

1. Pick out the Odd one from the following
  - (A) Beach
  - (B) Sea cliff
  - (C) Bar
  - (D) Beach Ridge
  - (E) Answer not known
  
2. A elongated sand ridges parallel to the shore separated from the coast by a lagoon is termed as
  - (A) Barrier island
  - (B) Beach Ridge
  - (C) Sand dune
  - (D) Point bar
  - (E) Answer not known
  
3. An accumulation of sand to the Lee of and in the shelter of an obstruction is called as
  - (A) Sand Shadow
  - (B) Sand sheet
  - (C) Sand levees
  - (D) The Barchan
  - (E) Answer not known
  
4. Deserts formed between the latitude of  $15^{\circ}$ – $30^{\circ}$  of North and South is called
  - (A) Low-latitude desert
  - (B) Middle-latitude desert
  - (C) Cold desert
  - (D) Temperate desert
  - (E) Answer not known



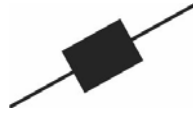
9. Wear and tear of transported rock particle by river through rubbing and grinding is called by
- (A) Attrition (B) Abrasion  
(C) Corrosion (D) Impact  
(E) Answer not known
10. Loess deposits in the Mississippi valley are called
- (A) Sand dune (B) Sand hill  
(C) Adobe (D) Ripple  
(E) Answer not known
11. Rocks can be fractured by the burrowing animals or growing roots is known as
- (A) Frost wedging (B) Root wedging  
(C) Oxidation (D) Hydrolysis  
(E) Answer not known
12. The high intensity seismic zone in India is
- (A) The Indo gangetic plains (B) The Deccan plateau  
(C) The Peninsular region (D) The Himalayan Region  
(E) Answer not known
13. The age of the earth is
- (A) 3.2 billion years (B) 5.6 billion years  
(C) 4.5 billion years (D) 3.8 billion years  
(E) Answer not known

14. Broad based low elevated volcanic cones are termed
- (A) Active Volcanoes (B) Extinct Volcanoes  
(C) Dormant Volcanoes (D) Shield Volcanoes  
(E) Answer not known
15. The crater is connected to the magma chamber by
- (A) Parastic cone (B) Vent  
(C) Dike (D) Vulcan  
(E) Answer not known
16. The half life period of C-14 is
- (A) 6730 years (B) 5730 years  
(C) 5735 years (D) 6625 years  
(E) Answer not known
17. Comets are made of
- (A) Molten rock  
(B) Mineral grains  
(C) Gas, ice and other frozen liquids  
(D) Rock and thin atmosphere of argon  
(E) Answer not known
18. The Guttenberg – Weichert discontinuity is found in which depth?
- (A) 35 km (B) 6371 km  
(C) 33 km (D) 2900 km  
(E) Answer not known

19. Approximately how long ago did the Big Bang take place?
- (A) 10-15 thousand years ago
  - (B) 10-15 million years ago
  - (C) 100-150 million years ago
  - (D) 10-15 billion years ago
  - (E) Answer not known
20. Who proposed the term, “the Earth outer layers Sial and Sime are capable of adjusting themselves to the varying geothermic condition”?
- (A) Datton
  - (B) Daly
  - (C) G.B. Airy’s
  - (D) Heiskanen’s
  - (E) Answer not known
21. In a peridotite, the P-wave velocity is
- (A) 8.1 kps
  - (B) 4.5 kps
  - (C) 6.1 kps
  - (D) 6.8 kps
  - (E) Answer not known
22. The geometrical properties of rock fabrics is known as
- (A) Petro analysis
  - (B) Fabric analysis
  - (C) Rock fabric analysis
  - (D) Petrofabric analysis
  - (E) Answer not known



27. Identify the below map symbol for joints.

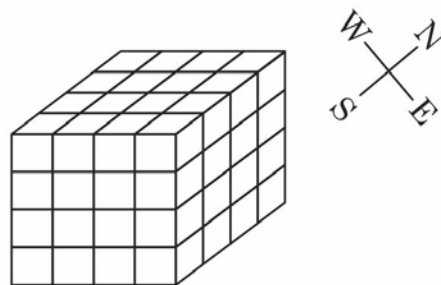


- (A) Strike and dip of inclined      (B) Strike of vertical joint  
(C) Horizontal joints      (D) Dip of horizontal joint  
(E) Answer not known

28. One set of joint is prominent and parallel to ground surface and another set is less prominent, spacing increase with depth. This type of joints are seen in \_\_\_\_\_ rocks.

- (A) Sandstone      (B) Marble  
(C) Granite      (D) Basalt  
(E) Answer not known

29. How many sets of joints are there in the given diagram



Not to scale

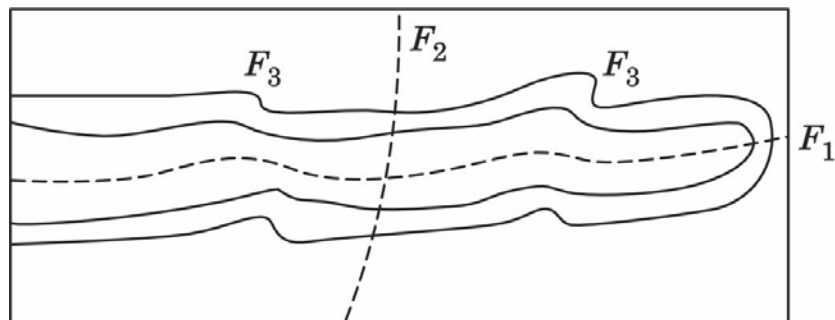
- (A) 1 set      (B) 2 sets  
(C) 4 sets      (D) 3 sets  
(E) Answer not known

30. Naga thrust is an example of \_\_\_\_\_ fault.
- (A) Reverse fault (B) Normal fault  
 (C) Left lateral fault (D) Right lateral fault  
 (E) Answer not known
31. The folds are produced by tangential procedures which lift up the beds study and vertically at the crest is called \_\_\_\_\_ fold.
- (A) Similar fold (B) Dome fold  
 (C) Parallel fold (D) Supratenuous fold  
 (E) Answer not known
32. What type of fold is produced when the strata due to lateral compression with greatest principle stress axis of a horizontal couple with slipping past one another?
- (A) Flow folding (B) Anticlinorium  
 (C) Flexure folding (D) Synclinorium  
 (E) Answer not known
33. Fragmentary material produced during faulting is called
- (A) Gouge (B) Fault Breccia  
 (C) Mylonite (D) Sliken sides  
 (E) Answer not known
34. Thickening and thinning of beds at crests and troughs is found in \_\_\_\_\_ folds
- (A) Similar (B) Open  
 (C) Concentric (D) Parallel  
 (E) Answer not known



35. The folds are classified on the basis of,
- (A) Appearance in cross-section (B) Symmetry of fold  
 (C) Thickness of limb (D) All of the above  
 (E) Answer not known
36. Folding is mild and the limbs meet at bends at an obtuse angle are called as \_\_\_\_\_ fold.
- (A) Chevron fold (B) Fan fold  
 (C) Open fold (D) Closed fold  
 (E) Answer not known

37. Find out the stages of deformation from the given diagram



- (A) F<sub>1</sub>-Youngest, F<sub>2</sub> Intermediate F<sub>3</sub>-Oldest  
 (B) F<sub>1</sub>-Oldest, F<sub>2</sub> Intermediate F<sub>3</sub>-Youngest  
 (C) F<sub>2</sub> and F<sub>3</sub> are Youngest, F<sub>1</sub>-Oldest  
 (D) F<sub>2</sub>-Oldest, F<sub>1</sub>-Youngest F<sub>3</sub>-Intermediate  
 (E) Answer not known
38. The process of folding which is considered to be non-tectonic is
- (A) Tangential tension (B) Intrusions  
 (C) Tangential compression (D) Differential compression  
 (E) Answer not known

39. If equal and opposite forces applied to a body tend to elongate it, the stress so produced is called
- (A) Tensile stress (B) Compressive stress  
(C) Tangential stress (D) Working stress  
(E) Answer not known
40. Which of the statements are true about stereographic projection?
- (i) The point on a stereogram representing normal to a plane is called pole to the plane  
(ii) The pole of the plane lies  $45^\circ$  from the center of great circle  
(iii) Plotting of poles are useful in studying more number of planes plotted
- (A) (i) only (B) (i) and (ii) only  
(C) (i) and (iii) only (D) (ii) and (iii) only  
(E) Answer not known
41. Stereographic Rotations are used to solve geological problems like
- (A) Earthquake  
(B) Structures below unconformity  
(C) Volcanoes  
(D) Tsunamis  
(E) Answer not known
42. A simple method for determining the orientation of the axis of a cylindrical fold is to construct a \_\_\_\_\_ diagram.
- (A)  $\pi$  (B)  $\alpha$   
(C)  $\beta$  (D)  $\gamma$   
(E) Answer not known

43. The process of metasomatic alteration due to the action of superheated steam and fluorine is called as
- (A) Tourmalinisation (B) Kaolinisation  
(C) Scapolitisation (D) Greisening  
(E) Answer not known
44. Which of the following statements are true about contact metamorphism?
- (i) it occurs in country rocks directly adjacent to Igneous Intrusion.  
(ii) It is a regional thermal event  
(iii) Intrusive rock produces thermal aureole.
- (A) (i) only  
(B) (i) and (iii) only  
(C) (i) and (ii) only  
(D) (ii) and (iii) only  
(E) Answer not known
45. The process of the development of bands that are at an angle to the original rock cleavage direction is called as
- (A) Tectonic banding (B) Kinking  
(C) Crenulation (D) Concentration  
(E) Answer not known
46. Which of the following depth zone comprises Eclogite rock?
- (A) Epizone (B) Katazone  
(C) Mesozone (D) Anamorphic zone  
(E) Answer not known

47. Choose the right matches among the following :

- (1) Granulites was termed by → Bowen  
(2) Quartz – Perthite – Garnet assemblage → Granulite facies  
(3) Quartz – Perthite – Hypersthene → Normal assemblage of charnockite  
(4) Plagioclase – Hypersthene – Diopside – Garnet → Asilica rich basic assemblage.
- (A) (1) and (3) are correct  
(B) (1) and (2) are correct  
(C) (2) and (3) are correct  
(D) (3) and (4) are correct  
(E) Answer not known

48. Low grade regional and dislocation metamorphism found in

- (A) Granulite facies (B) Amphibolite facies  
(C) Eclogite facies (D) Green schist facies  
(E) Answer not known

49. Metamorphism that occurs burial and heating is associated with convergent plate boundary

- (A) Retrograde metamorphism  
(B) Contact metamorphism  
(C) Regional metamorphism  
(D) Thermal metamorphism  
(E) Answer not known

50. The Harker variation diagram plotted percentage of oxides against
- (A) Feldspar percentage
  - (B) Silica percentage
  - (C) Biotite percentage
  - (D) Albite percentage
  - (E) Answer not known
51. Augite rich ultra basic basalt named as
- (A) Olivine Basalt
  - (B) Quartz Basalt
  - (C) Oceanite
  - (D) Ankaramite
  - (E) Answer not known
52. Eutectic crystallization noticed in
- (i) Albite – Cristobalite series
  - (ii) Diopside – Anorthite series
  - (iii) Albite – Anorthite series
- (A) (i) only
  - (B) (ii) only
  - (C) (i) and (iii) only
  - (D) (i) and (ii) only
  - (E) Answer not known
53. Shonkinite is a variety of \_\_\_\_\_ Igneous rock.
- (A) Granite
  - (B) Gabbro
  - (C) Syonite
  - (D) Melasyonite
  - (E) Answer not known

54. Harzburgite, an ultramagmatic igneous rocks, is a variety of peridotite consisting mostly of
- (A) Olivine + Plagioclase
  - (B) Olivine + Low calcium pyroxene
  - (C) Clinopyroxene + Plagioclase
  - (D) Olivine + Micaeous
  - (E) Answer not known
55. Dolerites are predominantly madeup of
- (A) Nepheline in addition to feldspar
  - (B) Pyroxenes are absent
  - (C) Calcic plagioclase and Clinopyroxene Augite
  - (D) Typical absence of feldspar
  - (E) Answer not known
56. The following statements are correctly paired in Bushveld complex
- (i) One of the most remarkable bodies of Igneous rock on Earth
  - (ii) It has great Economic importance
  - (iii) One of the most remarkable bodies of sedimentary rocks
  - (iv) One of the most remarkable bodies of metamorphic rocks
- (A) (i) and (ii) are correct
  - (B) (i) and (iii) are correct
  - (C) (iii) and (iv) are correct
  - (D) (iv) and (ii) are correct
  - (E) Answer not known

57. An altered form of dolerite that has a dull green color is called
- (A) Volcanic flow (B) Porphyritic  
 (C) Diabase (D) Dyke and Sills  
 (E) Answer not known
58. The forms of igneous intrusions in folded regions are called as
- (A) Phacoliths (B) Conoliths  
 (C) Batholiths (D) Volcanic necks  
 (E) Answer not known
59. The Felsic mineral is a term derived for
- (A) Ferromagnesian minerals like Biotite pyroxene, Amphiboles  
 (B) Feldspar, Felspathoid and Silica  
 (C) Ferromagnesian and Feldspar and Silica  
 (D) Salic and femic minerals  
 (E) Answer not known
60. Match the correct answer :
- |               |   |
|---------------|---|
| (a) Granite   | 1. Plagioclase dominant                 |
| (b) Syenite   | 2. Alkalifeldspar, Plagioclase dominant |
| (c) Monzonite | 3. Alkalifeldspar felspathoid dominant  |
| (d) Diorite   | 4. Alkalifeldspar dominant              |
- 
- |     |     |     |     |     |
|-----|-----|-----|-----|-----|
|     | (a) | (b) | (c) | (d) |
| (A) | 1   | 2   | 3   | 4   |
| (B) | 3   | 2   | 4   | 1   |
| (C) | 1   | 4   | 3   | 2   |
| (D) | 2   | 4   | 3   | 1   |
- (E) Answer not known

61. Match the following textures :

- |                             |                  |
|-----------------------------|------------------|
| (a) Large phenocrysts       | 1. Vitrophyric   |
| (b) Smaller size to form    | 2. Intergranular |
| (c) Grow at same rates      | 3. Poikilitic    |
| (d) Matrix is wholly glassy | 4. Porphyritic   |

- |     | (a)              | (b) | (c) | (d) |
|-----|------------------|-----|-----|-----|
| (A) | 1                | 2   | 3   | 4   |
| (B) | 4                | 1   | 2   | 3   |
| (C) | 2                | 4   | 3   | 1   |
| (D) | 3                | 4   | 1   | 2   |
| (E) | Answer not known |     |     |     |

62. Feldspar become approximately same order of size as the pyroxenes, their enclosure is only partial and the texture is referred as

- |                      |                 |
|----------------------|-----------------|
| (A) Subophitic       | (B) Poikilitic  |
| (C) Porphyritic      | (D) Intergrowth |
| (E) Answer not known |                 |

63. When the sea level rises and the coastal plain's are inundated. The sequence boundries may be recognised by incision of fluvial deposits into shalves.

- (A) Transgressive systems tract
- (B) High stand systems tract
- (C) Low stand systems tract
- (D) Low stand wedge systems tract
- (E) Answer not known



64. The 1000 km long and 100 km wide Benue trough in the Gulf of Guinea in West Africa is best example of an
- (A) Aulocogen (B) Interior basin  
(C) Rift basin (D) Foreland basin  
(E) Answer not known
65. The unconformity recognized in seismic profiles by termination of a series of continuous reflectors against a surface at high angles is reckoned as a
- (A) Depositional sequence (B) Sequence boundary  
(C) Correlative conformity (D) Genetically linked  
(E) Answer not known
66. The deposits are the result of erosive action of migrating channels and further intermixing with alluvial deposits and poorly sorted sediments and are formed due to mass wasting which accumulate at the base of the slope is defined as
- (A) Channel lag deposits (B) Channel fill deposits  
(C) Colluvial deposits (D) Lateral accretion deposits  
(E) Answer not known
67. The sea level changes, resulting regression and transgression cycle on coastal line of world wide in the period of
- (A) Eocene glaciation (B) Miocene glaciation  
(C) Recent glaciation (D) Pleistocene glaciation  
(E) Answer not known

68. A mechanically deposited grainstones of sand size ( $\frac{1}{16}$ -2 mm in diameter) is called as
- (A) Calcirudite (B) Calcarinite  
(C) Calaite (D) Shell limestone  
(E) Answer not known
69. The irregular opening formed by the action of carbonate and ferruginous sandstone are called
- (A) Oolicast (B) Vug  
(C) Stylolites (D) Septeria  
(E) Answer not known
70. The chemical composition of dolomite is
- (A)  $(\text{CaMg}(\text{CO}_3)_2)$  (B)  $\text{CaSO}_4$   
(C)  $\text{SO}_4$  (D)  $\text{CaCO}_3$   
(E) Answer not known
71. The cross stratification is an example of bimodal and bipolar cross stratification in which two set dip in exactly opposite directions observed in a single vertical section. This type of stratification is the characteristics of tidal environment is called as
- (A) Swash cross stratification  
(B) Hummocky cross stratification  
(C) Herringbone cross stratification  
(D) Linguoid waveforms cross stratification  
(E) Answer not known

72. In Andhra Pradesh, chromite ores are located in
- (A) Chaibasa (B) Kondapalli  
(C) Nausahi (D) Sukinda  
(E) Answer not known
73. The palaeo current data is graphically represented in the form of circular histogram are called as
- (A) Histogram (B) Pie diagram  
(C) Rose diagram (D) Bar diagram  
(E) Answer not known
74. Seiveig technique are screening of standard
- (A) Shape (B) Size  
(C) Geometric mean (D) Values of mineral  
(E) Answer not known
75. What is the phi value of very fine sand?
- (A) 0.063 mm (B) 0.250 mm  
(C) 0.125 mm (D) 0.500 mm  
(E) Answer not known
76. According to Petti John (1975), the rounded class limits ranging
- (A) 0.40 – 0.60 (B) 0.60 – 1.00  
(C) 0.25 – 0.40 (D) 0.15 – 0.25  
(E) Answer not known

77. Find the wrong statement from the following :
- (A) Greenlitre is almost entirely restricted to permain rocks
  - (B) Chamosite is the most common phanerozoic iron silicate mineral
  - (C) Geothilic occurs as a sparry cement
  - (D) Pheneozoic deposits hematite occurs as replacement of Ooids
  - (E) Answer not known
78. Sediments precipitated by chemical or bio chemical process such as solution at the site of their accumulation showing interlocking arrangement of grains without intergranular pore spaces. This type of texture is known as
- (A) Non-clastic texture
  - (B) Clastic texture
  - (C) Organic texture
  - (D) Surface texture
  - (E) Answer not known
79. Give one example for least stable mineral.
- (A) Olivine
  - (B) Muscovite
  - (C) Hornblende
  - (D) Quartz
  - (E) Answer not known
80. Caldera is a term used to express
- (A) Very large sized craters that have collapsed with the passage of time
  - (B) Huge depression created by glacial erosion in the mountains
  - (C) Extensions of many parallel mountain ranges
  - (D) Folded mountains
  - (E) Answer not known

81. The mechanical stability of the feldspar is lower than the quartz because
- (A) Feldspar are softer and have a stronger cleavage
  - (B) Quartz are composed of poly crystalline grains
  - (C) Quartz grains is not possible to assign a precise origin
  - (D) Felspars are softer and having weak cleavage
  - (E) Answer not known
82. Regolith composed of
- (A) Si – Al – Fe only
  - (B)  $\text{SiO}_2 - \text{O}_2 - \text{MgCO}_3$
  - (C) Al – Ag –  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
  - (D) Fe –  $\text{AlSiO}_3 - \text{O}_2$
  - (E) Answer not known
83. Increased moisture retention within the fractured materials of a fracture or fault zone is often manifested as distinctive vegetation or small impounded bodies known as
- (A) Sag ponds
  - (B) Evergreen forests
  - (C) Water bodies
  - (D) None of the above
  - (E) Answer not known
84. Which of the following study can be done through remote sensing technique?
- (i) Flood plain mapping
  - (ii) Landuse and Land cover mapping
  - (iii) Mapping of underground mining
- (A) (i), (ii) and (iii)
  - (B) (i) and (iii) only
  - (C) (i) and (ii) only
  - (D) (ii) and (iii) only
  - (E) Answer not known

85. Remote sensing is an important source of GIS data providing in the form of
- (A) CAD
  - (B) Digital image
  - (C) Cartography
  - (D) Statistics
  - (E) Answer not known
86. The land use/land covered map is mainly based on the
- (A) Vector data
  - (B) Raster data
  - (C) Satellite digital image
  - (D) Attribute data
  - (E) Answer not known
87. The \_\_\_\_\_ slide of landslide have a planar, or two dimensional surface of rupture.
- (A) Rotational slide
  - (B) Topples
  - (C) Translational slide
  - (D) Lateral spread
  - (E) Answer not known
88. The flood may be caused due to
- (A) Heavy precipitation
  - (B) Failure of river embankment
  - (C) Breach of Dam
  - (D) (A), (B) and (C)
  - (E) Answer not known

89. Which of the following factors attribute to the process of mass wasting?
- (i) Structural characteristic of a region
  - (ii) Composition of the rock
  - (iii) Climate and vegetation
- (A) (i) and (ii) only                      (B) (i) and (iii) only  
(C) (i), (ii) and (iii)                      (D) (ii) and (iii) only  
(E) Answer not known
90. \_\_\_\_\_ is extremely slow downward movement of dry surfacial matters.
- (A) Lahars                                      (B) Creep  
(C) Solifcation                                (D) Debris flow  
(E) Answer not known
91. Which of the following classification of ore reserve carried out based on broad knowledge of the geological characters?
- (A) Proved reserves                          (B) Indicated reserves  
(C) Inferred reserves                        (D) Confirmed reserves  
(E) Answer not known
92. In India, the largest reserve of Bauxite is found in
- (A) Gujarat                                      (B) Jharkhand  
(C) Odisha                                        (D) Tamil Nadu  
(E) Answer not known

93. The \_\_\_\_\_ traps may be constructed upstream in order to check the rate of silting in the reservoir.
- (A) Silt (B) Clay  
(C) Sandstone (D) Slate  
(E) Answer not known
94. The portion of a dam that touches the ground on the downstream side is called
- (A) Heel of the dam (B) Spill way  
(C) Axos of dam (D) Toe of the dam  
(E) Answer not known
95. Volume of water in cubic meter available between minimum pool level and normal pool level is represent the \_\_\_\_\_ storage capacity of dam.
- (A) Surcharge storage (B) Dead storage  
(C) Useful storage (D) Reservoir yield low  
(E) Answer not known
96. Mettur dam constructed by \_\_\_\_\_ type of dam structure.
- (A) Masonry structure  
(B) Gravity type masonry structure  
(C) Masonry cum earth dam  
(D) Earth dam  
(E) Answer not known



97. The examination of A and B horizons in soil and basal glacial till is done for the presence of
- (A) Copper (B) Gold  
(C) Zinc (D) Cadmium  
(E) Answer not known
98. The concept of the rock cycle given by
- (A) Lebrbuchder (B) Roth's Allegemeine  
(C) F.W. Clarks (D) James Hutton  
(E) Answer not known
99. Which of the following method used electric current to investigate subsurface lithological conditions?
- (A) Gravity method (B) Radiometric method  
(C) Resistivity method (D) Magnetic method  
(E) Answer not known
100. A wave entering a relatively high velocity medium whose incident and refracted angle is the critical angle.
- (A) P-waves (B) S-waves  
(C) L-waves (D) Head waves  
(E) Answer not known
101. Salt dome occurs at shallow depths is identified using this method
- (A) Arc shooting (B) Profile shooting  
(C) Refraction method (D) Fan shooting  
(E) Answer not known

102. The Electrical Resistivity method, the resistant measured in the unit of
- (A) m/sec (B) mgal  
(C) Gamma (D) Ohm.m  
(E) Answer not known
103. Radio carbon dating technique is used to estimate the age of
- (A) Water (B) Human body  
(C) Rocks (D) Buildings  
(E) Answer not known
104. The planktonic foraminiferal biostratigraphy of the gulf of Allanhc coasta plains favours the inclusion of the Dunian stage with \_\_\_\_\_ system.
- (A) Cretaceous (B) Tertiary  
(C) Permian (D) Triassic  
(E) Answer not known
105. The Guryul ravine of vihi district in Kashmir provides one of the best known sections where the \_\_\_\_\_ boundary.
- (A) Cretaceous – Paleogene (B) Cretaceous – Tertiary  
(C) Precambrian – Cambrian (D) Permian – Triassic  
(E) Answer not known

106. Find out the odd one :

The lower Cambrian has been subdivided on the basis of the fossil fauna into

- (A) Tommotian
- (B) Emsian
- (C) Atdabanian
- (D) Lenian
- (E) Answer not known

107. The origin of Siwalik system is closely related to \_\_\_\_\_ activity.

- (A) Fluvial
- (B) Orogenic
- (C) Glacial
- (D) Combined action of Fluvial and glacial
- (E) Answer not known

108. The Pinjor and the boulder conglomerate formation comprising the upper part of upper siwalik has been assigned a \_\_\_\_\_ age.

- (A) Pleistocene
- (B) Holocene
- (C) Pliocene
- (D) Miocene
- (E) Answer not known

109. The basic unit in Biostratigraphy is

- (A) Subzone
- (B) Chron
- (C) Zone
- (D) System
- (E) Answer not known

110. The thickness of the trichinopoly stage is about

- (A) 300 m
- (B) 500 m
- (C) 800 m
- (D) 900 m
- (E) Answer not known

111. The Stratigraphic sequence Jurassic of Ladakh is as follows :

Starting from older → younger

- (A) Monotis shales → kioto limestone → spiti shales → Giumal sandstone
- (B) Giumal sandstone → monotis shale → spiti shales → kioto limestone
- (C) Giumal sandstone → spiti shales → kioto limestone → monotis shales
- (D) Monotis shales → spiti shales → kioto limestone → Giumal sandstone
- (E) Answer not known

112. The silurian sequence in the Spiti region is named as

- (A) Lipak formation
- (B) Takche formation
- (C) Panjal formation
- (D) Dogra formation
- (E) Answer not known

113. The semri groups of lower vindhyans are comprising about \_\_\_\_\_m. thick

- (A) 1300
- (B) 1400
- (C) 800
- (D) 400
- (E) Answer not known

114. The rocks of the Delhi supergroup are exposed in the \_\_\_\_\_ mountain chain.
- (A) Himalaya (B) Eastern Ghats  
(C) Aravalli (D) Assam  
(E) Answer not known
115. The age of Cheyair group is
- (A) Cenozoic (B) Mesozoic  
(C) Paleozoic (D) Proterozoic  
(E) Answer not known
116. Find the oldest stratigraphic group is the following list
- (A) Rannibennur group (B) Chitradurga group  
(C) Bababudan group (D) Dharwar super group  
(E) Answer not known
117. The northern peninsula was affected by an orogenic cycle at the close of the Archean Era that give rise to the formation of
- (A) Dharwar folding (B) Amgaon orogenies  
(C) Bundelkhand Gneiss (D) None of the above  
(E) Answer not known
118. The singhbhum region of Bihar, Mayurbhanj, Keonjhar and Bonai districts of Orissa are well known for rich deposits of iron and
- (A) Copper (B) Lead  
(C) Mica schist (D) Manganese  
(E) Answer not known

119. The term “Ordovician” was named after a
- (A) Place
  - (B) Tribe
  - (C) Rock type
  - (D) Geologist
  - (E) Answer not known
120. The combination of two or more synthems is termed as
- (A) Sub synthems
  - (B) Super synthems
  - (C) Miosynthem
  - (D) None of the above
  - (E) Answer not known
121. The principal of original horizontality states that
- (A) Most rocks in the earth’s crust are layered horizontally
  - (B) Igneous rocks form essentially horizontal layers
  - (C) Metamorphic gradients are essentially horizontal before deformation
  - (D) Sediments are deposited as essentially horizontal layers
  - (E) Answer not known
122. The triceratops, three-horned dinosaur found near the boundary between
- (A) Upper cretaceous and Eocene
  - (B) Middle to upper cretaceous
  - (C) Lower cretaceous
  - (D) Jurassic
  - (E) Answer not known

123. The dinosaurs are divided into two main group namely saurischia and
- (A) Pachypodosaria (B) Coculorosauria  
(C) Sauropoda (D) Ornithischia  
(E) Answer not known
124. The Indian elephants, the Elephant and the African Elephant : the Loxodonta, Mastodont and their relatives are placed under the order
- (A) Artiodactyla (B) Proboscidea  
(C) Equidae (D) Hominidae  
(E) Answer not known
125. The life cycle of many foramunifera consists of an orderly succession of sexual and asexual phases known as
- (A) monothalamous (B) agamont  
(C) alternation of generation (D) Gametogenesis  
(E) Answer not known
126. The popular analyes among the numerical taxonomists is
- (A) Population diversity  
(B) Composition of faunal assemblage  
(C) Faunal Association  
(D) Synecology of species  
(E) Answer not known

127. The sort of ligament which extends both in front of and behind the beaks in certain bivalved mollus KS is called as

- (A) Ancestruler
- (B) Anisomyarian
- (C) Anapsidan
- (D) Amphidetic
- (E) Answer not known

128. The suture is marginal with Cephalic sheid but eyes are absent

- (A) Opisthoparian
- (B) Protoparian
- (C) Hypoparian
- (D) Proparian
- (E) Answer not known

129. Give one example of primitive trilobites which is having larger number of Thoracic segments, forty five and more.

- (A) Paradoxides
- (B) Olenellus
- (C) Agnostus
- (D) Cyclophage
- (E) Answer not known

130. Which of the following is incorrectly paired?

- (1) Monograptus – Silurian
  - (2) Didymograptus – Cambrian
  - (3) Tetragraptus – Ordovician
  - (4) Leptograptus – Ordovician
- (A) (1) is incorrect
  - (B) (3) is incorrect
  - (C) (2) is incorrect
  - (D) (4) is incorrect
  - (E) Answer not known



131. In cephalopods, the Goniatite suture line was abundant from

- (A) Devonian to upper carboniferous
- (B) Middle carboniferous
- (C) Triassic and Jurassic
- (D) Permian
- (E) Answer not known

132. Match the following :

- |                      |                 |
|----------------------|-----------------|
| (a) Red coral        | 1. Corallium    |
| (b) Organ pipe coral | 2. Tubipora     |
| (c) Blue coral       | 3. Heliopora    |
| (d) Stony coral      | 4. Hexacorallia |

- |     | (a)              | (b) | (c) | (d) |
|-----|------------------|-----|-----|-----|
| (A) | 1                | 2   | 3   | 4   |
| (B) | 2                | 4   | 3   | 1   |
| (C) | 4                | 3   | 2   | 1   |
| (D) | 3                | 4   | 1   | 2   |
| (E) | Answer not known |     |     |     |

133. Graptolites were abundant which of the following geological age?

- |                            |                   |
|----------------------------|-------------------|
| (A) Cambrian               | (B) Carboniferous |
| (C) Ordovician to Silurian | (D) Devonian      |
| (E) Answer not known       |                   |

134. Loosely coiled nautiloids shells in which the coils do not touch are designated as
- (A) Crytocera cones (B) Bactriti cones  
(C) Gyroceracones (D) Gyroceratiti cones  
(E) Answer not known
135. An amorphous horny substances, as finger nails, the skeleton of graptolites  $e^k$  is called as
- (A) Chilaria (B) Chitin  
(C) Conch (D) Conchyolin  
(E) Answer not known
136. The body is oval in shape. Head should is larger than the Pygiblium. Glabella is not reaching the anterior border and not expanding in front is
- (A) Olenus (B) Calymene  
(C) Paradoxides (D) Ollenellus  
(E) Answer not known
137. In trilobites, the single axial suture is called
- (A) Median suture (B) Facial suture  
(C) Rostral suture (D) Hypostomal suture  
(E) Answer not known



141. The organic materials, which has been rolled and abraded, accumulating over a considerable period before their deposition are termed as
- (A) Derived fossils (B) Mineralized fossil  
(C) Facies fossil (D) Remain fossils  
(E) Answer not known
142. The value of  $\alpha$  is lowest,  $\gamma$  highest,  $\beta$  intermediate between the two refractive indices is called
- (A) Interference colour (B) Birefringence  
(C) Optical normal (D) Isotopic  
(E) Answer not known
143. A focused X-ray beam strikes the samples and the detector moves in the circular arc, usually vertical to measure diffraction intensities for  $2\theta$  value
- (A) very low angle to more than  $100^\circ$   
(B) very low angle to more than  $150^\circ$   
(C) very high angle to more than  $200^\circ$   
(D) very low angle to more than  $200^\circ$   
(E) Answer not known
144. The shape and size of unit cells of mineral are determined by
- (A) Refraction method (B) Reflection method  
(C) X-ray diffraction (D) Microscopic method  
(E) Answer not known

145. The tetragonal system four rectangular vertical faces each intersects two horizontal crystallographic axes at equal lengths and lies to the vertical axes form
- (A) Prism of II<sup>nd</sup> ordered
  - (B) Basal Pinacoid (001)
  - (C) Prism of I<sup>st</sup> ordered (110)
  - (D) Dy pyramid I<sup>st</sup> ordered (hh1)
  - (E) Answer not known
146. Choose the right match among type  
Newton's scale of interference colours
1. First order – grey, white, yellow and red
  2. Second order – violet, blue, green, yellow, orange and red
  3. Third order – grey, white, indigo
  4. Fourth and above – Pale yellow and Pale red
- (A) 1 and 3 are correct
  - (B) 1 and 2 are correct
  - (C) 2 and 3 are correct
  - (D) 3 and 4 are correct
  - (E) Answer not known
147. Interference colour of the quartz is
- (A) Higher order yellow
  - (B) First order grey
  - (C) Higher order pink
  - (D) Isotropic
  - (E) Answer not known
148. Which one of the following mineral is NOT crystallized in Dihexagonal Dipyramidal of Hexagonal System?
- (A) Benitoite
  - (B) Beryl
  - (C) Pyrrhotite
  - (D) Molybdenite
  - (E) Answer not known

149. When the diamond is exposed to the sun, it exhibits?

- (A) Phosphorescence
- (B) Fluorescence
- (C) Opalescence
- (D) Play of colours
- (E) Answer not known

150. Choose the right matches among type

- 1. Contact twin – Gypsum
  - 2. Multiple twin – Orthoclase
  - 3. Penetration twin – Staurolite
  - 4. Cyclic twin – Pyroxene
- (A) 1 and 3 are correct
  - (B) 1 and 2 are correct
  - (C) 2 and 3 are correct
  - (D) 3 and 4 are correct
  - (E) Answer not known

151. Tridymite is formed at temperature

- (A)  $< 573^\circ$
- (B)  $> 870^\circ$
- (C) between  $573^\circ$  and  $870^\circ$
- (D) between  $563^\circ$  and  $663^\circ$
- (E) Answer not known

152. Biotite mineral chemical composition is

- (A)  $K Mg_3 (AlSi_3 O_{10}), (F, OH)$
- (B)  $K (Mg, Fe)_3 (Al, Fe) Si_3 O_{10} (OH, F)_2$
- (C)  $KAl_2 (AlSi_3 O_{10}) (OH)_2$
- (D)  $K(Li, Al)_3 (Si, Al)_9 O_{10} (OH, F)_2$
- (E) Answer not known

153. The  $\alpha$ -cristobalite quartz is formed in the system of
- (A) Cubic
  - (B) Tetragonal
  - (C) Hexagonal
  - (D) Monoclinic
  - (E) Answer not known
154. Jadeite is a high-pressure pyroxene found in metamorphic rock
- (A) Green Schist facies
  - (B) Blue Schist facies
  - (C) Eclosite facies
  - (D) Amphibolite facies
  - (E) Answer not known
155. Hornblende is a mineral commonly found in the association of
- (A) Metamorphic rocks
  - (B) Sedimentary rocks
  - (C) Igneous rocks
  - (D) Sandstone
  - (E) Answer not known
156. Minerals breaks with an irregular surface with concentric lines like a shell is called
- (A) Even fracture
  - (B) Hackly fracture
  - (C) Uneven fracture
  - (D) Conoidal fracture
  - (E) Answer not known

157. Match the following correctly.

| Minerals      | Streak colour |
|---------------|---------------|
| (a) Malachite | 1. Orange     |
| (b) Magnetite | 2. Light blue |
| (c) Realgar   | 3. Black      |
| (d) Azurite   | 4. Pale green |

- |     |                  |   |   |   |
|-----|------------------|---|---|---|
| (A) | 1                | 3 | 2 | 4 |
| (B) | 4                | 3 | 1 | 2 |
| (C) | 4                | 3 | 2 | 1 |
| (D) | 3                | 4 | 1 | 2 |
| (E) | Answer not known |   |   |   |

158. Which of the following is correctly paired?

- |     |                  |   |                                    |
|-----|------------------|---|------------------------------------|
| 1.  | Orthopyroxene    | – | Occurs in ultrabasic igneous rocks |
| 2.  | Eustatic         | – | $\text{FeSiO}_3$                   |
| 3.  | Spodumene        | – | $\text{LiAlSi}_2\text{O}_6$        |
| 4.  | Diopside         | – | Orthorhombic                       |
| (A) | 1                |   | (B) 2                              |
| (C) | 3                |   | (D) 4                              |
| (E) | Answer not known |   |                                    |

159. The specific gravity of Galena is

- |     |                  |     |     |
|-----|------------------|-----|-----|
| (A) | 7.8              | (B) | 7.3 |
| (C) | 7.6              | (D) | 6.7 |
| (E) | Answer not known |     |     |



160. Mohr's scale of mineral hardness arranged in eighth placed mineral is

- (A) Gypsum
- (B) Apatite
- (C) Corundum
- (D) Topaz
- (E) Answer not known

161. Halite (NaCl) possess ————— bonding.

- (A) Covalent
- (B) Organic structures
- (C) Ionic
- (D) Isotopes
- (E) Answer not known

162. Diamonds are recovered from

- (i) Kimberlite
- (ii) Lamproites
- (iii) Marble
- (iv) Placer
- (A) (i) and (ii) only
- (B) (i), (ii) and (iv) only
- (C) (iii) and (iv) only
- (D) (i) only
- (E) Answer not known

163. The macerals that originate from plant matter. Which resists humification including spores and pollens?

- (A) Vitrinite
- (B) Liptinite
- (C) Inertinite
- (D) Cutinite
- (E) Answer not known

164. The percentage range of newly deposited sand porosity is
- (A) 20 – 24% (B) 40 – 50%  
(C) 30 – 32% (D) 40 – 42%  
(E) Answer not known
165. The hydrocarbon substances that are black, hard, insoluble and nonvolatile which occur in vein deposits are called
- (A) Earthwax (B) Pyrobitumens  
(C) Natural asphalt (D) Kerogen  
(E) Answer not known
166. The age of the tertiary coals is called
- (A) Lower carboniferous age (B) Eocene to miocene age  
(C) Upper carbonifereous age (D) Permian age  
(E) Answer not known
167. Which of the following is not obtained as a fraction during the refining of petroleum?
- (A) Kerosene (B) Natural gas  
(C) Lubricating oil (D) Bitumen  
(E) Answer not known

168. The second largest chrystotile asbestos deposits in the world were exploited until 2003 is
- (A) Ural mountains in Russia
  - (B) Thetford in Quebec, Canada
  - (C) Zimbabwe, South Africa
  - (D) Mississippi valley of North America
  - (E) Answer not known
169. A refractory material CaO Mgo is manufactured from dolomite by calcining it at about
- (A) 1600°C
  - (B) 1500°C
  - (C) 2000°C
  - (D) 800°C
  - (E) Answer not known
170. The chemical composition of malachite is
- (A)  $\text{Cu}_2(\text{OH})_2\text{CO}_3$
  - (B)  $\text{Cu}_2\text{Cl}(\text{OH})_3$
  - (C)  $\text{CuFeS}_2$
  - (D)  $\text{Cu}_3\text{AsS}_4$
  - (E) Answer not known
171. Which of the following gangue mineral associated with gold?
- (A) Limonite
  - (B) Calcite
  - (C) Zircon
  - (D) Monosite
  - (E) Answer not known

172. The early magnetic deposits that result from magmatic processes are called

- (A) Pneumotectic
- (B) Orthotectic
- (C) Syngenetic
- (D) Epigenetic
- (E) Answer not known

173. Which of the following mineral contains uranium?

- (A) Monazite
- (B) Thanite
- (C) Carnotite
- (D) Thanianite
- (E) Answer not known

174. Match the following the correct : answer based on the mineral and composition.

- |               |   |
|---------------|---|
| (a) Magnetite | 1. $\text{FeCO}_3$                                  |
| (b) Hematite  | 2. $\text{Fe}_2\text{O}_3 \cdot \text{H}_2\text{O}$ |
| (c) Limonite  | 3. $\text{Fe}_2\text{O}_3$                          |
| (d) Siderite  | 4. $\text{Fe}_3\text{O}_4$                          |

- |     | (a)              | (b) | (c) | (d) |
|-----|------------------|-----|-----|-----|
| (A) | 4                | 3   | 2   | 1   |
| (B) | 1                | 2   | 3   | 4   |
| (C) | 2                | 3   | 4   | 1   |
| (D) | 1                | 4   | 3   | 2   |
| (E) | Answer not known |     |     |     |

175. In India, occurrence of uranium in exploitable quantities have been recorded at
- (A) Jadugade uranium mine                      (B) Jaisalmer uranium mine  
(C) Udaipur uranium mine                      (D) Mussoorie uranium mine  
(E) Answer not known
176. The type 2 fluid inclusions observed in hydrothermal ore deposits belonging to the following properties.
- (A) Water vapour occupies >60% of the inclusion volume; low to moderate salinity ; effervescence of a dissolved gas is below the critical point  
(B) CO<sub>2</sub> rich inclusion, with little water, at room temperature CO<sub>2</sub> in the inclusion occur in liquid and gas stages  
(C) Highly saline aqueous inclusion, high density, segregation of brines from melt at magmatic temperature  
(D) Liquid aqueous inclusion of low to moderate salinity. The water vapour bubble and density is 1g/cm<sup>3</sup>  
(E) Answer not known
177. The supergene enrichment of sulphidic ore is a consequence of near-surface oxidation of sulphides caused by meteoric water seeping downwards through an
- (A) unsaturated zone                      (B) saturated zone  
(C) saprolite zone                      (D) limonite zone  
(E) Answer not known
178. The melting point of germanium is
- (A) 449.5°C                      (B) 29.78°C  
(C) 937.4°C                      (D) 320.9°C  
(E) Answer not known

179. Disseminated lead zinc deposit is gritty conglomeratic dolomite and quartzite of Jawar, Rajasthan is an example of
- (A) Breccia filling deposits                      (B) Solution-Cavity filling  
(C) Pore space filling                              (D) Vesicular filling  
(E) Answer not known
180. The most deposits have been formed by physiochemical reactions in solution whether liquid, igneous or gaseous. Which constitute one large class as distinct from those formed by mechanical concentration.
- (A) Lindgrens classification  
(B) Beck and Berg classification  
(C) Nigilli classification  
(D) Schneiderhohn classification  
(E) Answer not known
181. Most of the World's production of platinum and platinum metals came from
- (A) Hydrothermal deposits                      (B) Residual deposits  
(C) Placer deposits                                (D) Sublimation deposits  
(E) Answer not known
182. Find out the following type of granitoids which are the product of repeated melt – extraction from the same source rocks. The possible source of magma is lithospheric mantle
- (A) A-type granitoids                              (B) S-type granitoids  
(C) I-type granitoids                              (D) M-type granitoids  
(E) Answer not known



186. A groundwater well discharging from the freshwater zone causes the saltwater to move upwards towards the well.
- (A) Discharge (B) Leveling  
(C) Upconing (D) Hydraulic conductivity  
(E) Answer not known
187. Which of the following isotopes has the shortest half life?
- (A) Fluorine-18 (B) Carbon-11  
(C) Tritium (D) Carbon-14  
(E) Answer not known
188. Which one is not suitable for the rainwater harvesting method?
- (A) groundwater level is raised  
(B) reduce the crack formation in house  
(C) saltwater intrusion into the land is arrested  
(D) increase the specific retention value  
(E) Answer not known
189. Methods used to estimate floods discharge based on high water marks left over in the past –
- (A) ultrasonic method (B) area velocity method  
(C) slope area method (D) moving boat method  
(E) Answer not known



190. The device is used to measure potential evapotranspirations is called as
- (A) Odometre (B) Lysimeter  
(C) Nephelometer (D) Resistivity metre  
(E) Answer not known
191. Which type of rotary drill bits is suitable for unconsolidated clay and sand formation?
- (i) Three ways  
(ii) Fish tail  
(iii) Rock roller
- (A) only (i) (B) only (i) and (ii)  
(C) only (ii) (D) only (iii)  
(E) Answer not known
192. If an airline of length 50 m is submerged in water upto 30 m then the submergence is
- (A) 60% (B) less than 60%  
(C) 80% (D) 20%  
(E) Answer not known
193. The depth of the well and the number of aquifers has to penetrate is usually determined from the lithological log of the area and confirmed from electrical resistivity and
- (A) Induction logging (B) Drilling time log  
(C) Temperature log (D) Sonic log  
(E) Answer not known

194. The porosity range of gravels

- (A) 15 – 30% (B) 25 – 40%  
(C) 30 – 45% (D) 15 – 35%  
(E) Answer not known

195. The unit of Transmissivity is given by

- (A) m/day (B) m<sup>2</sup>/day  
(C) m<sup>3</sup>/day (D) dimensionless  
(E) Answer not known

196. Choose the correct statement from the below option :

- (i) Volcanic rock can form highly permeable equifers  
(ii) In sandstone, the porosity and yield have been increased by cement  
(iii) Igneous and metamorphic rocks are impermeable in nature  
(iv) Rhyolites are less permeable than basalt  
(A) only (i) (B) only (i) and (ii)  
(C) only (i), (iii), (iv) (D) (i), (ii), (iii), (iv)  
(E) Answer not known

197. The reason behind saturation by rain and capillary rise destroy the film causing loss of stability

- (A) Gravitational moisture (B) Capillary moisture  
(C) Hygroscopic moisture (D) None of the above  
(E) Answer not known

198. Point out the method used to determine the average depth of rainfall over an area
- (A) Isogonal method (B) Symon's method  
(C) Isohyetal methods (D) Arithmetic Mean method  
(E) Answer not known
199. A completely saturated aquifer that is bounded above by a semi-pervious layer and below by a layer that is either impervious or semi-pervious
- (A) Leaky Aquifer (B) Confined Aquifer  
(C) Free ground water Aquifer (D) Pressure Aquifer  
(E) Answer not known
200. \_\_\_\_\_ exists within and in equilibrium with water rich volatile fluids that are derived from a magma.
- (A) Juvenile water (B) Connate water  
(C) Metamorphic water (D) Fossil water  
(E) Answer not known
-