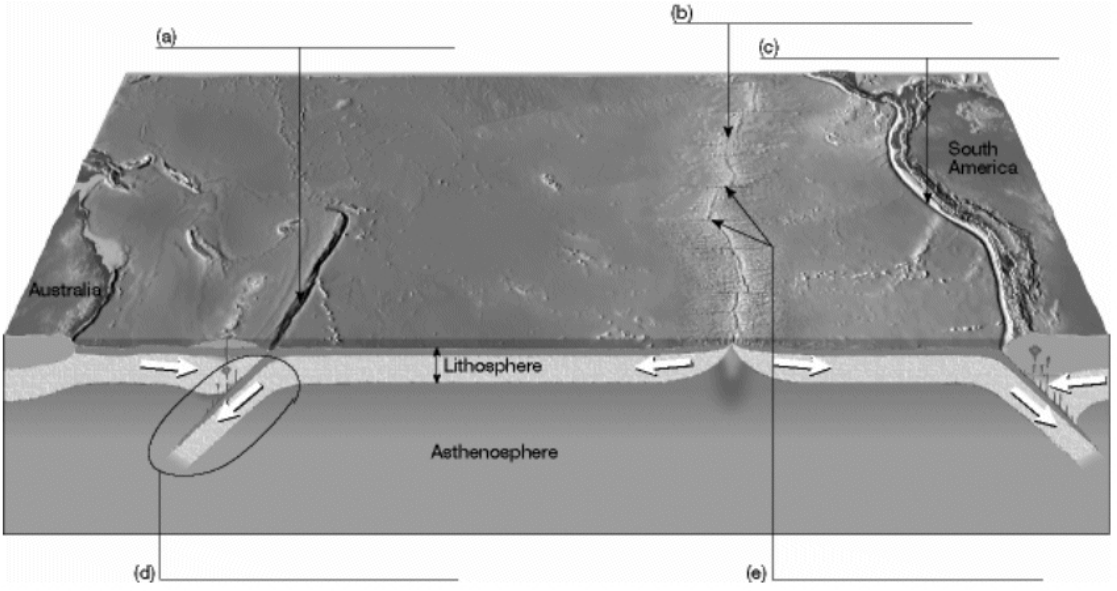
141) A) crust B) mantle C) lithosphere D) core 141) _____

Answer: lithosphere
Explanation:

142) A) Devonian B) Silurian C) Paleogene D) Ordovician 142) _____

Answer: Paleogene
Explanation:

143) Fill in the blanks with the correct name of the feature that is labelled. 143) _____



Answer: a) oceanic trench b) oceanic ridge c) oceanic trench d) subduction zone e) transform faults
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

144) A) Alfred Wegener B) Pangaea C) T. Rex D) Mesosaurus 144) _____
Answer: T. Rex
Explanation:

145) When was our planet created, according to James Ussher? 145) _____
Answer: 4004 B.C.
Explanation:

146) The _____ is the layer between Earth's rigid crust and its largely liquid core. 146) _____
Answer: mantle
Explanation:

147) Who was Canada's first director of its Geological Survey? 147) _____
Answer: Canadian-born and knighted geologist, Sir William Logan
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

148) A) lithosphere B) asthenosphere C) mesosphere D) atmosphere 148) _____
Answer: atmosphere
Explanation:

149) During the first quarter of the twentieth century, _____ was the most vigorous proponent of continental drift. 149) _____

Answer: Alfred Wegener
Explanation:

150) The _____ is the relatively rigid zone above the asthenosphere that includes the crust and upper mantle. 150) _____

Answer: lithosphere
Explanation:

151) Extending from the shoreline towards the deep-ocean basin, the continental margin may include the _____, _____, and the _____. 151) _____

Answer: continental shelf, continental slope, continental rise
Explanation:

152) How old is our planet thought to be from a scientific viewpoint? 152) _____

Answer: 4.6 billion years
Explanation:

153) The _____ hypothesis suggests that the bodies of our solar system evolved from a rotating cloud of hydrogen and helium. 153) _____

Answer: nebular
Explanation:

154) At a _____ boundary, the two plates are moving towards one another. 154) _____

Answer: convergent
Explanation:

155) The San Andreas fault in California is a good example of a _____ plate boundary. 155) _____

Answer: transform
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

156) A) Cenozoic B) Mesozoic C) Paleozoic D) Hadean 156) _____

Answer: Hadean
Explanation:

157) List the three types of plate boundaries. 157) _____

Answer: divergent, convergent, transform
Explanation:

158) What is the average density of oceanic crust? 158) _____

Answer: 3.0 grams per cubic centimetre
Explanation:

Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option that does not fit the pattern.

159) A) sedimentary B) igneous C) metamorphic D) mantle 159) _____
Answer: mantle
Explanation:

160) What was Alfred Wegener's academic training and main area of professional practice? 160) _____
Answer: Meteorologist, working on present and past glacial climates, specifically the Greenland Ice Sheet and Late Paleozoic glaciations of the southern hemisphere..
Explanation:

161) A conservative plate boundary where two plates slide laterally in opposite directions is a _____ boundary. 161) _____
Answer: transform
Explanation:

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

162) The diameter and surface area of the Earth gradually increase as new seafloor is produced by seafloor spreading. 162) _____
Answer: True ✓ False
Explanation:

163) Despite publishing a book in 1915 called "The Origins of the Continents and Oceans", Alfred Wegener's academic training and profession was as a meteorologist and not a geologist. 163) _____
Answer: ✓ True False
Explanation:

164) Where oceanic and continental plates converge, the denser, oceanic plate sinks beneath the continental plate. 164) _____
Answer: ✓ True False
Explanation:

165) An extensive, Late Pleistocene glaciation covered all of southern India, southern Africa, and southeastern South America with a continental ice cap just prior to the break up of Pangaea. 165) _____
Answer: True ✓ False
Explanation:

166) The oldest rocks on the seafloor are much younger than the oldest rocks on the continents. 166) _____
Answer: ✓ True False
Explanation:

167) Transform faults only cut across oceanic lithosphere where ridge systems are offset. 167) _____
Answer: True ✓ False
Explanation:

168) Because of the nearly 70,000 km of spreading ridges the Earth is gradually increasing in surface area. 168) _____

Answer: True ✓ False
Explanation:

169) The faunal evidence for Pangaea was tenuous as the giant crocodillian, Mesosaurus, could have easily swum from South America to Africa. 169) _____

Answer: True ✓ False
Explanation:

170) Subduction zones are usually associated with oceanic ridge systems. 170) _____

Answer: True ✓ False
Explanation:

171) James Hutton's 18th century textbook emphasized the importance of catastrophic geologic processes and a short time span for the whole of Earth's geologic history. 171) _____

Answer: True ✓ False
Explanation:

172) According to the nebular hypothesis, all of the bodies in the universe evolved from a rotating cloud of gases and dust about 5 billion years ago. 172) _____

Answer: True ✓ False
Explanation:

173) During late Paleozoic glaciation, southern Africa was situated over the South Pole. 173) _____

Answer: ✓ True False
Explanation:

174) According to the rock cycle, any type of rock (igneous, sedimentary, or metamorphic) may be transformed into another type of rock, given enough time. 174) _____

Answer: ✓ True False
Explanation:

175) The mantle is a shell of molten metal, mainly iron, that surrounds the inner core. 175) _____

Answer: True ✓ False
Explanation:

176) According to Wegener, the Late Paleozoic climate favoured by the Glossopteris ferns was sub-tropical. 176) _____

Answer: True ✓ False
Explanation:

177) The lithosphere, asthenosphere, and mesosphere are all layers of Earth defined by their composition. 177) _____

Answer: True ✓ False
Explanation:

178) Cooling away from the ridge causes the oceanic lithosphere to strengthen and thicken. 178) _____

Answer: ✓ True False
Explanation:

179) Oceans cover slightly less than half of the Earth's surface. 179) _____

Answer: True ✓ False
Explanation:

180) The Second World War caused a steep decline in the post-war rate of world population growth. 180) _____

Answer: True ✓ False
Explanation:

181) Internally, the Earth consists of spherical shells with different compositions and densities. 181) _____

Answer: ✓ True False
Explanation:

182) The doctrine of uniformitarianism implies that the current forces and processes shaping the Earth have been operating for a very long time. 182) _____

Answer: ✓ True False
Explanation:

183) The law of superposition applies primarily to sedimentary rocks and lava flows. 183) _____

Answer: ✓ True False
Explanation:

184) Because of plant fossil similarities, by the early part of the twentieth century, most paleontologists were in agreement that some sort of land connection existed between the southern continents during the Late Paleozoic and Early Mesozoic Eras. 184) _____

Answer: ✓ True False
Explanation:

185) There is little feedback or interaction between Earth's various spheres and systems. 185) _____

Answer: True ✓ False
Explanation:

186) The doctrine of uniformitarianism implies that Earth's geologic history took place over a relatively short time span. 186) _____

Answer: True ✓ False
Explanation:

187) The asthenosphere is a relatively cool and rigid shell that overlies the lithosphere. 187) _____

Answer: True ✓ False
Explanation:

188) During subduction, oceanic lithosphere descends into the asthenosphere. 188) _____

Answer: ✓ True False
Explanation:

189) The currently accepted age of Earth is approximately 4.6 million years. 189) _____

Answer: ✓ True False
Explanation:

190) William Logan was Canada's first official geologist. 190) _____

Answer: True False
Explanation:

191) Igneous rocks are produced largely by the deposition and consolidation of surface materials like sand and mud. 191) _____

Answer: True False
Explanation:

192) Shields occur in stable interior regions of continents. 192) _____

Answer: True False
Explanation:

193) Seafloor spreading is the dominant process at convergent plate margins. 193) _____

Answer: True False
Explanation:

194) The mantle and crust have about the same thickness. 194) _____

Answer: True False
Explanation:

195) In general, rocks of the continental crust are less dense than rocks of the oceanic crust. 195) _____

Answer: True False
Explanation:

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

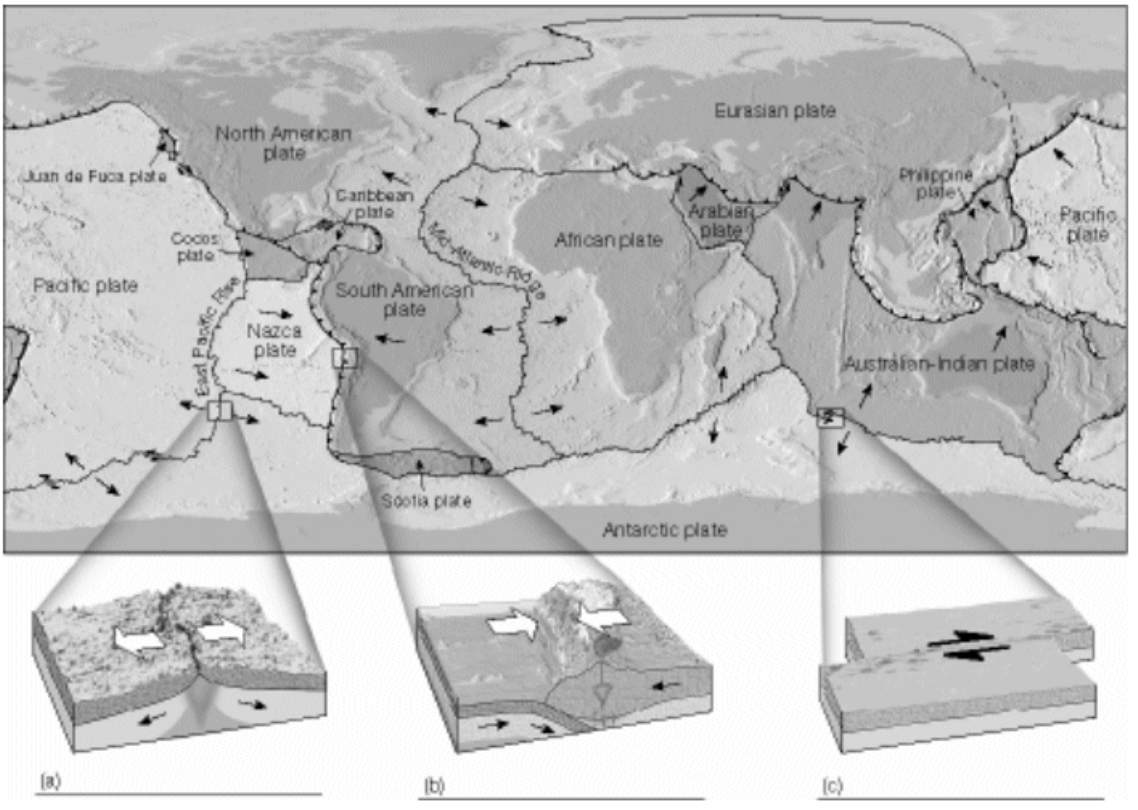
Use complete sentences, correct spelling, and the information presented in Chapter 1 to answer the question(s) below.

196) Catastrophism obviously influenced seventeenth and eighteenth century thought by implying that Earth only needed to be a few thousand years old to explain landscapes and geologic features. However, catastrophic and often sudden changes are at least a part of the rock record that geologist's attempt to interpret. List three geologic catastrophes that would most likely affect landscapes or features on Earth and explain how they get recorded in rocks.

Answer: 1) Earthquakes leave faults and tsunami deposits preserved in the rock record. 2) Landslide deposits are found in the rock record. 3) Volcanic eruptions leave lava flows and ash layers.

197) In the diagram below, match the letter of each illustration to the correct type of plate boundary.

a) transform b) divergent c) convergent



Answer: (a) b (b) c (c) a

Use complete sentences, correct spelling, and the information presented in Chapter 1 to answer the question(s) below.

198) Given our current knowledge of plate tectonics, is Hapgood's "Earth crust displacement" theory of large lateral crustal movements over 5000 years valid? Explain.

Answer: No. Plate movements average 5 cm/year which takes millions of years for noticeable lateral displacements.

199) Aside from near oceanic trenches, most earthquakes originate at depths of 100 kilometres or less. Considering the physical properties of Earth's interior, what type of mechanical behavior (in rocks) must be necessary for earthquakes to occur? Explain.

Answer: Brittle deformation which occurs when Earth's crust breaks during earthquakes.

200) Considering the discussion of the Nebular hypothesis regarding the origin of our solar system, what is the likelihood that plate tectonics is a viable model for processes operating on other planets? Are certain planets more likely than others to exhibit plate movements and why might plate tectonics not currently be active on those planets?

Answer: Plate tectonics require convection in hot,dense planet interiors. Because planets in our solar system formed by gravitational accretion (heavier elements moving toward the centre according to the Nebular hypothesis), it is likely that the heavier planets experience interior radioactive heat generation, convection and plate tectonics. Smaller, lighter planets probably cooled and solidified with no internal radioactive heat or convection currently being generated.

Answer Key
Testname: C1

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

51) D
52) B
53) D
54) C
55) B
56) A
57) B
58) B
59) D
60) D
61) A
62) A
63) C
64) C
65) A
66) D
67) A
68) C
69) C
70) C
71) D
72) A
73) A
74) A
75) B
76) C
77) B
78) A
79) D
80) D
81) C
82) C
83) D
84) A
85) A
86) C
87) C
88) D
89) D
90) D
91) D
92) D
93) D
94) C
95) B
96) B
97) C
98) D
99) D
100) C

101) C
102) D
103) B
104) C
105) C
106) D
107) D
108) B
109) C
110) D
111) weak partially molten asthenosphere and hot solid mesosphere. The outer core is entirely liquid.
112) Big Bang
113) rock, ash, and gas
114) igneous, sedimentary, metamorphic
115) sedimentary
116) principle of fossil succession
117) asthenosphere
118) stratosphere
119) catastrophism
120) crust
121) Peru-Chile
122) mantle
123) any three: 1) rafting, 2) land links like an isthmus, 3), island hopping, or 4) continental rifting and drifting since they were all together
124) a) cooling and crystallization b) weathering, transportation, and deposition c) compaction and cementation d) heat and pressure e) melting
125) physical and historical geology
126) subduction
127) Canadian geophysicist John Tuzo Wilson
128) oceanic crust is more dense
129) 6700 degrees Celsius
130) Cambrian
131) outer core
132) divergent
133) 2.7 grams per cubic centimetre
134) See figure 1.19
135) atmosphere
136) paradigm
137) any three: 1) the fit of Africa and South America's coasts, 2) wide geographic distribution of fossils, 3) rock structures like mountain belts, 4) ancient climates
138) uniformitarianism
139) a) continental shelf b) continental slope c) oceanic trench
140) 100 kilometres
141) lithosphere
142) Paleogene
143) a) oceanic trench b) oceanic ridge c) oceanic trench d) subduction zone e) transform faults
144) T. Rex
145) 4004 B.C.
146) mantle
147) Canadian-born and knighted geologist, Sir William Logan

148) atmosphere
149) Alfred Wegener
150) lithosphere
151) continental shelf, continental slope, continental rise
152) 4.6 billion years
153) nebular
154) convergent
155) transform
156) Hadean
157) divergent, convergent, transform
158) 3.0 grams per cubic centimetre
159) mantle
160) Meteorologist, working on present and past glacial climates, specifically the Greenland Ice Sheet and Late Paleozoic glaciations of the southern hemisphere..
161) transform
162) FALSE
163) TRUE
164) TRUE
165) FALSE
166) TRUE
167) FALSE
168) FALSE
169) FALSE
170) FALSE
171) FALSE
172) FALSE
173) TRUE
174) TRUE
175) FALSE
176) FALSE
177) FALSE
178) TRUE
179) FALSE
180) FALSE
181) TRUE
182) TRUE
183) TRUE
184) TRUE
185) FALSE
186) FALSE
187) FALSE
188) TRUE
189) TRUE
190) TRUE
191) FALSE
192) TRUE
193) FALSE
194) FALSE
195) TRUE

196) 1) Earthquakes leave faults and tsunami deposits preserved in the rock record. 2) Landslide deposits are found in the rock record. 3) Volcanic eruptions leave lava flows and ash layers.
197) (a) b (b) c (c) a
198) No. Plate movements average 5 cm/year which takes millions of years for noticeable lateral displacements.
199) Brittle deformation which occurs when Earth's crust breaks during earthquakes.
200) Plate tectonics require convection in hot,dense planet interiors. Because planets in our solar system formed by gravitational accretion (heavier elements moving toward the centre according to the Nebular hypothesis), it is likely that the heavier planets experience interior radioactive heat generation, convection and plate tectonics. Smaller, lighter planets probably cooled and solidified with no internal radioactive heat or convection currently being generated.