Quiz 1

Name		Roll	
Instructor	Dr. D Ghosal	Date	2rd September, 2022

Rules:

a. *All the answers to be marked in the question paper itself with pen.*

b. *Markings with pencil will be considered as a wrong answer and will be eligible for negative marking.*

c. *For every right answer +1 and wrong answer -0.25.*

d. *Reasons are only to be cited when asked, should be within 15 words and should make sense.*

e. *Answers without reasons would be considered wrong.*

---

1. Correct order and why?

a. H,He,O,C,Si,Na,Ne,S,Fe
b. H,HE,C,O,Si,Na,Ne,S,Fe
c. He,H,C,O,Si,Na,Mg,S,Fe
d. H,He,C,O,Ne,Na,Mg,S,Fe

Reason: Lighter material created first followed by heavier metals

---

2. Which is correct

a. Big bang started, followed by domination of S-process then r-process
b. Big bang started followed by domination of R-process than S-process
c. After big bang r-process was followed by s-process
d. After big bang s-process was followed by r-process

Reason: Hydrogen formed by r-process, heavier metals are combination of S and r-process

3. A Great oxygen event happened around 2.45 billion years ago and most probably the cyanobacteria was responsible for it?

   a. True
   b. False
   c. None of the above

Reason: Oceanic cyanobacteria created more oxygen then that captured by dissolved iron or organic matter /oxygen sink.

4. Banded iron formations are due to saturation of oxygen sink

   a. True
   b. False

Reason: Lack of free oxygen resulted in lack of precipitation of iron as oxide

5. Discovering _____ is the result of the observation that there is a 35 degree - wide belt, _____wave shadow zone

   a. Crust mantle, P-wave
   b. Mantle-core, P-wave
   c. Crust mantle, S-wave
   d. Mantle-core, S-wave

6. Read and find the correct

   a. With increasing depth, Earth's interior is characterized by gradual decreases in temperature, pressure, and density.
   b. Depending on the temperature and depth, a particular Earth material may behave like a brittle solid, deform in a plastic–like manner, or melt and become liquid.
   c. Main layers of Earth's interior are based on physical properties and hence, _____ strength.

      a. False, True, mechanical
      b. True, True, mechanical
      c. False, False, mechanical
      d. False, True, chemical
      e. False, False, chemical

7. Heat flow direction
   a. Conduction; conduction and convection; conduction, convection; conduction; radiation
   b. Conduction; conduction, convection; conduction and convection; conduction; radiation
   c. Conduction; conduction and convection; radiation; conduction, convection; conduction
   d. Conduction and convection; conduction; conduction, convection; conduction; radiation

Reason: Heat flow from inner-Core to outer-core; outer-core to mantle; within mantle; crust and atmosphere.

8. Distance between similar polarity bands on either side of a rift is 400 cm. If 1m represents 1 million years, the age of the space between
   a. 2 million years
   b. 20 million years
   c. 40 million years
   d. 4 million years

Reason: Seafloor spreading hypothesis states equal spreading on both side.

9. Deepest part in the world can be found at
   a. Base of Continental shelf
   b. Rifts
   c. Divergent boundaries
   d. Convergent boundaries

Reason: At convergent boundaries, crust submerges.

10. The rocks from abyssal planes are lower density than that at the ridges
   a. True
   b. False
   c. Not enough evidence

Reason: Rocks at abyssal plane are cooled by sea-water thus are of higher density

11. The rocks at just the subsurface from abyssal planes and those at rift are _____ and _____when they are in _____
   a. Aphanitic, Phaneritic, sea
   b. Phaneritic, Aphanitic, sea
   c. Phaneritic, Aphanitic, land
   d. Aphanitic, Phaneritic, land

Reason: Rift experience sudden cooling and abyssal plain experience slow cooling and present only under sea

12. A sedimentary rock gets buried and reach the mantle. It melts completely and then rises up. What are the two types of rock formed during the whole process.
    a. Sedimentary to metamorphic, sedimentary to igneous
    b. Sedimentary to igneous
    c. Sedimentary to metamorphic, metamorphic to igneous.
    d. Metamorphic to igneous

Reason: During subduction, sedimentary to metamorphic. After complete melting its always igneous rock.

13. Why are the volcanic arc formed at a distance from the trench and not at the trench
    a. It needs time to melt
    b. It needs volatiles to melt
    c. It needs pressure to be pushed up
    d. It needs friction to heat up

Reason: During subduction, any rock needs time to absorb heat from surrounding and then start melting

14. Two volcano produces magma of composition A and B. Suddenly the Composition B changed to another composition C whose composition tends to be somewhere between A and B. What can be the most probable reason.

    Reason: Magma mixing

15. Which sentence is wrong
    a. Parallel alignment of flattened / platy minerals are called foliation
    b. Micas have foliated structure
    c. Gneiss is a foliated igneous rock
    d. Quartzite is a metamorphic rock

Reason: Gneiss is a foliated metamorphic rock

16. Correct order
    a. Shale>Slate > Phylite>Schist>Gneiss
    b. Shale>Slate >Schist> Phylite> Gneiss
    c. Shale> Phylite> Slate >Schist>Gneiss
    d. Shale> Phylite>Schist> Slate >Gneiss

Reason: Order of metamorphism

17. A rock formed after lava eruption
    a. Basalt

b. Granite
c. Sandstone
d. Quartzite

Reason: Basalt is an extrusive igneous rock

---

18. The generally accepted temperature limits for metamorphism are:

a. metamorphism occurs at all temperatures
b. there are no temperature limits to metamorphism because it is a continuum
c. metamorphism is limited by pressure, not temperature
d. 200 degrees Celsius to rock melting

---

19. The Metamorphism of limestone may contribute to global warming by the release of:

a. Oxygen
b. Sulphuric acid
c. Carbon dioxide
d. Nitrous oxide

Reason:

---

20. What is the effect of water on melting?

a. water raises the melting temperature of a rock
b. water lowers the melting temperature of a rock
c. water does not change the melting temperature of a rock
d. this depends on how much water is present

---

21. Is it justifiable to say that 'We are made up of stardust' keeping in mind that elements are also formed due to radioactivity ?

a. True
b. False

Reason: Every essential element in human body is cooked inside star , like Carbon,oxygen,etc.

---

22. D'' transfer heat by conduction because

a. It's a solid
b. Its liquid
c. Its semi solid
d. None of the above

Reason: It contains partially melted subducted oceanic lithosphere.

23. Which of the following statement is not correct?

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

Reason: Igneous rocks weather to form sedimentary

---

24. How many maximum plate boundaries can meet at a single point?

a. 1
b. 2
c. 3
d. 4

Reason: triple junction

---

25. The Indian sub-continent may cease to exist after few millions of years.

a. True
b. False

Reason: Indian plate is diving under the Asian plate

---

26. With increasing distance from a rift, the ocean bed thickens

a. True
b. False
c. Not possible to comment from given data

Reason: Deposition of sediments

---

27. Iceland has a great number of volcanic activity. The reason for this is:

a. it was formed above a mid-ocean rift.
b. it is part of the "Ring of Fire".
c. two tectonic plates are rubbing against each other under Iceland.
d. the American plate is diving under the European plate in this region.

---

28. Partial melting is represented by

a. liquidus
b. solidus
c. geotherm

d. isotherm

29. In geological studies, all of the following are TRUE of P waves except that they:.

a. are body waves
b. travel like sound waves
c. can pass through liquids
d. are slower than S waves

Reason: P-waves are faster than S-waves

30. Which of the following pairs contains one igneous and one sedimentary rock?

a. shale and marble
b. sandstone and quartzite
c. granite and limestone
d. obsidian and gneiss