

GOVERNMENT ZIRTIRI RESIDENTIAL SCIENCE COLLEGE

SUBJECT : GEOLOGY

Name of Paper : Petrology & Geochemistry

PAPER – II

II SEMESTER

A : Choose the correct answer : (25 Marks)

1. The first mineral to crystallize in the Bowen's Reaction Series is
 - i) Olivine
 - ii) pyroxene
 - iii) amphibole
 - iv) biotite
2. Viscosity of a magma depends upon the amount of
 - i) iron
 - ii) silica
 - iii) CaO
 - iv) Fe_2O_3 .
3. Fine grained igneous rocks indicates
 - i) Fast rate of cooling
 - ii) Slow rate of cooling
 - iii) Moderate rate of cooling
 - iv) Low temperature and pressure
4. In magma, the most abundant chemical composition in terms of oxide is
 - i) Fe_2O_3
 - ii) Al_2O_3
 - iii) SiO_2
 - iv) CaO
5. Acidic magmas (granite, syenite) have silica percentage which is
 - i) >66
 - ii) 52-66
 - iii) 45-52
 - iv) <45
6. Which is **NOT** a primary sedimentary structure?
 - i) Ripple Marks
 - ii) Mud Cracks
 - iii) Solution Structures
 - iv) Bedding.
7. Thinner lamination indicates -
 - i) Higher rate of accumulation
 - ii) Slower rate of accumulation
 - iii) High degree of weathering
 - iv) Slow rate of transportation
8. The term Breccia applies to any kind of rock which is composed of aggregate of -
 - i) Conchoidal fragments
 - ii) Angular fragments
 - iii) Rounded fragments
 - iv) Unsorted fragments.
9. Rounded sedimentary grains indicates it has undergone -
 - i) high degree of transportation
 - ii) low degree of transportation
 - iii) high deposition rate
 - iv) insitu deposition
10. Which is NOT a process of CLASTIC Sedimentary Rock formation?
 - i) weathering
 - ii) erosion
 - iii) lithification
 - iv) precipitation

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11. The agents of metamorphism is not
i) Pressure ii) Temperature
iii) chemically active fluids iv) time

12. Isograd is a line showing points of same
i) grade of metamorphism ii) rocks
iii) texture iv) temperature

13. Among the following, this is not a Metamorphic zone
i) Epizone ii) Metasomatic zone
iii) Mesozone iv) Ketazone

14. Among the following, this is not a metamorphic facies
i) Greenschist ii) Granuite
iii) Sanidine iv) Apatite

15. This is not a part of metamorphic structure
i) schistose ii) diorite
iii) gneissose iv) granulose

16. This is not an Atmophile
i) H ii) He
iii) Ne iv) Li

17. The bulk of the earth is NOT made up of
i) iron ii)magnesium
iii) oxygen iv) sulphur

18. Atmophile elements are those that contain mostly
i) inert gases ii) lanthanides
iii) metals iv) ores

19. Alkalies are part of
i) Atmophiles ii) Lithophiles
iii) Metallic iv) Sulphide

20. Undifferentiated meteorite is
i) Achondrites ii)Iron meteorites
iii) Chondrites iv) Stony iron meteorites

21. SEM operates a beam of electrons in a
i) vacuum ii) light
iii) waves iv) metals

22. in XRF, the photons ionize the atoms in the surface layer of the sample by ejecting
i) gas ii) electron
iii) metal iv) ion

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23. ICP-MS can detect different isotopes of the same
- i) gas
 - ii) atom
 - iii) ore
 - iv) element
24. Electron Probe Analyses is used for
- i) small volume of liquids
 - ii) large volume of molecules
 - iii) small volumes of solid materials
 - iv) liquids only
25. SEM analytical methods are concerned with
- i) images
 - ii) matter
 - iii) gases
 - iv) noise

B : Fill up the blanks : (15 Marks)

1. Magmas are called _____, when they come out to the surface.
2. _____ are concordant, tabular bodies parallel to the country rocks.
3. Granite is an example _____ igneous body.
1. The size range of boulders are _____.
2. Non-clastic sediments are the _____ derived sediments.
3. Dott's classified those having 0-15% matrix as _____.
7. In metamorphism, the heat factor take place between_____.
8. Due to great depths, plutonic metamorphism has very _____ temperatures.
9. By contact metamorphism, pure limestone will metamorphosed into _____.
10. The earth's crust is made up of mainly oxygen and _____.
11. The upper mantle is made up of mainly iron and _____ silicates.
12. The core is made up of mainly iron and _____.
13. XRF is used for _____ analyses.
14. ICPMS measures _____ ratios.
15. Gun, laser, stage, vacuum system etc. are all parts of _____ instrumentation.

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Key Answers (MCQ) :

- | | | | | |
|----------|----------|----------|-----------|-----------|
| 1. (i) | 2. (ii) | 3. (i) | 4. (iii) | 5. (i) |
| 6. (iii) | 7. (ii) | 8. (ii) | 9. (i) | 10. (iii) |
| 11. (iv) | 12. (i) | 13. (ii) | 14. (iv) | 15. (ii) |
| 16. (iv) | 17. (iv) | 18. (i) | 19. (ii) | 20. (iii) |
| 21. (i) | 22. (ii) | 23. (iv) | 24. (iii) | 25. (i) |

Key Answers (Fill up the blanks) :

- | | | |
|----------------|---------------|--------------|
| 1. lava | 2. Sills | 3. intrusive |
| 4. 256 mm> | 5. Chemically | 6. arenites |
| 7. 300-850° C. | 8. High | 9. Marble |
| 10. silicon | 11. Magnesium | 12. Nickel |
| 13. elemental | 14. Isotopic | 15. SEM |