

**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<sub>2</sub>O<sub>3</sub>.
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<sub>2</sub>O<sub>3</sub>
  - ii) Al<sub>2</sub>O<sub>3</sub>
  - iii) SiO<sub>2</sub>
  - 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

**GOVERNMENT ZIRTIRI RESIDENTIAL SCIENCE COLLEGE**

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

## GOVERNMENT ZIRTIRI RESIDENTIAL SCIENCE COLLEGE

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.

## **GOVERNMENT ZIRTIRI RESIDENTIAL SCIENCE COLLEGE**

### **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      |