MSc(HS)(Geology)

1. A sand zone that connects an island or rock to mainland is called
   (A) Tombolo
   (B) Berm
   (C) Cusp
   (D) Groin

2. Which of the following pairs in not correctly matched?
   (A) Deflation Hollows: Deserts
   (B) Rock Pedestals: Deserts
   (C) Yardang: Deserts
   (D) Kettle: Deserts

3. Which one of the following is not a feature of glacial erosion?
   (A) Cirques
   (B) Grooves and Striation
   (C) V-shaped valley
   (D) U-shaped valley

4. Mohorovicic discontinuity under the continents usually occurs at a depth of
   (A) 5 km
   (B) 15 km
   (C) 25 km
   (D) 35 km

5. Unconsolidated deposits of pyroclastic debris that have been erupted from a volcano is called
   (A) Scoria
   (B) Tephra
   (C) Lapilli
   (D) Pumice

6. How many minerals are Ca-bearing in the Mohs scale of hardness?
   (A) Five
   (B) Four
   (C) Three
   (D) Two

7. Which of the following are the biaxial crystal systems?
   (A) Orthorhombic-Monoclinic-Triclinic
   (B) Orthorhombic-Monoclinic-Tetragonal
   (C) Tetragonal-Hexagonal-Trigonal
   (D) Tetragonal-Hexagonal-Isometric

8. Which one of the following minerals is characterised by irregular form, no cleavage, high relief and parallel extinction

(A) Quartz
(B) Garnet
(C) Olivine
(D) Fluorite

9. Which one of the following oxides are referred to as network formers?
(A) BaO & CaO
(B) K_2O & Na_2O
(C) SiO_2 & Al_2O_3
(D) Mgo & FeO

10. In which of the following minerals, the cleavages meet at an angle of 124^o in the basal section?
(A) Jadeite
(B) Acmite
(C) Omphacite
(D) Grunerite

11. Which of the following REEs exist in valance state other than +3?
(A) Eu and La
(B) Eu and Ce
(C) Eu and Nd
(D) Eu and Sm

12. The abundance of garnet in the source is indicated by
(A) Negative slope of LREE
(B) Negative slope of HREE
(C) Flat LREE pattern
(D) Flat HREE pattern

13. $^{12}_{7}N$ decays to $^{12}_{6}C$ by
(A) Negatron decay
(B) Positron decay
(C) Alpha decay
(D) Electron capture

14. Which one of the following isotopic methods is best suited to date garnet?
(A) Rb-Sr
(B) K-Ar
(C) Ar-Ar
(D) Sm-Nd

15. Which one of the following meteorites is considered to be most primitive in the solar system?
(A) Chondrites
(B) Achondrites
(C) Iron meteorites

(D) Stony-iron meteorites

16. On flat topography, the outcrop width of a bed is 50 m. If the true dip of the bed is 30°, the actual thickness of the bed will be
(A) 100 m (B) 25 m (C) 20 m (D) 15 m

17. If the angle of plunge of a fold is 45° and dip of axial surface is 45°, then the fold is
(A) Reclined
(B) Moderately inclined
(C) Gently plunging
(D) Moderately plunging

18. Which one of the following is not associated with convergent plate boundary?
(A) Back arc
(B) Fore arc
(C) Ridge
(D) Trench

19. Which type of faulting is responsible for the formation of horst and graben structure?
(A) Reverse
(B) Normal
(C) Strike-slip
(D) Dip-slip

20. According to V-rule, the vertical beds
(A) Do not vee
(B) Vee upstream
(C) Vee downstream
(D) Do not have straight outcrop

21. In the QAP diagram, what will be the name of plutonic igneous rock containing 35% quartz, 5% alkali-feldspar and 60% plagioclase?
(A) Granite
(B) Granodiorite
(C) Tonalite
(D) Diorite

22. The texture involving albitic plagioclase overgrowths on orthoclase in granite is called
(A) Myrmekitic
(B) Perthitic
(C) Rapakivi
(D) Graphic

23. Alkaline rocks are characteristics of
(A) Continental rift
(B) Collision zone
(C) Continental arc

(D) Island arc

24. Which of the following minerals are characteristic of strongly peraluminous granites?
    (A) Hornblende-Biotite (B) Hornblende-Riebeckite
    (C) Muscovite-Garnet (D) Muscovite- Riebeckite

25. Which one of the following is not a lamprophyre?
    (A) Polzenite
    (B) Vogsite
    (C) Spessartine
    (D) Minette

26. Which one of the following pairs is not correctly matched?
    (A) Amphibolite: Basalt
    (B) Khondalite: Shale
    (C) Clay-sand mixture: Marl
    (D) Quartz sand: Quartzite

27. Which one of the following rocks occurs in a brittle fault zone?
    (A) Breccia
    (B) Mylonite
    (C) Pseudotachylite
    (D) Ultramylonite

28. The formation of secondary foliation in a rock is due to
    (A) Deviatoric stress
    (B) Lithostatic pressure
    (C) Hydrostatic pressure
    (D) Confining pressure

29. What is the sense of shearing in the S-type snowball garnet?
    (A) Clockwise, Sinistral
    (B) Clockwise, Dextral
    (C) Anticlockwise, Dextral
    (D) Anticlockwise, Sinistral

30. Anticlockwise P-T-t paths are characterised by
    (A) Subduction-zone tectonics
    (B) Extensional tectonics
    (C) Attainment of P_{max} and T_{max} at the same time
    (D) Attainment of P_{max} before T_{max}

31. A well-sorted sedimentary rock having about 2% matrix, 96% quartz, 1% feldspars and 1% lithic fragments in carbonate cement is known as
    (A) Feldspathic arenite
    (B) Quartz arenite

(C) Greywacke
(D) Lithicwacke

32. Which one of the following designates fragments of generally weakly cemented carbonate sediment that has been broken up and redeposited in a new framework?
(A) Grapestone
(B) Pellets
(C) Intraclast
(D) Micrite

33. What one of the following factors inhibits the precipitation of carbonates in sea water?
(A) Increase in depth
(B) High evaporation rates
(C) Lowering of total pressure
(D) Rise in water temperature

34. Which one of the following decreases in a downstream direction?
(A) Discharge
(B) Channel shape and size
(C) Water volume
(D) Particle size

35. Which one of the following sedimentary structures cannot be used to delineate top and bottom of beds?
(A) Graded bedding
(B) Cross bedding
(C) Current ripple marks
(D) Oscillatory ripple marks

36. Which one of the following features is not associated with Brachiopods?
(A) Pedicle valve
(B) Umbo
(C) Growth lines
(D) Muscle scars

37. Which one of the following invertebrate is characterised by a water vascular system, non-centralized nervous system and a calcareous skeleton of plates developed from the mesoderm?
(A) Mollusca
(B) Annelida
(C) Echinodermata
(D) Coelenterata

38. Which one of the following organisms was most abundant in the Mesozoic sea?
(A) Bryozoa
(B) Ammonites
(C) Brachiopoda

(D) Tetracorals

39. Fossilized nests, gastroliths, footprints and burrows are known as
(A) Trace fossils
(B) Body fossils
(C) Mold fossils
(D) Cast fossils

40. As index fossils, brachiopods were important during the
(A) Late Cretaceous (B) Early Jurassic
(C) Middle Jurassic (D) Late Paleozoic

41. Which of the following stratigraphic units has the correct chronological order?
(A) Bababudan Group-Nallamalai Group-Subathu Formation-Damuda Group
(B) Bababudan Group-Nallamalai Group-Damuda Group-Subathu Formation
(C) Nallamalai Group-Subathu Formation-Damuda Group-Bababudan Group
(D) Nallamalai Group-Damuda Group-Subathu Formation-Bababudan Group

42. The Syringothyris Limestone belongs to
(A) Early Carboniferous
(B) Middle Carboniferous
(C) Earlier Permian
(D) Middle Permian

43. Which tectonic boundary separates the Indian plate from Eurasian plate?
(A) South Tibetan Detachment Fault
(B) Indus Tsangpo Suture zone
(C) Karakoram fault zone
(D) Zanskar shear zone

44. The age of Patcham Formation is
(A) Upper to Lower Oxfordian
(B) Lower Callovian to Bathonian
(C) Upper Oxfordian to Middle Tithonian
(D) Upper Neocomian to Lower Aptian

45. The rocks of Debari Group occur in the cratonic block of
(A) Dharwar
(B) Singhbhum
(C) Bastar
(D) Aravalli

46. Pedosols are soils with high content of
(A) Magnesium
(B) Lime
(C) Sodium
(D) Potassium

47. The factor that does not substantially effects the rate of runoff of rain fall is
    (A) Soil profile
    (B) Slope of topography
    (C) Altitude
    (D) Surface vegetation

48. Which one of the following is a product of alternate phase of expansion and contraction caused by heating and cooling, wetting and drying and burrowing activities of organism?
    (A) Heave
    (B) Slides
    (C) Debris flow
    (D) Cavity collapse

49. Mature Karst topography is characterised by
    (A) An arid climate
    (B) Pedocal soil
    (C) Underground drainage
    (D) Extremely rugged terrain

50. Bifurcation ratio is defined as the ratio of
    (A) The number of streams of higher order to that of lower order
    (B) The number of streams of lower order to that of higher order
    (C) The number of stream branches of a given higher order to the number of streams of preceding order
    (D) The number of stream branches of a given lower order to the number of stream branches of next higher order

51. The host rocks for the Khetri copper deposits belong to
    (A) Aravalli Supergroup
    (B) Delhi Supergroup
    (C) Vindhyan Supergroup
    (D) Marwar Supergroup

52. The locality, Singrauli in Madhya Pradesh, is known for
    (A) Uranium
    (B) Lignite
    (C) Bituminous coal
    (D) Petroleum

53. The host rocks for gold in Kolar Gold Mines is
    (A) Granite
    (B) Amphibolite
    (C) Dolomite
    (D) Schist

54. Which one of the following ore minerals shows granular form, black colour, brown streak, no cleavage and high specific gravity?

(A) Galena
(B) Sphalerite
(C) Magnetite
(D) Chromite

55. What is the main process responsible for the formation of iron deposits?
(A) Mechanical concentration
(B) Metamorphism
(C) Residual concentration
(D) Chemical sedimentation

56. The age of Neyveli lignite deposit is
(A) Oligocene (B) Miocene
(C) Pliocene (D) Palaeocene

57. Which one of following traps has produced greatest amount of oil?
(A) Unconformity (B) Anticline
(C) Faults (D) Combination of traps

58. Which of the following countries has the largest proven oil reserves?
(A) Russia (B) Saudi Arabia
(C) Kuwait (D) Venezuela

59. The increase in grade of coal is primarily a function of
(A) Decreasing heat
(B) Time span of surface exposure
(C) Increasing grade of metamorphism
(D) Type of organic matter

60. Which one of the following building stones is not resistant to weathering?
(A) Granite (B) Gabbro
(C) Limestone (D) Sandstone

61. Under what condition, the compressive strength of the material will be low?
(A) If cementing material is entirely clay
(B) If cementing material is entirely siliceous
(C) When compressive stress is perpendicular to strata
(D) When compressive stress is parallel to strata

62. Which one of the following rock types is suitable for construction of any river valley project?
(A) Shale and conglomerate (B) Laterites and conglomerate
(C) Well cemented siliceous sandstone (D) Highly porous limestone

63. The slow and continuous downward movement of unconsolidated earth material is called
(A) Soil creep (B) Rock fall
(C) Rock slide (D) Mudflows

64. In what scale pH is measured?

(A) Logarithmic (B) Exponential
(C) Linear (D) Relative

65. What is the desirable limit of Total Dissolved Salts (TDS) in safe drinking water?

(A) >1000 ppm (B) 700-1000 ppm
(C) 500-700 ppm (D) < 500 ppm

66. Which one of the following represents an aquiclude?

(A) Alluvium sand (B) Clay
(C) Sandy clay (D) Granite

67. Which one of the following is correctly matched?

(A) Transmissivity: metre
(B) Hydraulic Resistivity: $metre^2/day$
(C) Leakage Factor: day
(D) Specific Storage: $metre^{-1}$

68. Which one of the following logs records the radioactivity of rock formations?

(A) SP Log (B) Gamma Ray Log
(C) Resistivity Log (D) Calliper Log

69. Which one of the following corrections is applied to remove the effect of elevation on the Earth's gravity value?

(A) Free Air (B) Bouguer
(C) Terrain (D) Eötvös

70. Which one of the following is expressed in milligals (mGal) unit?

(A) Rotation of the Earth
(B) Rotation of the Moon
(C) Gravitational acceleration of the Earth
(D) Gravitational acceleration of the Moon

71. The difference between the Magnetic North and Geographic North of the Earth is

(A) 400 km (B) 999 km
(C) 600 km (D) 298 km

72. The lines of constant latitude are called

(A) Meridians (B) Parallels
(C) Equator (D) Longitude

73. GNSS stands for

(A) Geological Norms for Satellite System
(B) Geological Navigation Satellite System
(C) Global Norms for Satellite System
(D) Global Navigation Satellite System

74. What is the first and most important requirement for remote sensing?

(A) Target (B) Energy Source

(C) Sensor (D) Medium

75. Name the three components of atmosphere that are responsible for absorption of radiation

(A) Ozone, Oxygen, Water Vapour

(B) Ozone, Carbon dioxide, Water Vapour

(C) Oxygen, Carbon dioxide, Dust particles

(D) Oxygen, Ozone, Dust particles

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