

Entrance Test for

00094

Ph.D. (GEOLOGY) Programme - 2016

Time : 3 hours

Maximum Marks : 100

Note : There are three sections. Attempt all sections. Section - A contains thirty (30) multiple choice type questions of one (1) mark each. The marks for questions of the Section - B and C are indicated against them.

SECTION - A

Choose the most appropriate answer from the given four choices.

30x1=30

1. What is Coprolite ?
(1) Fossilized dung (2) Invertebrate fossil
(3) Vertebrate fossil (4) Plant fossil
2. Example of terrestrial planet is :
(1) Mars (2) Jupiter
(3) Both (1) and (2) (4) None of the above
3. The main raw material for ceramic industry is :
(1) Calcite (2) Clay (3) Gypsum (4) Terracotta
4. What is stratotype ?
(1) Type section (2) Holotype (3) Syntype (4) Type locality
5. The principal mineral constituent of drilling mud is :
(1) Bauxite (2) Baryte (3) Beryl (4) Gypsum
6. Which one of the following statements is relevant to the occurrence of trilobite fossils ?
(1) Marine Palaeozoic sedimentary rocks of Himalaya
(2) Upper Palaeozoic Gondwana rocks of peninsular India
(3) Freshwater Palaeozoic sedimentary rocks of Himalaya
(4) Marine Mesozoic sedimentary rocks of peninsular India
7. Black colour of the gossan indicates the presence of :
(1) Iron (2) Manganese (3) Copper (4) Graphite
8. Dinosaurs made their first appearance in :
(1) Late Cretaceous (2) Late Triassic
(3) Early Triassic (4) Middle Jurassic
9. Which of the following are most suitable for underground mining of ore bodies situated at great depth ?
(1) Horizontal shafts (2) Inclined shafts
(3) Vertical shafts (4) None of the above
10. The deposits formed at the end of magmatic differentiation are termed as :
(1) Orthotectic deposits (2) Orthomagmatic deposits
(3) Metasomatic deposits (4) Hydrothermal deposits

11. In chronostratigraphic unit, series corresponds to geochronologic unit :
 (1) Period (2) Epoch (3) Age (4) Era
12. Iron and manganese deposits of India are mostly found in :
 (1) Palaeozoic (2) Precambrian (3) Mesozoic (4) Cenozoic
13. Greenhouse effect is the _____ natural ability to store heat radiated from earth.
 (1) Atmosphere's (2) Biosphere's (3) Geosphere's (4) Lithosphere's
14. Which one of the following covers the greatest span of geological time ?
 (1) Mesozoic (2) Precambrian (3) Cenozoic (4) Palaeozoic
15. Earth's atmospheric temperature and sea surface temperature have risen in the past 100 years :
 (1) 0.6°C and 0.4°C (2) 0.7°C and 0.5°C
 (3) 0.8°C and 0.6°C (4) 0.9°C and 0.7°C
16. An earthquake is sudden shaking of the :
 (1) Crust (2) Mantle (3) Core (4) All of the above
17. Hawaii is a chain of islands formed by :
 (1) Earthquake (2) Subduction (3) Hot spot (4) Obduction
18. The Deccan volcanic province of Western India is the result of :
 (1) Reunion hot spot (2) Crozet hot spot
 (3) Kerguelen hot spot (4) Marion hot spot
19. Diagenesis refers to :
 (1) Post-depositional change (2) Pre-depositional change
 (3) Syn-depositional change (4) Both (1) and (3)
20. Which of the following earthquake is related to the Son-Narmada rift ?
 (1) Jodhpur (2) Jabalpur (3) Bhadrachalam (4) Uttarkashi
21. The "Ring of Fire" is an arcuate belt with the largest number of active volcanoes on earth is found in :
 (1) Atlantic Ocean (2) Pacific Ocean
 (3) African rift valley (4) Mid Oceanic ridges

22. In Bowen's reaction series, from olivine to quartz, the temperature :
- (1) Increases
 - (2) Decreases
 - (3) First increases then decreases
 - (4) First decreases then increases
23. Sensitive High Resolution Ion Microprobe (SHRIMP) is a :
- (1) Type of mineral exploration method
 - (2) Type of remote sensing survey
 - (3) Type of film used for remote sensing survey
 - (4) Age dating method by Zircon crystal
24. Where would you expect to find the largest crystals in a lava flow ?
- (1) The crystals would have the same grain size throughout the flow
 - (2) In the center of the flow
 - (3) Near the top surface of the flow
 - (4) Near the bottom of the flow
25. The mineral apatite has _____ value in Mohs' scale of hardness.
- (1) 4
 - (2) 8
 - (3) 5
 - (4) 6
26. The cleavage angles in micas are :
- (1) 60° and 120°
 - (2) 70° and 160°
 - (3) 80° and 140°
 - (4) None of the above
27. Polymorph of sphalerite is :
- (1) Wurtzite
 - (2) Zincite
 - (3) Willemite
 - (4) Monazite
28. Diaphaneity relates to :
- (1) Magnetic property of a mineral
 - (2) Birefringence
 - (3) Transmission of light through a thin section of a rock-forming mineral
 - (4) Reflective index
29. The minerals are abundantly crystallised in one of the following crystal systems :
- (1) Triclinic
 - (2) Monoclinic
 - (3) Cubic
 - (4) Orthorhombic
30. Tenacity relates to _____ property of a mineral.
- (1) Flexibility
 - (2) Brittleness
 - (3) Malleability
 - (4) All of the above

SECTION - B

31. Write short notes on any five of the following in about 100 words :

5x8=40

- (a) Texture of sedimentary rocks
- (b) Application of fossils in relative dating of rocks
- (c) Techniques used in prospecting ore deposits
- (d) Evidences of continental drift
- (e) Human influence on environment
- (f) Magnetite and Chromite
- (g) Cretaceous/Palaeogene mass extinction
- (h) Bowen's reaction principle

SECTION - C

32. Attempt any two of the following in about 250 words :

2x15=30

- (a) What do you understand by geological research ? Write a research proposal on the area of your interest. The proposal should include the objectives, methodology, expected outcomes and significance.
 - (b) Explain briefly the procedure followed in the preparation of thin section of rock mineral sample in the laboratory.
 - (c) Give a brief account of resistivity methods used in exploration of ground water.
 - (d) Discuss the origin and evolution of horse giving suitable Indian examples.
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