

1. When it is subjected to local or regional loads the lithosphere responds by the process known as :
 - A) Rifting
 - B) Subduction
 - C) Obduction
 - D) Flexure
2. Who coined the terms 'uniformitarians' and 'catastrophists'?
 - A) Charles Darwin
 - B) Charles Lyell
 - C) William Whewell
 - D) William Smeeth
3. If CL and VL represent the channel length and valley length of a stream, then the sinuosity of the channel is expressed by:
 - A) $CL + VL$
 - B) $CL \times VL$
 - C) CL / VL
 - D) $VL - CL$
4. Which of the following marks the farthest advance of a glacier?
 - A) Ground moraine
 - B) Lateral moraine
 - C) Medial moraine
 - D) Terminal moraine
5. Which of the following gives the correct sequence in the electromagnetic spectrum?
 - A) Gamma rays – X rays – Ultraviolet – Infrared – Radio waves
 - B) X rays – Ultraviolet – Infrared – Radio waves - Gamma rays
 - C) Ultraviolet – Infrared – Radio waves - Gamma rays – X rays
 - D) Gamma rays – X rays – Infrared-Ultraviolet– Radio waves
6. Which of the following equipment helps a geologist to locate himself in the field?
 - A) GIS
 - B) GPS
 - C) GSI
 - D) SEM
7. The terms raster and vector are associated with:
 - A) GIS
 - B) GPS
 - C) GSI
 - D) SEM
8. Which of the following is not a spatial data?
 - A) Location
 - B) Speed
 - C) Shape
 - D) Size
9. A plane dips 40° towards $N 45^\circ W$. Its apparent dip towards $N10^\circ W$ will be around:
 - A) 25°
 - B) 45°
 - C) 60°
 - D) 75°
10. In which of the following folds, the axial surface is inclined and the hinge-line plunges down the dip of the axial surface
 - A) Recumbent fold
 - B) Reclined fold
 - C) Sheath fold
 - D) Drag fold

11. Based on which criterion a fold is classed 'closed fold'?
- A) Direction of closing B) Vergence
C) Limb thickness D) Inter-limb angle
12. Which of the following is not a way-up structure?
- A) Cross bedding B) Graded bedding
C) Imbrication D) Pillow lavas
13. Dendritic drainage pattern is characteristic of which one of the following?
- A) Parallel faults B) Eroded dome
C) Horizontal sedimentary rocks D) River piracy
14. Which of these denotes a low-angle reverse fault?
- A) Drag B) Lag C) Thrust D) Rift
15. Which of the following is not a lineation?
- A) A sillimanite needle lying normal to the hinge of a fold in gneiss
B) Rounded crystals of garnet seen arranged in a line in khondalite
C) Pseudotachylite
D) Slickenside
16. Along which of these structures Benioff zones are located?
- A) Constructive plate margins B) Destructive plate margins
C) Long transcurrent faults D) Transform faults
17. Which of the following is an active continental margin?
- A) Western continental margin of India
B) Eastern continental margin of India
C) Western continental margin of South America
D) Eastern continental margin of South America
18. Where is the LVZ (Low Velocity Zone) located?
- A) Between upper crust and lower crust
B) Just below the lithosphere
C) Coinciding the Moho
D) Along the mantle-core boundary
19. Continental rift zones represent:
- A) Dormant destructive plate margin
B) Incipient constructive plate margin
C) A continental suture
D) Scars of previous continental drift

20. What is the normal range of velocity of lithospheric plate motion?
 A) 2-12 cm/year B) 10-40 cm/year
 C) 40-80 cm/year D) 0.2 – 2.0 m /year
21. The San Andreas fault is a kind of:
 A) Normal fault B) Reverse fault
 C) Strike fault D) Transform fault
22. The boundary between Cenozoic and Mesozoic is around
 A) 50 Ma B) 65 Ma C) 80 Ma D) 95Ma
23. The term Mississippian corresponds to:
 A) Lower Carboniferous B) Upper Carboniferous
 C) Lower Permian D) Upper Permian
24. Which of the following is the most distinct component of a Greenstone belt?
 A) Fuchsite quartzite
 B) At least one green or greenish looking mineral or stone
 C) Metamorphosed mafic or ultramafic rocks
 D) Pillow lavas
25. Which of the following is an example of a mobile belt?
 A) Closepet Granite B) Java Sumatra arc
 C) Western Ghats D) Eastern Ghats
26. Which stratigraphic principle states that ‘the individual beds are of the same age along an outcrop’?
 A) Order of superposition B) Cross-cutting relationship
 C) Original lateral continuity D) Faunal succession
27. Which of the following is based on radiometric data?
 A) Magnetostratigraphy B) Lithostratigraphy
 C) Chronostratigraphy D) Biostratigraphy
28. Which of the following is the oldest?
 A) Cenomanian B) Maestrichian
 C) Turonian D) Burdigalian
29. Which of the following is the correct arrangement in terms of geologic age?
 A) Chengannur granite- Rajmahal traps - Deccan traps- Barren Island volcanics
 B) Chengannur granite- Deccan traps- Barren Island volcanics- Rajmahal traps
 C) Chengannur granite- Deccan traps- Rajmahal traps - Barren Island volcanics
 D) Barren Island volcanics-Deccan traps-Chengannur granite- Rajmahal traps

30. Which of the following is the correct arrangement in terms of geologic age ?
 A) Haimantas –Talchirs-Umia beds – Siwaliks - Karewas
 B) Talchirs –Haimantas – Umia beds - Siwaliks - Karewas
 C) Haimantas –Talchirs - Umia beds – Karewas - Siwaliks
 D) Haimantas –Umia beds - Talchirs – Siwaliks - Karewas
31. Which of the following has a basal conglomerate?
 A) Wynad Group B) Workalai Beds
 C) Vengad Group D) Quilon Beds
32. Which of the following is not a granitoid pluton?
 A) Peralimala B) Ambalavayal
 C) Angadimogar D) Perinthatta
33. Which is the principal heavy mineral mined from the Chavara coastal area?
 A) Monazite B) Ilmenite
 C) Rutile D) Garnet
34. Which is the major ore mineral in the iron ore deposits of Kozhikode?
 A) Magnetite B) Haematite
 C) Limonite D) Laterite
35. The Semri series can be considered as:
 A) Lower Vindhya B) Upper Vindhya
 C) Lower Delhis D) Upper Delhis
36. During which period the graptolites attained their maximum development?
 A) Cambrian B) Ordovician
 C) Silurian D) Carboniferous
37. Ammonoids became extinct at the end of:
 A) Tertiary B) Triassic
 C) Cretaceous D) Carboniferous
38. The arrangement in which teeth are radiating from the umbo is called:
 A) Isodont B) Desmodont
 C) Dysodont D) Schizodont
39. Which of the following is a bivalve?
 A) Nautilus B) Lima C) Nucula D) Trigonina
40. To which phylum gastropods belong to?
 A) Protozoa B) Coelentera
 C) Mollusca D) Arthropoda

41. To which phylum, the Class 'Crustacea' belongs to:
- A) Protozoa B) Coelentera
C) Mollusca D) Arthropoda
42. What is the geological range of dinosaurs?
- A) Triassic to Cretaceous B) Jurassic to Paleocene
C) Carboniferous to Eocene D) Lower to Upper Jurassic
43. Which of the fossil is linked closely to human evolution?
- A) Sivatherium B) Brahmatherium
C) Australopithecus D) Eohippus
44. Approximately how many years ago did the homo sapiens appear on the Earth?
- A) One lakh B) Two lakh
C) Three lakh D) Four lakh
45. Where will be the position of the face 001 on a Tetragonal crystal stereogram?
- A) At the centre of the stereogram
B) At the primitive circle
C) Mid-point between the centre and primitive circle along the E-W diagonal
D) Mid-point between the centre and primitive circle along the N-S diagonal
46. Which crystal system is not having any open crystal form?
- A) Triclinic B) Trigonal
C) Monoclinic D) Isometric
47. The basic difference between graphite and diamond lies in:
- A) Chemistry B) Density
C) Crystal structure D) Colour
48. To which crystal system the point group with symbol $2/m 2/m 2/m$ belongs to?
- A) Isometric B) Tetragonal
C) Hexagonal D) Orthorhombic
49. Which is the correct sequence of forms arranged in the increasing number of faces?
- A) Tetrahedron – cube – octahedron - hexagonal dipyramid
B) Cube – octahedron – tetrahedron - hexagonal dipyramid
C) Cube – tetrahedron - octahedron - hexagonal dipyramid
D) Tetrahedron – cube - hexagonal dipyramid – octahedron
50. If a mineral has three values of refractive indices, in which system it crystallizes:
- A) Isometric B) Tetragonal
C) Hexagonal D) Orthorhombic

51. Which of the following minerals is isotropic under the petrological microscope?
 A) Augite B) Pyrope
 C) Fayalite D) Cordierite

52. Which is the correct sequence of minerals arranged according to increasing relief?
 A) quartz – orthoclase – apatite – zircon
 B) orthoclase – quartz – apatite - zircon
 C) quartz – apatite – orthoclase - zircon
 D) quartz – orthoclase – zircon – apatite

53. Which of the following does not show pleochroic haloes?
 A) Tourmaline B) Chlorite
 C) Cordierite D) Quartz

54. What is the shape of the indicatrix of a uniaxial positive mineral?
 A) Prolate ellipsoid B) Oblate ellipsoid
 C) Triaxial ellipsoid D) Sphere

55. Which of the following is a tectosilicate?
 A) Tourmaline B) Spodumene
 C) Leucite D) Kaolinite

56. Which of the following technique / data is not used in mineralogical research?
 A) Raman spectra
 B) IR Spectra
 C) Differential thermal analysis
 D) Ground Penetrating Radar

57. Which of the following is not the correct pair of mineral species and corresponding mineral family?
 A) Sanidine : Feldspar B) Diopside : Pyroxene
 C) Cordierite : Amphibole D) Zinnawaldite : Mica

58. What is the specific gravity of native gold?
 A) 4 B) 8 C) 18 D) 24

59. Which of the following is not a phosphate mineral?
 A) Pyromorphite B) Monazite C) Apatite D) Periclase

60. Who established the reaction series?
 A) Swamy and Saxena B) Turner and Verhoojen
 C) Bowen D) Miyashiro

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

75. What is the volcanic equivalent of diorite?
A) Trachyte B) Granophyre
C) Dacite D) Andesite
76. Which of the following magmatic series is typical of island-arc settings?
A) Komatiitic B) Tholeiitic
C) Alkaline D) Calc-alkaline
77. The term Europium anomaly is associated with:
A) Stable isotopes B) Rare earth elements
C) Geochemical exploration D) Radioactivity
78. Which is the first mafic mineral to crystallize from a magma as per the Bowen's Series?
A) Olivine B) Pyroxene
C) Hornblende D) Ca-rich plagioclase
79. Which of the following rocks occur as diatreme?
A) Komatiite B) Kimberlite
C) Dolerite D) Diorite
80. Which of the following is not a heavy mineral?
A) Ilmenite B) Monazite
C) Garnet D) Magnesite
81. What is flysch?
A) Fossil B) Igneous rock
C) Metamorphic rock D) Sedimentary rock
82. Which of the following is a carbonaceous rock?
A) Limestone B) Peat
C) Arkose D) Siltstone
83. Which of the following is made up of rounded pebbles?
A) Arkose B) Breccia
C) Conglomerate D) Dolostone
84. Which of the following pair of minerals shows eutectic relation?
A) Albite-Anorthite B) Fosterite- Fayalite
C) Anorthite-Diopside D) Diopside –Hedenbergite
85. Which of the following is an ultramafic rock?
A) Diorite B) Basalt
C) Dunite D) Keratophyre

86. Which of the following textures indicates the simultaneous crystallization of two minerals?

- A) Porphyritic
- B) Poikilitic
- C) Corona
- D) Sub-ophitic

87. What is the precursor for khondalites?

- A) Charnockites
- B) Mafic volcanics
- C) Carbonate rocks
- D) Pelitic rocks

88. Which of the following is a high pressure mineral?

- A) Andalusite
- B) Sillimanite
- C) Kyanite
- D) Prehnite

89. Match the economic deposits in **Group I** with their Indian occurrences in **Group II**.

Group I	Group II
P. Coal	1. Agnigundala
Q. Copper	2. Salem
R. Magnesite	3. Raniganj
S. Ilmenite	4. Manavalkurichi

- A) P-1, Q-2, R-3, S-4
- B) P-2, Q-3, R-4, S-1
- C) P-1, Q-4, R-2, S-3
- D) P-3, Q-1, R-2, S-4

90. What is the temperature of formation of mesothermal type of hydrothermal deposits?

- A) 0-100 °C
- B) 100-200 °C
- C) 200-300 °C
- D) 300-400 °C

91. The chromite deposits of Odisha are found in:

- A) Byrapur
- B) Sukinda
- C) Sithampundi
- D) Ratnagiri

92. Which of the following is not used in steel industry?

- A) Coal
- B) Manganese ore
- C) Limestone
- D) Magnesite

93. Which of the following is used as the source of phosphate in fertilizer industry?

- A) Dolomite
- B) Fluorite
- C) Apatite
- D) Corundum

94. The placer deposits that occur along hill slopes are called:

- A) Alluvial
- B) Beach
- C) Eluvial
- D) Glacial

95. Which of the following is not an ore of manganese?

- A) Bornite
- B) Manganite
- C) Magnesite
- D) Pyrolusite

96. Which of the following is an ore of iron?
A) Magnesite
B) Malachite
C) Manganite
D) Magnetite
97. The sulphide ore of mercury is:
A) Galena
B) Sphalerite
C) Cinnabar
D) Hg Amalgum
98. Which economic mineral is seen along Nilambur, Wynad and Attappadi areas?
A) Gold
B) Platinum
C) Laterite
D) Ilmenite
99. Which gemstone is occurring along Southern Kerala?
A) Diamond
B) Graphite
C) Corundum
D) Chrysoberyl
100. Which of the following is not a bauxitic mineral?
A) Gibbsite
B) Boehmite
C) Cryolite
D) Diaspore
101. During which geologic time most of the banded iron formations originated?
A) Archaean
B) Proterozoic
C) Paleozoic
D) Mesozoic
102. Gas hydrates can be considered as:
A) Fossil fuel
B) Magmatic deposit
C) Fluid inclusion
D) Supergene deposit
103. Which of the following is not a type of oil trap?
A) Anticline
B) Salt dome
C) Unconformity
D) Mesa
104. Which geophysical technique is used to prospect for a concealed iron ore deposit?
A) Seismic
B) Gravity
C) Resistivity
D) Radioactivity
105. Which geophysical method is widely used in oil exploration?
A) Seismic
B) Gravity
C) Resistivity
D) Radioactivity
106. Which of the following exhibits phosphorescence?
A) Garnet
B) Beryl
C) Pyrite
D) Scheelite

107. If gold nuggets occur in quartz veins in amphibolites, which is the gangue mineral?
A) Gold B) Quartz
C) Hornblende D) Plagioclase
108. Gossans are made up essentially of:
A) Sulphides B) Primary ores
C) Hydrated iron oxides D) Hydrated sulphides
109. Which geophysical method is widely used in groundwater exploration?
A) Seismic B) Gravity
C) Resistivity D) Radioactivity
110. Which cations are responsible for hardness of water?
A) Ca & Mg B) Na & Ca
C) Na & Mg D) Ca & K
111. With which type of aquifer artesian wells are associated?
A) Confined B) Unconfined
C) Semi-confined D) Phreatic
112. Which of these is associated with Sea water incursion?
A) Darcy's law B) Piper diagram
C) Reynolds number D) Ghyben – Herzberg relation
113. Lower than normal content of fluoride in drinking water leads to:
A) Dental cavities B) Dental fluorosis
C) Skeletal fluorosis D) All of the above
114. The presence of water in rocks will:
A) Increase the tensile strength
B) Increase the compressive strength
C) Decrease the tensile strength
D) Has no effect on the strength
115. The technique of extracting desired ore from an underground mine leaving behind an open space is called:
A) Tilling B) Grooving
C) Setting D) Stoping
116. Which method is used to separate between rutile and ilmenite during the beneficiation of beach placers ?
A) Density B) Magnetic
C) Electrostatic D) Froth floatation

117. Acid drainage is often associated with:
A) Volcanic eruption B) Acid rains
C) Mining D) Sea-level fall
118. Which Ministry regulates the Coastal Zone in India?
A) Ministry of Steel and Mines
B) Ministry of Fisheries
C) Ministry of Earth sciences
D) Ministry of Environment, Forest and Wildlife
119. Which is the primary agency for disaster management in India?
A) NDMA B) GSI
C) ONGC D) IMD
120. The phenomenon of eutrophication of lakes is caused by:
A) Excessive plant and algal growth
B) Decreased plant and algal growth
C) Drying up of lakes
D) Flooding of lakes.

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