1.   What is the average thickness of the oceanic crust?
     A)   6 km   B)   16 km   C)   26 km   D)   36 km

2.   What kind of drainage pattern is developed on a massive granite terrain?
     A)   Dendritic   B)   Trellis
     C)   Parallel   D)   Rectangular

3.   Which of the following represents an escarpment?
     A)   Himalayas   B)   Vindhyans
     C)   Western Ghats   D)   Eastern Ghats

4.   What kind of structural style of the underlying beds favour formation of cuesta?
     A)   Horizontal beds   B)   Vertical beds
     C)   Steeply dipping beds   D)   Gently dipping beds

5.   What is the term used to denote the smallest addressable screen element in a
     display device?
     A)   Resolution   B)   Pixel   C)   Unit   D)   Image

6.   Which of the following GPS data formats is standardised and accepted
     worldwide?
     A)   Motorola   B)   SiRF   C)   TSIP   D)   NMEA

7.   What is ArcGIS?
     A)   Geoinformatics of Island Arcs   B)   A printer device used in GIS
     C)   A software for GIS study   D)   A portable computer for GIS

8.   Which of the following GPS data sets gives the accuracy of the measurements?
     A)   GGA   B)   GLL   C)   GSV   D)   GSA

9.   What is the component of stress acting parallel to the plane of reference?
     A)   Normal   B)   Principal
     C)   Shear   D)   Parallel

10. What is the condition for forming a normal fault?
     A) $\sigma 1$ horizontal   B) $\sigma 1$ vertical
     C) $\sigma 2$ vertical   D) $\sigma 2$ horizontal

11. What is the use of dip isogons?
     A)   To relate apparent and true dips   B)   To decipher major structures
     C)   To classify folds   D)   To classify faults

12. How a vertical lineation will get represented on a stereogram?
     A)   A vertical line   B)   An N-S line
     C)   A point at the centre   D)   A point at the primitive circle

13. Which one of the following is not used to find out the younging direction?
    A) Pillow lavas   B) Graded bedding
    C) Ripple marks   D) Columnar joints

14. Which of the following is typically seen along ductile shear zones?
    A) Drag folds   B) Reclined folds
    C) Disharmonic folds   D) Sheath folds

15. Which one of the following is not a material used to infer a fault?
    A) Mylonite   B) Gouge
    C) Breccia   D) Conglomerate

16. What is the approximate thickness of a plate in the theory of Plate Tectonics?
    A) 100 km   B) 200 km
    C) 300 km   D) 400 km

17. With which type of plate boundary Benioff zone is associated?
    A) Divergent   B) Convergent
    C) Translational   D) Continent-continent collision

18. When did the last magnetic reversal take place?
    A) 78 thousand years ago   B) 780 thousand years ago
    C) 7800 thousand years ago D) 78000 thousand years ago

19. From which of the following land mass the western India got rifted?
    A) Australia   B) Antarctica
    C) Madagascar   D) Arabia

20. With what oceanic feature the 90 degrees East longitude coincide?
    A) Trench   B) Ridge
    C) Transform fault   D) Hot spot

21. What is associated with the terms Marion, Reunion and Kergulean?
    A) Mantle plume   B) Earth quake
    C) Transcurrent fault   D) Orogeny

22. Which of the following boundaries is associated with mass extinctions?
    A) Precambrian-Cambrian   B) Permo-Carboniferous
    C) Ordovician-Silurian   D) Cretaceous-Tertiary

23. Which of the following is the youngest?
    A) Paleocene   B) Jurassic
    C) Mississipian   D) Permian

24. What is the age of Deccan volcanism?
    A) 45 Ma   B) 55 Ma   C) 65 Ma   D) 75 Ma

25. Which of the following is not a craton?
A) Singhbhum
B) Dharwar
C) Bundelkhand
D) Eastern ghats

26. Which of the following schist belts is the youngest?
A) Bababudan
B) Sargur
C) Wynad
D) Sathyamangalam

27. What is a close approximation of the age of Peninsular Gneiss?
A) 1 by
B) 2 by
C) 3 by
D) 4 by

28. Which of the following forms the Lower Vindhyans?
A) Kaimur
B) Semri
C) Bhander
D) Rewa

29. Which unit in the Cuddapah basin is equivalent to Vindhyans?
A) Kistna
B) Papaghni
C) Kurnool
D) Cheyair

30. What is the age of Haimanta System?
A) Silurian
B) Devonian
C) Cambrian
D) Ordovician

31. Which is the youngest series of Jurassic of Cutch?
A) Patcham
B) Chari
C) Katrol
D) Umia

32. What is the age of Murree Series?
A) Miocene
B) Eocene
C) Oligocene
D) Paleocene

33. What is the equivalent of Warkallis along the east coast?
A) Kudamkulam Limestone
B) Cuddalore sandstone
C) Manavalakurichi beds
D) Quilon Limestone

34. With which rocks the Neyveli lignite deposits are associated with?
A) Gondwana
B) Mesozoic
C) Tertiary
D) Quaternary

35. To which phylum trilobites belong to?
A) Protozoa
B) Anthozoa
C) Arthropoda
D) Mollusca

36. Which of the following exhibits dimorphism?
A) Natilus
B) Nummulites
C) Nodosaria
D) Nerinea

37. Which of the following is most important in the ammonoid systematics?
A) Coiling
B) Suture lines
C) Siphuncle
D) Septal necks

38. To which geologic age graptolites belong to?
    A) Lower Paleozoic   B) Lower Mesozoic
    C) Upper Paleozoic   D) Upper Mesozoic

39. Which of the following is regular echinoid?
    A) Holaster   B) Clypeaster
    C) Hemiaster   D) Cidaris

40. To which phylum the class Articulata belongs to?
    A) Coelentera   B) Mollusca
    C) Brachiopoda   D) Arthropoda

41. Which of the following is not a Gondwana flora?
    A) Glossopteris   B) Gangamopteris
    C) Ptilophyllum   D) Tetragraptus

42. What is the term used to refer to the study of pollens and spores as fossils?
    A) Paleobiology   B) Paleobotany
    C) Palynology   D) Micropaleontology

43. What is the age of Ediacaran fossils?
    A) Paleozoic   B) Mesozoic
    C) Cenozoic   D) Precambrian

44. To which crystal system, the class with least symmetry belongs to?
    A) Isometric   B) Tetragonal
    C) Monoclinic   D) Triclinic

45. How many enantiomorphic crystal classes are there in the cubic system?
    A) 0   B) 1   C) 2   D) 3

46. Where will be the plot of the face 100 on a tetragonal crystal stereogram?
    A) At the centre
    B) On the primitive circle
    C) On the E-W line
    D) Between the centre and primitive circle

47. What is the interfacial angle between two adjacent hexagonal prismatic faces?
    A) 60 degrees   B) 120 degrees
    C) 180 degrees   D) 240 degrees

48. In which crystal system olivines crystallize?
    A) Tetragonal   B) Orthorhombic
    C) Monoclinic   D) Triclinic

49. What does a Berek compensator measure?
    A) Optic sign   B) Refractive index
    C) Optic angle   D) Retardation

50. Which of the following statements is true with respect to the optic sign of minerals?
    A) A mineral has to be either positive or negative
    B) All triclinic minerals are negative
    C) A few minerals range from positive to negative
    D) All isotropic minerals are positive

51. Which of the following does not affect the interference colour?
    A) Relief   B) Thickness
    C) Birefringence   D) Orientation

52. Which of the following has more control over the refracvtive indices of hornblende?
    A) Substitution of Mg by Fe
    B) Amount of Al in tetrahedral coordination
    C) Ca to Na ratio
    D) Temperature of crystallization

53. Which of the following is not correct?
    A) Calcite : uniaxial negative   B) Quartz : uniaxial positive
    C) Sphene : biaxial positive   D) Stauroilite : biaxial negative

54. Which of the following exhibits pleochroic haloes?
    A) Andalusite   B) Cordierite
    C) Cliniozoisite   D) Tremolite

55. Which of the following minerals has the highest specific gravity?
    A) Magnetite   B) Uraninite
    C) Chromite   D) Native gold

56. What is the silicon : oxygen ratio in cyclosilicatess?
    A) 1 : 2   B) 1 : 3   C) 1 : 4   D) 2 : 7

57. How would you call a pyroxene with En, Fs and Wo components of 70, 30 and 20 respectively?
    A) Augite   B) Ferroaugite
    C) Subcalcic augite   D) Pigeonite

58. Which of the following is a di-octahedral mica?
    A) Muscovite   B   Biotite
    C) Phlogopite   D) Lepidolite

59. What name is to be used to name a plagioclase with equal amounts of An and Ab molecules?
    A) Andesine   B) Bytownite
    C) Labradorite   D) Oligoclase

60. Which of the following crystallizes in the isometric system?
    A) Haematite   B) Ilmenite
    C) Rutile   D) Magnetite

61. Which of the following is a radioactive mineral?
    A)   Ilmenite   B)   Monazite
    C)   Rutile   D)   Sillimanite

62. Which of the following has the highest amount of titanium?
    A)   Ilmenite   B)   Titanite   C)   Rutile   D)   Sphene

63. Which of the following is the stable phase at 700° C temperature and 7 kb pressure?
    A)   Andalusite   B)   Sillimanite
    C)   Kyanite   D)   Mullite

64. Which of the following is polymorphous with calcite?
    A)   Dolomite   B)   Aragonite
    C)   Magnesite   D)   Ankerite

65. Which shows the predominant elements in the order of decreasing abundance in the crust?
    A)   Si-Al-O   B)   O-Si-Al
    C)   Si-Al-Fe   D)   Si-Fe-Mg

66. Which of the following is an HREE?
    A)   Ce   B)   Sm   C)   La   D)   Lu

67. Which of the following is an HFSE?
    A)   Ba   B)   Sr   C)   Zr   D)   U

68. Which mineral precipitates at sedimentary environment of very low pH but very high Eh?
    A)   Gypsum   B)   Calcite
    C)   Pyrite   D)   limonite

69. Where is the position of organic matter fence in an EH-pH diagram?
    A)   Eh value of 0   B)   Eh value of +1
    C)   Eh value of -1   D)   pH value of 8

70. Isotopes of which of the following elements are not used to understand the environment   and diagenetic changes of sedimentary rocks?
    A)   C   B)   O   C)   S   D)   Sr

71. Which of the following groups of rocks dominate the oceanic crust?
    A)   Igneous   B)   Sedimentary
    C)   Metamorphic   D)   Metasomatic

72. Which lava flow has rough irregular flow tops consisting of small loose fragments?
    A)   pahoehoe   B)   aa   C)   ropy   D)   pillow

73. How to name an igneous rock with mean grain diameter of 3mm?
    A) Fine grained
    B) Very fine grained
    C) Medium grained
    D) Coarse grained

74. Which of the following textures indicate fractional crystallization?
    A) Spinifex
    B) Seriate
    C) Cumulate
    D) Rapikivi

75. Name a plutonic rock with 30 % quartz, 20% orthoclase, 45% plagioclase and 5% mica?
    A) Granite
    B) Granodiorite
    C) Diorite
    D) Tonalite

76. Name the volcanic rock with SiO_2 of 60 wt.% and $(Na_2O + K_2O)$ of 3 wt%.
    A) Rhyolite
    B) Basalt
    C) Andesite
    D) Dacite

77. Which is the correct expression of Phase Rule?
    A) $P + F = C + 2$
    B) $P + F = C - 2$
    C) $P - F = C + 2$
    D) $P + F = C + 1$

78. Which ternary system is regarded as basalt analogue?
    A) Ab-Or-An
    B) Ab-Di-An
    C) En-Di-An
    D) Fo-Fa-Di

79. Which chemical variation diagram discriminates theleiitic from calc-alkaline?
    A) ACF
    B) AKF
    C) AFM
    D) QAP

80. Which of the following is an ultramafic volcanic rock?
    A) Kimberlite
    B) Komatiite
    C) Keratophyre
    D) Carbonatite

81. Which sedimentary environment is noted for evaporite deposits?
    A) Pelagic
    B) Littoral
    C) Playa
    D) Lagoonal

82. What is the term used to denote microcrystalline carbonate grains in limestones?
    A) Sparite
    B) Microsparite
    C) Macrosparite
    D) Micrite

83. Which of the following heavy mineral indicates a metamorphic provenance?
    A) Monazite
    B) Ilmenite
    C) Sillimanite
    D) Cassiterite

84. Which of the following metamorphic facies is of highest temperature?
    A) Zeolite
    B) Hornblende-hornfels
    C) Pyroxene-hornfels
    D) Sanidinite

85. Which mineral is typical of blue-schist facies?
    A)   Kyanite   B)   Corundum
    C)   Cordierite   D)   Glaucophane

86. In which metamorphic textures, the grain boundaries meet at 120° angles?
    A)   Granoblastic   B)   Porphroblastic
    C)   Mylonitic   D)   Idioblastic

87. Which of the following is a product of basalt-seawater interaction?
    A)   Ophiolite   B)   Spilite
    C)   Keratophyre   D)   Eclogite

88. Which of the following is a metapelite?
    A)   Charnockite   B)   Khondalite
    C)   Eclogite   D)   Basanite

89. Which of the following is not found as placer deposits?
    A)   Gold   B)   Diamond
    C)   Chromite   D)   Sulphur

90. Which of the following is not an ore of copper?
    A)   Pyrite   B)   Chalcopyrite
    C)   Bornite   D)   Cuprite

91. What is the reservoir rock for Digboi oil field?
    A)   Sandstone   B)   Limestone   C)   Shale   D)   Clay

92. How far is the Bombay High from the Mumbai coast?
    A)   20 km   B)   120 km   C)   220 km   D)   320 km

93. With which of the following is Goutal's formula associated ?
    A)   Oil migration   B)   Oil maturity
    C)   Calorific value of coal   D)   Petroleum exploration

94. Deposits of which of the following is formed by supergene enrichment?
    A)   Gold   B)   Copper
    C)   Iron   D)   Aluminium

95. What is the chief ore mined at Mochia Mogra?
    A)   Chromite   B)   Graphite
    C)   Chalcopyrite   D)   Sphalerite

96. Which of the following is an acid refractory material?
    A)   Magnesite   B)   Dolomite
    C)   Sillimanite   D)   Graphite

97 By what process rutile is separated from heavy mineral sand?
    A)   Magnetic   B)   Radioactive
    C)   Electrostatic   D)   Vibration

98. Which metal is mined at Jaduguda mines?
A) U   B) Th   C) Co   D) Ta

99. With which rock types the magnesite deposits of Salem are associated?
A) Felsic   B) Mafic
C) Ultramafic   D) Sedimentary

100. Ores of which metal is associated with koduritic rocks?
A) Fe   B) Cu   C) Mn   D) Mg

101. With which rock the mica deposits of Bihar are associated?
A) Granite   B) Pegmatite
C) Amphibolite   D) Charnockite

102. Under what trade name the gem mineral chrysoberyl is marketed in India?
A) Gomed   B) Pushparaga
C) Vydoorya   D) Indraneela

103. With which of the following the term vitrain is associated?
A) Mineral property   B) Coal petrography
C) Ore beneficiation   D) Gemstone grading

104. Which of the following is more applicable in oil exploration?
A) Gravity   B) Magnetic
C) Seismic   D) Resistivity

105. Which of the following is more applicable in groundwater exploration?
A) Gravity   B) Magnetic
C) Seismic   D) Resistivity

106. Which of the following is associated with radioactive survey?
A) XRD   B) GM counter
C) Mass Spectrometer   D) XRF

107. Which is a commnly used path-finder element for geochemical exploration of gold?
A) Al   B) As   C) Cu   D) Bi

108. Which of the following is not a srtaigraphic trap?
A) Unconformity   B) Burried coral reef
C) Overlap   D) Antiform

109. Which of the following is correct?
A) All porous rocks are permeable
B) All permeable rocks are porous
C) High porosity will lead to low permeability
D) Permeability and porosity are unrelated

110. What is the term used to refer to the water in the zone of aeration?
A) Perched water
B) Connate water
C) Juvenile water
D) Vadose water

111. In which of the following aquifers an artesian well can occur?
A) Confined aquifer
B) Unconfined aquifer
C) Aquitard
D) Aquiclude

112. What is the chemical composition of stalactites?
A) Amorphous silica
B) Quartz
C) Calcium carbonate
D) Calc-silicate

113. Which of the following pertains to the flow of fluids in porous medium?
A) Ohm's law
B) Stoke's law
C) Fike's law
D) Darcy's law

114. Which is associated with Koyna dam?
A) Arch type dam
B) Reservoir induced seismicity
C) Dam along a fault
D) Nuclear exploration

115. Which one denotes a coal mine inclusive of surface, plant and underground working?
A) Colliery
B) Coal field
C) Coal unit
D) Coal seam

116. What term is used in coal mining for the removal of overburden down to the coal bed?
A) Exposing
B) Stripping
C) Drafting
D) Stopping

117. In analysing which of the following, the Coloumb-Mohr criterion is used?
A) Coastal erosion
B) Land slide
C) Flooding
D) Seismic wave propagation

118. Which of the following contaminants in drinking water damages teeth and bone?
A) Chloride
B) Carbonate
C) Boron
D) Fluoride

119. What is the purpose of beach nourishment?
A) Make the aquatic life nourished
B) To augment coastal erosion
C) To prevent coastal erosion
D) Ecotourism

120. Which of the following is noted for recent volcanism?
A) Kavaratti island
B) Barren island
C) Coral island
D) Salsette island

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