MSc(HS)(Geology)

1. Development of badland topography takes place over

A) Clay in sub-humid region B) Clay in arid region
C) Calcareous rock in sub-humid region D) Calcareous rock in arid region

2. In a river system, if the tributaries have a downstream direction opposite to that of the main stream near the confluence, it is designated as

A) Obsequent B) Subsequent C) Antecedent D) Consequent

3. Which one of the following landforms has the dip slope as a characteristic feature?

A) Mesa B) Cuesta C) Barchan D) Butte

4. Name the depositional feature that is formed when a stream emerges from a mountainous region onto a plain

A) Point bar B) Alluvial fan C) Delta D) Natural levee

5. The age of the oldest known rock on the Earth is about

A) 3000 Ma B) 3500 Ma C) 4000 Ma D) 4500 Ma

6. If granite and basalt were exposed in an area with a hot and humid climate

A) The granite would weather most rapidly
B) The basalt would weather most rapidly
C) Both rocks would weather at the same rate
D) There is no way of knowing which rock type would weather most rapidly

7. Which one of the following geological action forms 'hanging valley'?

A) Wind B) River C) Glacier D) Ocean

8. It is generally considered that a true nappe develops by the shearing out of the limb of a

A) Cylindrical fold B) Recumbent fold
C) Doubly plunging fold D) Chevron fold

9. Slickenside is an example of

A) Penetrative foliation B) Penetrative lineation
C) Non- penetrative foliation D) Non- penetrative lineation

10. A limited area of younger rocks completely surrounded by older rocks is known as

A) Anticline B) Anticlinorium C) Inlier D) Outlier

11. The horizontal displacement between the upthrown and downthrown sides of a fault is termed as

A) Hade B) Heave C) Plunge D) Throw

12. Which one of the following is correct while taking bearing of an object with a clinometer compass?

A) Pointing N marked by the crown on the dial of the compass towards the object
B) Pointing N end of the magnetic needle towards the object
C) Pointing S end of the magnetic needle towards the object
D) Pointing E or W marked on the dial towards the object

13. Which one of the following crystal systems is with highest symmetry?
A) Monoclinic B) Tetragonal C) Orthorhombic D) Isometric

14. A crystal form having faces on only one side of a symmetry axis is called
A) Pseudomorphic B) Hemihedral C) Hemimorphic D) Holohedral

15. Miller indices contains
A) Neither fractions nor a common factor B) Both fraction and a common factor
C) Either fraction or a common factor D) Irrational numbers

16. What is the retardation given by a Mica plate?
A) Λ B) $\lambda/2$ C) $\lambda/4$ D) $\lambda/8$

17. Which of the following optical properties are observed in plane polarised light?
A) Colour, pleochroism and zoning
B) Colour, pleochroism and twinning
C) Colour, pleochroism and interference colours
D) Colour, pleochroism and relief

18. Which one of the following is not a variety of silica (SiO_2)?
A) Blood stone B) Cristobalite C) Tridymite D) Peridot

19. When a ray of polarised light strikes a uniaxial mineral, it undergoes
A) Double refraction B) Absorption
C) Internal reflection D) Scattering

20. Which one of the following garnet contains calcium?
A) Pyrope B) Andradite C) Uvarovite D) Almandine

21. The mineral with two hardnesses is called
A) Andalusite B) Sillimanite C) Cordierite D) Disthene

22. The sequence of streaks in pyrite - chromite - hematite is
A) Brown-cherry red-black B) Brown-black-cherry red
C) Black-brown-cherry red D) Black-cherry red-brown

23. The most characteristic feature of talc is
A) Pearly lustre B) Poor cleavage
C) Conchoidal fracture D) Radiating form

24. A plutonic igneous rock with the mineral assemblage of quartz, plagioclase, with some biotite and hornblende is known as

A) Syenite B) Granodiorite C) Trondhjemite D) Trachyte

25. The plutonic equivalent of phonolite is

A) Quartz syenite B) Nepheline syenite C) Quartz diorite D) Nepheline diorite

26. Minute worm-like intergrowth of quartz in sodic plagioclase is called

A) Myrmekite B) Graphic C) Perthitic D) Trachytic

27. A fine-grained igneous rocks consisting of about 40% plagioclase, 15% alkali feldspar, 30% quartz, 10% biotite and 5% amphibole is known as

A) Rhyolite B) Dacite C) Andesite D) Trachyte

28. The IUGS classification is essentially a

A) Modal classification B) Chemical classification

C) Textural classification D) Genetic classification

29. In Leucite-Silica binary system, incongruently melting intermediate compound is

A) $NaAlSi_3O_8$ B) $NaAlSi_2O_6$ C) $KAlSi_3O_8$ D) $KAlSiO_4$

30. Which of the following represents a correct magmatic fractionation trend?

A) Basalt – Dacite – Trachyte – Rhyolite

B) Basalt– Andesite - Trachyte – Rhyolite

C) Basalt – Dacite – Andesite – Trachyte

D) Basalt – Andesite – Dacite – Trachyte

31. Which one of the following trace element pair will be enriched in a residual basaltic magma after its fractional crystallisation of plagioclase and clinopyroxene?

A) Cr and Sr B) Ni and Sr C) Nb and Y D) Ni and Cr

32. Development of foliation in metamorphic rocks is mainly a function of

A) Fluids and pressure B) Fluids and temperature

C) Nonlithostatic stress and temperature D) Lithostatic stress and temperature

33. What is the correct sequence of appearance of minerals with increasing grade of Barrovian type of metamorphism?

A) Staurolite - Kyanite – Biotite – Fibrolite

B) Staurolite - Kyanite – Fibrolite – Biotite

C) Biotite - Staurolite – Fibrolite – Kyanite

D) Biotite - Staurolite – Kyanite – Fibrolite

34. Which one of the following mineral assemblages is NOT possible in a contact pelitic metamorphic rock?

A) Andalusite and Cordierite B) Diopside and Kyanite
C) Cordierite and Sillimanite D) Andalusite and Sillimanite

35. Which one of the following rocks shows best development of crenulation cleavage?
A) Granulite B) Gneiss C) Quartzite D) Phyllite

36. Which one of the following facies belongs to higher grade of metamorphism?
A) Zeolite B) Albite-Epidote
C) Hornblende-Hornfels D) Pyroxene-Hornfels

37. Which one of the following sedimentary structure is NOT a tool mark?
A) Flute cast B) Prod cast C) Bounce cast D) Groove cast

38. Which one of the following environment is more suitable for the formation of herringbone cross beds?
A) Aeolian B) Lacustrine C) Tidal D) Fluvial

39. Which one of the following sedimentary rock has a biochemical origin?
A) Coquina B) Travertine C) Shale D) Sandstone

40. What is the correct sequence of size of following sedimentary particles in a decreasing order?
A) Gravel – Sand – Silt – Clay B) Gravel – Silt – Sand – Clay
C) Sand – Gravel – Clay – Silt D) Sand – Clay – Gravel – Silt

41. Which one of the following detrital constituents of sedimentary rocks is the best provenance indicator?
A) Micas B) Feldspars C) Heavy minerals D) Rock fragments

42. A sandstone containing about 50% quartz, 35% feldspar, 5% biotite, 5% cement and 5% matrix would be
A) Quartz arenite B) Quartz wacke C) Arkosic wacke D) Arkose

43. To classify a stratigraphic unit as a 'formation', it must be
A) A sedimentary unit B) A metamorphic unit
C) An igneous unit D) Mappable

44. Which type of environment is indicated by a shale with fossils?
A) Glacial B) Dunes C) Swamp D) Corel reef

45. Which one of the following fossil characterised the Jurassic stratigraphy of Kutch?
A) Trilobites B) Graptolites C) Brachiopods D) Cephalopods

46. The age of Bagh Group is

A) Jurassic B) Triassic C) Cretaceous D) Permian

47. Which one of the following stratigraphic unit is NOT of Cenozoic in age
A) Subathu B) Kiato C) Tipam D) Pinjore

48. Which of the following geological units are separated by Eparchaean unconformity?
A) Late Archaean from Early Proterozoic
B) Early Archaean from Late Archaean
C) Late Proterozoic from Early Phanerozoic
D) Early Phanerozoic from Late Phanerozoic

49. Which one of the following stratigraphic unit is oldest?
A) Alwar Quartzite B) Bijaigarh Shale
C) Sargur Schist D) Kajrahat Limestone

50. Lower Gondwana flora in India consists of an assemblage of
A) Ptilophyllum-Otozamites B) Petrophyllum-Nilssonia
C) Vertebraria-Glossopteris D) Williamsonia-Neuropteris

51. Which of the following stratigraphic units is arranged in a correct stratigraphic order beginning with the oldest first?
A) Semri-Kaimur-Rewa-Bhander B) Semri- Rewa-Kaimur-Bhander
C) Semri- Bhander- Kaimur-Rewa D) Semri- Bhander- Rewa- Kaimur

52. Which is the greatest expanse of time?
A) Period B) Era C) Epoch D) Eon

53. Theca is related to
A) Trilobite B) Brachiopod C) Gastropod D) Graptolite

54. The most useful fossils for matching layers of sedimentary rock that are separated by large distances are called
A) Trace fossils B) Micro fossils C) Index fossils D) Extinct fossils

55. Which one of the following gastropods shows sinistral coiling?
A) Murex B) Physa C) Bellerophon D) Conus

56. The hinge line in Spirifer is
A) Straight and long B) Straight and short
C) Curved and long D) Curved and short

57. Which one of following are the dominant micro-organisms at abyssal ocean regions?
A) Ostracods B) Conodonts C) Diatoms D) Radiolarians

58. Elephus–Equus fossil assemblage emerged at

A) Beginning of Pliocene B) End of Pliocene

C) Beginning of Pleistocene D) End of Pleistocene

59. Which one of the following is the most suitable clay mineral that is used in oil refining and drilling?

A) Bentonite B) Fire clay C) Fuller's earth D) Kaoline

60. In which one of the following industries, gypsum is commonly used?

A) Fertilizer B) Ceramics C) Refractory D) Abrasives

61. Which one of the following coal/lignite deposit is of Permian age?

A) Neyveli B) Palana C) Makum D) Raniganj

62. The barite deposits in India are located in

A) Amjhore B) Mangampet C) Jamsar D) Saladipura

63. The age of oil-bearing rock formation of Cambay basin is

A) Cretaceous-Eocene B) Eocene-Oligocene

C) Oligocene-Miocene D) Pliocene-Pleistocene

64. The Khetri copper deposits belong to

A) Aravalli Supergroup B) Delhi Supergroup

C) Marwar Supergroup D) Vindhyan Supergroup

65. The main Indian uranium mine is located at

A) Jabalpur B) Jaduguda C) Jhalawar D) Jamshedpur

66. Bauxite deposits are formed as a result of

A) Residual weathering B) Magmatic segregation

C) Supergene enrichment D) Hydrothermal process

67. The Sargipalli mine in Odisha is known for the ore deposit of

A) Gold B) Silver C) Lead D) Zinc

68. Chromite deposits result from

A) Late magmatic segregation B) Early magmatic segregation

C) Early magmatic injection D) Late magmatic injection

69. The convergent plate margin is the typical tectonic setting for

A) Porphyry copper B) Stratiform copper

C) Volcanogenic massive sulphides D) Iron formations

70. At water table of an aquifer

A) Hydrostatic pressure = atmospheric pressure
B) Hydrostatic pressure < atmospheric pressure
C) Hydrostatic pressure >> atmospheric pressure
D) Hydrostatic pressure << atmospheric pressure

71. Which one of following can transmit water on a regional scale due to leakage, but is NOT a source of sufficient water supply?
A) Aquifer B) Aquiclude C) Aquifuge D) Aquitard

72. Which one of the following is a correct statement?
A) Sandstone forms aquifer and sandy shale forms aquitard
B) Sandstone forms aquitard and sandy shale forms aquifer
C) Sandstone forms aquifer and sandy shale forms aquiclude
D) Sandstone forms aquiclude and sandy shale forms aquifer

73. Which one of the following natural inorganic constituent has a laxative effect when dissolved in ground water at higher concentrations (600-1000 mg/L)?
A) Sodium B) Manganese C) Sulphate D) Iron

74. A horizontal entry into an underground mine is called
A) Shaft B) Adit C) Bench D) Pit

75. Which one of the following method is NOT used in coal mining?
A) Broadwall B) Longwall C) Room and pillar D) Bord and pillar

x-x-x