

12. How the normal to a horizontal plane is 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 of the following is complementary to the dip?
 A) Strike B) Hade
 C) Rake D) Pitch
14. In which fold the orthogonal thickness of the bed is greater in the hinge than in limb?
 A) Similar B) Dissimilar
 C) Concentric D) Disharmonic
15. Which one of the following is not an indicator of a fault ?
 A) Mylonite B) Gouge
 C) Breccia D) Conglomerate
16. With which of the following, transform fault is associated?
 A) Mid-ocean ridge B) Island arc
 C) Subduction zone D) None of the above
17. What is the average dip of Benioff zone?
 A) 45° B) 55° C) 65° D) 75°
18. The western continental margin of India represents?
 A) Active margin B) Passive margin
 C) Subduction zone D) Island arc
19. From which of the following lands the western India got rifted?
 A) Australia B) Antarctica C) Madagascar D) Arabia
20. Java-Sumatra is an example of which type of plate boundary?
 A) Divergent B) Convergent
 C) Transform fault D) Collision
21. Which of the following hot-spots caused Deccan volcanism?
 A) Marion B) Kerguelian C) Reunion D) Karoo
22. Which of the following forms the dominant component of a greenstone belt?
 A) Charnockite B) Khondalite
 C) Metabasalt D) Eclogite
23. Which of the following is the youngest?
 A) Pennsylvanian B) Devonian
 C) Mississippian D) Permian

24. What is the age of the Deccan traps?
 A) 45 Ma B) 55 Ma C) 65 Ma D) 75 Ma
25. Which of the following is subdivided into Riphean and Vendian ?
 A) Neoproterozoic B) Mesoproterozoic
 C) Paleoproterozoic D) Phanerozoic
26. Which of the following shist belts is the youngest?
 A) Shimoga B) Sargur
 C) Wynad D) Sathyamangalam
27. Which is the smallest lithostratigraphic unit?
 A) Group B) Member
 C) Bed D) Formation
28. Which is the chronostratigraphic equivalent of age?
 A) System B) Series
 C) Stage D) Sub-system
29. Which unit in the Cuddapah basin is the youngest ?
 A) Kistna B) Papaghni
 C) Kurnool D) Cheyair
30. What is the age of Haimanta System ?
 A) Silurian B) Devonian
 C) Ordovician D) Cambrian
31. Which is the oldest series of Jurassic of Cutch?
 A) Patcham B) Chari
 C) Katrol D) Umia
32. What is the age of Tipam sandstone?
 A) Miocene B) Eocene
 C) Oligocene D) Paleocene
33. Which one is correlated to the Warkallis?
 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 class trilobites belong to?
 A) Trilobita B) Crustacea C) Arthropoda D) Mollusca

36. To which phylum the class gastropoda belongs to?
 A) Arthropoda B) Echinoderma
 C) Porifera D) Mollusca
37. Which of the following is most important in the ammonoid characterization?
 A) Coiling B) Suture lines
 C) Siphuncle D) Septal necks
38. To which geologic age belemnites belong to?
 A) Cretaceous B) Triassic
 C) Cambrian D) Devonian
39. Which of the following is irregular echinoid?
 A) Holaster B) Salenia
 C) Pelostates D) Cidaris
40. Which of the following foraminifera is arenaceous?
 A) Orbitolites B) Textularia
 C) Lagena D) Globigerina
41. Which of the following is a Gondwana flora ?
 A) Globigerina B) Goniopora
 C) Ptilophyllum D) Tetragraptus
42. Which of the following is not a trilobite?
 A) Olenus B) Phacops
 C) Olenellus D) Productus
43. What is the age of Archaeopteryx?
 A) Early Jurassic B) Late Jurassic
 C) Early Triassic D) Late Triassic
44. To which crystal system, the class with highest symmetry belongs to?
 A) Isometric B) Tetragonal
 C) Monoclinic D) Triclinic
45. How many horizontal reference axes are there in the hexagonal system?
 A) 1 B) 2 C) 3 D) 4
46. Where will be the plot of the face (001) on a tetragonal crystal stereogram?
 A) At the centre B) On the primitive circle
 C) On the E-W line D) Between centre and primitive circle
47. What is the interfacial angle between two adjacent trigonal prismatic faces?
 A) 60 degrees B) 120 degrees
 C) 180 degrees D) 240 degrees

48. In which crystal system epidote crystallizes?
 A) Tetragonal B) Orthorhombic
 C) Monoclinic D) Triclinic
49. What does a Quartz compensator measure?
 A) Optic sign B) Refractive index
 C) Optic angle D) Retardation
50. What is the optic nature of Calcite?
 A) Uniaxial positive B) Uniaxial negative
 C) Biaxial negative D) Biaxial positive
51. Which of the following does not affect the interference colour of a mineral?
 A) Relief B) Thickness
 C) Birefringence D) Orientation
52. Which of the following does not show a regular variation from Enstatite to Ferrosilite?
 A) Mg content B) 2V
 C) Birefringence D) Fe content
53. Which of the following is not correct ?
 A) Calcite : high relief B) Quartz : non pleochroic
 C) Cordierite : pleochroic haloes D) Staurolite : biaxial negative
54. Which of the following exhibits twinkling?
 A) Andalusite B) Cordierite
 C) Calcite D) Tremolite
55. Which of the following minerals has the lowest specific gravity?
 A) Magnesite B) Uraninite
 C) Chromite D) Native gold
56. What is the silicon : oxygen ratio in tectosilicates?
 A) 1 : 2 B) 1 : 3
 C) 1 : 4 D) 2 : 7
57. Name of the pyroxene with En, Fs and Wo components of 40, 30 and 30 respectively?
 A) Augite B) Ferroaugite
 C) Subcalcic augite D) Pigeonite
58. Which of the following is not a mica?
 A) Glauconite B) Zinnwaldite
 C) Vermiculite D) Lepidolite

59. Name of the plagioclase with An-75 and Ab -25 ?
 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) Chromite
61. Which of the following is caused by radiation damage?
 A) Migmatite B) Metamict
 C) Myrmekite D) Radiolaria
62. Which of the following minerals has the highest amount of Ti in it?
 A) Ilmenite B) Titanite C) Rutile D) Sphene
63. Which of the following is the stable phase at 300° C temperature and 4 kb pressure?
 A) Andalusite B) Sillimanite C) Kyanite D) Mullite
64. Which of the following is polymorphous with aragonite?
 A) Dolomite B) Calcite C) Magnesite D) Ankerite
65. Which shows the major 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) Yb
67. Which of the following is a chalcophile element?
 A) Cr B) Mn C) Zn D) Cl
68. Which mineral precipitates at an environment of very low pH but very high Eh?
 A) Gypsum B) Anhydrite
 C) Pyrite D) Hematite
69. Where is the position of limestone 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. Which is the radioactive isotope of carbon?
 A) Carbon-11 B) Carbon-12
 C) Carbon-13 D) Carbon-14

71. How much percentage of the Earth's crust is made up of sedimentary rocks?
 A) 5 B) 10 C) 20 D) 30
72. Which lava flow has a submarine eruption?
 A) Pahoehoe B) aa C) Ropy D) Pillow
73. How to describe an igneous rock with mean grain diameter of 6mm?
 A) Fine grained B) Very fine grained
 C) Medium grained D) Coarse grained
74. Which of the following textures indicate high-temperature skeletal crystallization?
 A) Spinifex B) Seriate C) Cumulate D) Rapikivi
75. Name a plutonic rock with 30 % quartz, 45% orthoclase, 20% plagioclase and 5% mica?
 A) Granite B) Granodiorite C) Diorite D) Tonalite
76. Name the volcanic rock with SiO₂ of 70wt. % and (Na₂O + K₂O) of 3 wt%.
 A) Andesite B) Basalt C) Rhyolite D) Dacite
77. Which is the correct expression of Gibb's 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 petrogeny's residua system?
 A) Ab-Or-An B) Ab-Di-An C) Ab-Or-Qtz D) Fo-Fa-Di
79. Which diagram discriminates tholeiitic from calc-alkaline?
 A) ACF B) AKF C) AFM D) QAP
80. Which of the following is an ultramafic rock?
 A) Anorthosite B) Dunite
 C) Keratophyre D) Carbonatite
81. Which of the following is a sandstone rich in feldspar?
 A) Arenite B) Marl
 C) Arkose D) Quartzite
82. What is the term used to denote chemically precipitated carbonate mud?
 A) Sparite B) Microsparite
 C) Macrosparite D) Micrite
83. Which of the following heavy mineral indicates a metamorphic provenance?
 A) Zircon B) Ilmenite
 C) Kyanite D) Cassiterite

84. Which of the following metamorphic facies is of highest pressure?
A) Granulite B) Hornblende-hornfels
C) Pyroxene-hornfels D) Sanidinite
85. Which mineral is characteristic of blue-schist facies?
A) Kyanite B) Corundum
C) Cordierite D) Glaucophanite
86. In which metamorphic textures, the grains show preferred orientation?
A) Granoblastic B) Porphiroblastic
C) Schistose D) Idioblastic
87. Which of the following is a mantle rock?
A) Ophiolite B) Spilite C) Keratophyre D) Eclogite
88. Which of the following is not a high grade metamorphic rock?
A) Charnockite B) Khondalite C) Eclogite D) Phyllite
89. Which of the following is not found as placer deposits?
A) Gold B) Diamond C) Chromite D) Graphite
90. Which of the following is not a copper mineral?
A) Pyrite B) Chalcopyrite C) Bornite D) Cuprite
91. What is the reservoir rock for Bombay High oil field?
A) Sandstone B) Limestone C) Shale D) Clay
92. In which oil field is Ankaleswar?
A) Bombay High B) Assam
C) Cambay Basin D) Cauvery Basin
93. What is the age of Neyveli lignite deposits?
A) Paleozoic B) Mesozoic
C) Tertiary D) Quaternary
94. Deposits of which of the following is formed by supergene enrichment?
A) Galena B) Magnetite
C) Pyrolusite D) Bauxite
95. Which is the radioactive material in the beaches of Kerala?
A) Ilmenite B) Monazite
C) Sillimanite D) Garnet
96. Which of the following is a uranium mine?
A) Manavalakurichi B) Jaduguda
C) Karnool D) Agnigundala

97. By what process Ilmenite is separated from heavy mineral sands at Chavara?
 A) Magnetic B) Radioactive
 C) Electrostatic D) Vibration
98. Which metal is mined at Zawar mines?
 A) Pb B) Th
 C) Co D) Ta
99. With which rock types the chromite deposits of Karnataka are associated?
 A) Felsic B) Metamorphic
 C) Ultramafic D) Sedimentary
100. Ores of which metal is associated with koduritic rocks?
 A) Fe B) Cu C) Mn D) Mg
101. Which state has abundant gypsum deposits?
 A) Bihar B) Odisha C) Rajasthan D) Gujarat
102. Which gem is marketed in India as 'vaidoorya'?
 A) Diamond B) Topaz
 C) Corundum D) Chrysoberyl
103. With which of the following the term fusain is associated?
 A) Mineral property B) Coal petrography
 C) Ore beneficiation D) Gemstone grading
104. Which of the following is more applicable in groundwater exploration?
 A) Gravity B) Magnetic
 C) Seismic D) Resistivity
105. Which is the term used to refer to the economically mineable part of a measured ore reserve?
 A) Proved B) Probable
 C) Indicated D) Confirmed
106. Which logging device was first developed by petroleum industry as a measure of porosity ?
 A) Caliper B) Sonic C) SP D) ISP
107. Which deposit can be explored by gravity survey?
 A) Gold B) Chromite C) Bauxite D) Graphite
108. Which exploration data has Milligals as unit?
 A) Magnetic B) Radioactive C) Seismic D) Gravity

109. Which is the cheapest and fastest drilling method?
 A) Diamond B) Percussion C) Auger D) Rotary
110. A leaky confining bed can be classed as:
 A) Aquifer B) Aquiclude
 C) Aquitard D) Aquaduct
111. The zone of saturation can be regarded as:
 A) Vadose zone B) Perched aquifer
 C) Phreatic zone D) Zone of aeration
112. Which of the following quantifies the ability of a porous medium to transport water?
 A) Reynold's number B) Hydraulic conductivity
 C) Porosity D) Permeability
113. What is the average TDS (mg/l) in stream water?
 A) 100 B) 500
 C) 1000 D) 1500
114. Which of the following commonly triggers landslides?
 A) Tsunami B) Earth quake
 C) Tide D) Nuclear explosion
115. Which type of mining is employed for exploiting coal?
 A) Open cast alone
 B) Underground alone
 C) Both open cast and underground
 D) Trenching
116. Which of the following parameters does not appear in Darcy's law?
 A) Permeability B) Hydraulic conductivity
 C) Hydraulic gradient D) Discharge
117. Which of the following term is synonymous with laterite?
 A) Bauxite B) Saprolite C) Rhodonite D) Teris
118. Which of the following contaminants in drinking water is more dangerous?
 A) Chloride B) Carbonate C) Arsenic D) Fluoride
119. What is the S-wave velocity in the earth's crust?
 A) 4 km/s B) 8 km/s C) 20 km/s D) 40 km/s
120. What is the highest magnitude of earthquake measured so far?
 A) 9 B) 9.5 C) 10 D) 10.5
