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**Previous Year Paper
(Geology)
05 Dec, 2022**



Post of Forest Apprentice in Tamil Nadu Forest Subordinate Service (Group-VI Services)

1. Magnesite occurrence in Tamilnadu is in

- (A) ✓ Salem (B) Madurai
(C) Tuticorin (D) Chennai
(E) Answer not known

2. Match the following:

Period	Economic minerals
(a) Quaternary	1. Coal
(b) Tertiary	2. Base metals
(c) Palaeozoic	3. Petroleum
(d) Proterozoic	4. Placers

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

3. The Somnath temple near veravel in Gujarat had been built of

- (A) ✓ Limestones (B) Granite
(C) Deccan map (D) Marble
(E) Answer not known

4. The dull coal band with earthy appearance with black to lead grey in colour is

- (A) ✓ Durain (B) Fusain
(C) Attritus (D) Clarain
(E) Answer not known

5. Rudrasagar oilfield is located on the oil bearing rocks of

- (A) Tipams (B) ☒ Barails
(C) Jaintia (D) Disang
(E) Answer not known

6. What is the age of Neyveli Lignite deposit?

- (A) Cretaceous (B) Eocene
(C) ☒ Miocene (D) Oligocene
(E) Answer not known

7. The chemical composition of Magnesite is

- (A) MgO (B) $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
(C) ☒ MgCO_3 (D) $\text{MgCO}_3 \cdot \text{CaCO}_3$
(E) Answer not known

8. Match the following:

- | | |
|--------------------|-------------|
| (a) Mosaboni mines | 1. Gold |
| (b) Zawar mines | 2. Copper |
| (c) KG mines | 3. Iron ore |
| (d) Noamundi mines | 4. Galena |

- | | (a) | (b) | (c) | (d) |
|---|------------------|-----|-----|-----|
| (A) | 1 | 2 | 3 | 4 |
| (B) <input checked="" type="checkbox"/> | 2 | 4 | 1 | 3 |
| (C) | 1 | 3 | 4 | 2 |
| (D) | 2 | 4 | 3 | 1 |
| (E) | Answer not known | | | |

9. The manganese ore deposits of Srikakulam in Andhra Pradesh are associated with
- (A) Gondites (B) ☒ Kodurites
(C) Charnockites (D) Lateritoids
(E) Answer not known
10. Find out the correct pair.
- (A) Ruby – Granite (B) ☒ Ilmenite – Rutile
(C) Rutile – Ruby (D) Quartz – Ruby
(E) Answer not known
11. Indian coals are mainly occurs in _____ rocks.
- (A) ☒ Gondwana super group (B) Vindhyan super group
(C) Cuddapah super group (D) Aravalli super group
(E) Answer not known
12. The process of formation of ore minerals by accumulation of secondary minerals is called as
- (A) Magmatic concentration (B) ☒ Sedimentation process
(C) Metamorphic process (D) Metasomatic process
(E) Answer not known
13. _____ result when sediments saturated with sea water are buried beneath the level of circulating ground water.
- (A) Caliche (B) Artificial brines
(C) ☒ Natural brines (D) Geyserite
(E) Answer not known

14. The deposition that taken place at intermediate temperature is known as
- (A) ☒ Mesothermal deposits (B) Evaporation deposits
(C) Sublimation deposits (D) Magmatic deposits
(E) Answer not known
15. Saddle reefs and ladder veins are the types of _____ deposits.
- (A) ☒ Cavity filling
(B) Replacement
(C) Sublimation
(D) Residual Mechanical concentration
(E) Answer not known
16. A weathered zone, which may contain sometimes few stable residual ore mineral is known as
- (A) Residual deposits (B) Evaporation deposits
(C) ☒ Gossan (D) Detrital deposits
(E) Answer not known
17. The recrystallisation temperature of silver is
- (A) 300°C (B) 250°C
(C) 405°C (D) ☒ 200°C
(E) Answer not known

18. Diamond occurrence in Kimberlite rock are formed by the process of

- (A) ☒ Early magmatic – Dissemination
- (B) Early magmatic – Segregation
- (C) Early magmatic – Injection
- (D) Late magmatic – Residual liquid injection
- (E) Answer not known

19. Match the following:

Placer deposits		Agency	
(a) Deluvial placers	1.	Wind	
(b) Aeolian placers	2.	Gravity	
(c) Alluvial placers	3.	Waves	
(d) Beach placers	4.	Running water	

- | | | | | |
|---|------------------|-----|-----|-----|
| | (a) | (b) | (c) | (d) |
| (A) <input checked="" type="checkbox"/> | 2 | 1 | 4 | 3 |
| (B) | 1 | 2 | 3 | 4 |
| (C) | 2 | 1 | 3 | 4 |
| (D) | 1 | 2 | 4 | 3 |
| (E) | Answer not known | | | |

20. Lode fissures are characteristics of _____ process deposits.

- (A) ☒ Replacement
- (B) Cavity filling
- (C) Sedimentation
- (D) Early magmatic
- (E) Answer not known

21. Tenor of Iron is

- (A) 10%
- (B) ☒ 30%
- (C) 20%
- (D) 70%
- (E) Answer not known

22. The unwanted minerals are called
- (A) Ore (B) Tenor
 (C) ☒ Gangue (D) Dump
 (E) Answer not known
23. Gabbroic and ultramafic rocks are produced in much the same tectonic settings as
- (A) Silicic partial melts (B) Pyroclasts
 (C) Lavas (D) ☒ Basalts
 (E) Answer not known
24. The rock is mainly composed of Labradorite, augite and iron oxides is called
- (A) ☒ Dolerite (B) Hypersthene – Dolerite
 (C) Quartz – Dolerite (D) Gabbro
 (E) Answer not known
25. Perthite and micropertthite are the corresponding terms for coarse and fine inter growth of
- (A) Bytownite (B) ☒ Orthoclase and Albite
 (C) Pigeonite (D) Orthoclase
 (E) Answer not known
26. The Chemical composition of Orthoclase is
- (A) ☒ $K_2O, Al_2O_3, 6SiO_2$ (B) $FeO, Al_2O_3, 6SiO_2$
 (C) $MgO, Al_2O_3, 6SiO_2$ (D) $MnO, Al_2O_3, 5SiO_2$
 (E) Answer not known

27. The volcanic equivalent of granite is
(A) Granodiorite (B) diorite
(C) ☒ Rhyolite (D) Dacite
(E) Answer not known
28. Dolerite is a _____ rock.
(A) volcanic (B) plutonic
(C) ☒ hypabyssal (D) over saturated
(E) Answer not known
29. Hypabyssal form of plutonic rocks exhibiting one or more of the minerals as Phenocrysts is called
(A) Aplite (B) ☒ Porphyry
(C) Tonalite (D) Adamellite
(E) Answer not known
30. _____ mineral is a symptomatic in over-saturated rocks.
(A) Olivine (B) Feldspar
(C) Leucite (D) ☒ Quartz
(E) Answer not known
31. Olivine is formed by the combination of
(A) ☒ Forsterite and Fayalite (B) Augite and Anorthite
(C) Spinel and Magnetite (D) Forsterite and Magnetite
(E) Answer not known

32. _____ are the infillings of vesicles by secondary minerals.
- (A) Green Earths (B) ☒ Amygdales
(C) Froths (D) Slags
(E) Answer not known
33. Which of the following forms is seen in folded regions?
- (A) Laccoliths (B) Lopoliths
(C) ☒ Phacoliths (D) Bysmaliths
(E) Answer not known
34. Cedar-tree laccoliths are successive inductions of
- (A) Poly hedral sills (B) ☒ Multiple or Composite sills
(C) Single sills (D) Double sills
(E) Answer not known
35. A Molten froth formed by escaping of gases are called
- (A) Ash (B) Tuff
(C) Scoria (D) ☒ Pumice
(E) Answer not known
36. When the gas cavities are very numerous and irregular in shape in a lava is called as
- (A) Pumice (B) ☒ Slag or Scoria
(C) Ash (D) Volcanic dust
(E) Answer not known

37. Which of the following are the concordant intrusive pluton found in folded terrains
- (A) Laccolith (B) Lopolith
(C) ☒ Phacolith (D) Bysmalith
(E) Answer not known
38. Shale intrusion in a basic magma are reacted upon with the formation of aluminous mineral
- (A) Garnet (B) Sphere
(C) ☒ Corundum (D) Appetite
(E) Answer not known
39. Find out the correct order of abundance of oxides present in the magma
- (A) SiO_2 , Al_2O_3 , FeO , Fe_2O_3 (B) ☒ SiO_2 , Al_2O_3 , Fe_2O_3 , FeO
(C) SiO_2 , Al_2O_3 , CaO , MgO (D) SiO_2 , Al_2O_3 , MgO , Fe_2O_3
(E) Answer not known
40. Crystals are said to be fine grained when it is less than
- (A) ☒ 1 mm (B) 0.5 mm
(C) 0.05 mm (D) 2.00 mm
(E) Answer not known
41. The most important volatile constituent of Magma is
- (A) Hydrates (B) Sulphides
(C) Silicates (D) ☒ Water
(E) Answer not known

42. The basic lavas, such as basalts are highly
(A) ☒ mobile (B) sluggish
(C) immobile (D) viscous
(E) Answer not known
43. Gulcheru quartzites belong to
(A) Kristna group (B) ☒ Papaghani group
(C) Cheyair group (D) Nallamalai group
(E) Answer not known
44. The age of Inter-trappeans is
(A) Pleistocene (B) Mio-Pliocene
(C) Eocene (D) ☒ L.Eocene – Up. Cretaceous
(E) Answer not known
45. The Karewa formation of Kashmir signifies
(A) Permo-Carboniferous glaciation period
(B) ☒ Pleistocene ice age deposits
(C) Marine transgression
(D) Meteoritic impact
(E) Answer not known
46. Talchir Boulder beds are significant evidence of
(A) Pleistocene glaciation
(B) Global warming
(C) ☒ Permo-carboniferous glaciation
(D) Marine deposition
(E) Answer not known

47. The Talchir beds are found in
(A) Ariyalur stage (B) Middle Gondwana
(C) Upper Gondwana (☒ D) Lower Gondwana
(E) Answer not known
48. The fossils that have been discovered in Vindhyan rocks are from _____ only.
(A) Rewah Sandstone (B) Bhander Limestone
(☒ C) Suket shale (D) Sirbu shales
(E) Answer not known
49. The Vindhyan system is economically significant for the presence of
(A) Building stones and Coal
(☒ B) Building stones and Diamond
(C) Building stones and Refractories
(D) Building stones and Gold
(E) Answer not known
50. In Kaimur group which formations lies between lower Kaimur sandstone and upper Kaimur sandstone?
(A) Jhiri shales (B) Suket shales
(C) Panna shales (☒ D) Bijagarh shales
(E) Answer not known
51. Choose the odd one among the following:
(A) Sukna series (B) Bengal series
(C) Bailadila series (☒ D) Indravati series
(E) Answer not known

52. The Dharwarian rocks of Aravalli region form a long and wide
 (A) Anticlinorium (B) ☒ Synclinorium
 (C) Graben (D) Depression
 (E) Answer not known
53. Match the following :
- | | |
|--------------------------|------------------------|
| (a) Permo carboniferous | 1. Syringothyris L.St. |
| (b) Upper carboniferous | 2. Fenestella Sh. |
| (c) Middle carboniferous | 3. Slate series |
| (d) Lower carboniferous | 4. Ganganopteris beds |
-
- | | (a) | (b) | (c) | (d) |
|---|-----|-----|-----|-----|
| (A) 1 | 3 | 2 | 4 | |
| (B) 1 | 2 | 3 | 4 | |
| (C) 2 | 3 | 1 | 4 | |
| (D) <input checked="" type="checkbox"/> 4 | 3 | 2 | 1 | |
- (E) Answer not known
54. Makrana Marbles are available from which of the following series?
 (A) ☒ Raialo series (B) Sakoli series
 (C) Chilpi series (D) Gangpur series
 (E) Answer not known
55. Age of Muth Quartzite is
 (A) Triassic (B) Permian
 (C) ☒ Devonian (D) Carboniferous
 (E) Answer not known

56. The Dharwar system of Karnataka belongs to which one group?
(A) ☒ Proterozoic (B) Palaeozoic
(C) Mesozoic (D) Quarternary
(E) Answer not known
57. An unmetamorphosed facies of the Aravallis occurs in
(A) ☒ East of Great Boundary Fault of Rajasthan
(B) Near the Mewar-Partabgarh Border
(C) Near Gwalior City and neighbourhood
(D) Near Udaipur, continuing there into Dangarpur
(E) Answer not known
58. Which of the following is considered as a Transition System?
(A) The Gondwana Group (B) The Palaeozoic Group
(C) ☒ The Purana Group (D) The Mesozoic Group
(E) Answer not known

59. Match the following listed in Group A with its attributes listed in Group B

Group A	Group B
(a) Eon	1. Eonothem
(b) Era	2. Erathem
(c) Period	3. Stage
(d) Epoch	4. Series
(e) Age	5. System

	(a)	(b)	(c)	(d)	(e)
(A)	1	2	5	3	4
(B)	1	2	3	5	4
(C)	1	2	4	3	5
<input checked="" type="radio"/> (D)	1	2	5	4	3
(E)	Answer not known				

60. The Doctrine of Uniformitarianism was proposed by
- | | |
|---|-------------------|
| (A) Nicholas steno | (B) William Smith |
| <input checked="" type="radio"/> (C) James Hutton | (D) Charles Lyell |
| (E) Answer not known | |
61. The foraminifera belongs to the following class
- | | |
|--|-----------------|
| (A) Lamellibranchia | (B) Gastropoda |
| <input checked="" type="radio"/> (C) Sarcodina | (D) Cephalopoda |
| (E) Answer not known | |

62. The fauna which comprises exclusively of active swimmers is described as

- (A) Plankton (B) ☒ Nekton
(C) Benthic (D) Pelagic
(E) Answer not known

63. Match the following :

- | | |
|-------------------|---------------------|
| (a) Sea Urchins | 1. Holothuroids |
| (b) Sea cucumbers | 2. Stalked crinoids |
| (c) Sea lilies | 3. Ophiuroids |
| (d) Brittle stars | 4. Echinoids |

- | | (a) | (b) | (c) | (d) |
|---|------------------|-----|-----|-----|
| (A) <input checked="" type="checkbox"/> | 4 | 1 | 2 | 3 |
| (B) | 1 | 2 | 3 | 4 |
| (C) | 2 | 3 | 4 | 1 |
| (D) | 3 | 4 | 1 | 2 |
| (E) | Answer not known | | | |

64. The cheek areas in Trilobita are divided along the

- (A) ☒ Facial suture (B) Glabella
(C) Genal angle (D) Cephalon
(E) Answer not known

65. In Trilobita, the anal segment is called as

- (A) Pygidium (B) Cranidium
(C) ☒ Telson (D) Pleural lobe
(E) Answer not known

66. Which of the following statements are correct (or) incorrect?
- Statement (I) : The ventral valve of brachiopoda is larger than the dorsal valve
- Statement (II) : Brachiopoda bears a circular opening.
- Statement (III): The ventral valve is also known as 'pedicle valve'
- Statement (IV): The dorsal valve is also known as 'brachial valve'
- (A) I and II are correct, but III and IV are incorrect
- (B) III and IV are correct, but I and II are incorrect
- ☒ (C) All are correct
- (D) II and III are correct, but I and IV are incorrect
- (E) Answer not known
67. One of the following is a brachiopoda
- ☒ (A) Spirifera (B) Bellerophon
- (C) Helix (D) Turrilites
- (E) Answer not known
68. Corals are extremely abundant and build up extensive reefs and banks are known as
- (A) Biostrome (B) Theca
- ☒ (C) Bioherms (D) Epitheca
- (E) Answer not known
69. The characterization of rounded saddles and crinkled lobes in cephalopod shell is termed as
- (A) Goniatite suture (B) Ammonite suture
- (C) Nantilitic suture ☒ (D) Ceratitic suture
- (E) Answer not known

70. The gastropods having moderately acute spire and flat base is termed as
(A) Fusiform (B) ☒ Trochiform
(C) Globular (D) Convolute
(E) Answer not known
71. The gastropods are widely distributed in _____ water.
(A) deep water
(B) ☒ shallow water
(C) both deep and shallow waters
(D) deltaic waters
(E) Answer not known
72. Most of the mollusc are
(A) Terrestrial (B) Freshwater
(C) ☒ Marine (D) Lacustrine
(E) Answer not known
73. The exoskeleton of Tetracoral is composed of
(A) Chitinous material (B) Siliceous material
(C) Agglutinated material (D) ☒ Calcareous material
(E) Answer not known
74. In Lamellibranchia which have strong teeth of equal size which fit into corresponding sockets in the valve is called
(A) Taxodont (B) Dysodont
(C) ☒ Isodont (D) Schizodont
(E) Answer not known

75. Graptolites were abundant in _____ and _____ sediments.
- (A) Cambrian and Ordovician
 - (B) Carboniferous and Permian
 - (C) ✓ Ordovician and Silurian
 - (D) Devonian and Carboniferous
 - (E) Answer not known
76. Depth of Neritic life zone ranges from
- (A) ✓ Lowest tide to 100 fathom
 - (B) 100 – 1000 fathom
 - (C) Below 1000 fathom
 - (D) 1000 – 2000 fathom
 - (E) Answer not known
77. The most favourable environment for the preservation of fossils is
- (A) Terrestrial
 - (B) Lacustrine
 - (C) Fluvial
 - (D) ✓ Marine
 - (E) Answer not known
78. The remains of plants and animals which have existed on the earth in pre-historic times and are found preserved within sedimentary rocks are called
- (A) Trace fossils
 - (B) Index fossils
 - (C) ✓ Fossils
 - (D) Derived fossils
 - (E) Answer not known

79. During late B.C. and early A.D., the fossils were used as
(A) Models (B) ☒ Figured stone
(C) Icy material (D) Vapour material
(E) Answer not known
80. The study of Trace Fossils is known as
(A) Paleo ecology (B) Synecology
(C) ☒ Ichthyology (D) Ichnology
(E) Answer not known
81. The Twinning Produced subsequent to the original formation of the crystal, is said to be
(A) Penetration Twin (B) ☒ Secondary Twin
(C) Polysynthetic Twin (D) Symmetrical Twin
(E) Answer not known
82. _____ is an example for penetration twin.
(A) Spinel (B) Gypsum
(C) Plagioclase (D) ☒ Fluorite
(E) Answer not known
83. The twin plane for albite law in Plagioclase feldspar is
(A) ☒ {010} (B) {001}
(C) {100} (D) {101}
(E) Answer not known

84. Which one of the following is correct?
- (A) Brachy Pinacoid-a-pinacoid
 - (B) Brachy Pinacoid-c-pinacoid
 - (C) ☒ Brachy Pinacoid-b-pinacoid
 - (D) Brachypinacoid-base
 - (E) Answer not known
85. Orthoaxis, clinoaxis and vertical axis are the 3 axes are belonging to the _____ system.
- (A) Tetragonal system
 - (B) Orthorhombic system
 - (C) ☒ Monoclinic system
 - (D) Triclinic system
 - (E) Answer not known
86. In monoclinic system, the acute angle constituted by the clinoaxis and the vertical axis is designated by
- (A) α
 - (B) γ
 - (C) ☒ β
 - (D) σ
 - (E) Answer not known
87. In orthorhombic system b axis is also known as
- (A) Ortho axis
 - (B) Clino axis
 - (C) Brachy axis
 - (D) ☒ Macro axis
 - (E) Answer not known

88. Which axis can be considered as 'C' crystallographic axis among crystallographic axes of symmetry of normal class of orthorhombic system?
- (A) Diagonal axes
 - (B) Horizontal axes
 - ☒ (C) Any one the crystallographic axes
 - (D) Vertical axes
 - (E) Answer not known
89. Trapezohedral class of Hexagonal Division is also called as
- ☒ (A) β Quartz type
 - (B) Benitoite type
 - (C) Gypsum type
 - (D) Zircon type
 - (E) Answer not known
90. Find out the correct pair
- (A) Macrodome – Clinodome
 - ☒ (B) Macrodome – Brachydome
 - (C) Orthodome – Macrodome
 - (D) Brachydome – Clinodome
 - (E) Answer not known
91. The form ditetragonal prism of tetragonal system has
- (A) 4 faces
 - (B) 6 faces
 - ☒ (C) 8 faces
 - (D) 12 faces
 - (E) Answer not known

92. Match the following and choose the correct answer :

- | | |
|-------------------|------------------------|
| (a) Sphenoid | 1. Trigonal system |
| (b) Rhombohedron | 2. Monoclinic system |
| (c) Scalenohedron | 3. Tetragonal system |
| (d) Dome | 4. Orthorhombic system |

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

93. Find out the correct pair :

- (A) Pyrite – Staurolite
(B) Pyrite – Quartz
(C) Pyrite – Gypsum
~~(D)~~ Pyrite – Cuprite
(E) Answer not known

94. The form Hexoctahedron is bounded by forty-eight similar faces, each of which is

- | | |
|-----------------------------|-----------------------------------|
| (A) an isosceles triangle | (B) a scalene triangle |
| (C) an equilateral triangle | (D) an inequilateral triangle |
| (E) Answer not known | |

95. Match the following :

- | | |
|----------------------|----------|
| (a) Cube | 1. (310) |
| (b) Tetra hexahedron | 2. (321) |
| (c) Trapezohedron | 3. (311) |
| (d) Hexoctahedron | 4. (100) |

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

96. Horizontal Goniometer is a form of reflecting goniometer, invented by

- | | |
|----------------------|---------------|
| (A) Penfield | (B) Wollaston |
| (C) ✓ Fuess | (D) Fedorow |
| (E) Answer not known | |

97. The normal angle between Orthopinacoid and base in monoclinic crystals is

- | | |
|----------------------|----------------|
| (A) Δ | (B) ϵ |
| (C) ✓ β | (D) ψ |
| (E) Answer not known | |

98. Which one of the following is used for measures the interfacial angles of a crystal?

- | | |
|----------------------|-------------------|
| (A) ✓ Goniometer | (B) XRD |
| (C) Pycnometer | (D) None of these |
| (E) Answer not known | |

99. Imagine the crystal turned about an axis for 60° and 180° and a simultaneous reflection of the faces over a plane normal to the axis of rotation occurs, then the crystal is said to possess a
- (A) Plane of symmetry
 - (B) Axis of symmetry and Plane of symmetry
 - ☒ (C) Centre of symmetry
 - (D) Plane, Axis and Centre of symmetry
 - (E) Answer not known

100. Match the following :

Facies Name	Mineral Assemblage
(a) Greenschist	1. Hornblende + Andesine + Q_z
(b) Amphibolite	2. Smectite + Zeolite
(c) Eclogite	3. Chlorite + Albite + Epidote + Q_z
(d) Zeolite	4. Pyrope + Omphacite

- | | | | | |
|--------------------------------------|------------------|-----|-----|-----|
| | (a) | (b) | (c) | (d) |
| <input checked="" type="radio"/> (A) | 3 | 1 | 4 | 2 |
| (B) | 1 | 2 | 3 | 4 |
| (C) | 3 | 4 | 2 | 1 |
| (D) | 1 | 3 | 4 | 2 |
| (E) | Answer not known | | | |

101. Which metamorphic rock composed almost entirely of calcium carbonate minerals?

- (A) Quartzite
- ☒ (C) Marble
- (B) Slate
- (D) Schist
- (E) Answer not known

102. Which is a granoblastic metamorphic rock?
- (A) ☒ Quartzite (B) Gneiss
(C) Marble (D) Schist
(E) Answer not known
103. Blastoporphyritic structure is a kind of
- (A) ☒ Palimpsest structure (B) Maculose structure
(C) Cateclastic structure (D) Granulose structure
(E) Answer not known
104. Metamorphism occurs around a large igneous masses are called
- (A) Local Metamorphism (B) Regional Metamorphism
(C) ☒ Contact Metamorphism (D) Dynamic Metamorphism
(E) Answer not known
105. Granulite and Leptynite rocks are derived from _____ metamorphism of Quartzo-felspathic rocks.
- (A) Contact (B) Dynamo-thermal
(C) ☒ Plutonic (D) Regional
(E) Answer not known
106. Which one of the metamorphic zone is near to the surface?
- (A) Kata zone (B) ☒ Epi zone
(C) Meso zone (D) Hypo zone
(E) Answer not known

107. Hornfels is a rock formed by
(A) ☒ Thermal Metamorphism (B) Regional Metamorphism
(C) Dynamic Metamorphism (D) Dynamothermal Metamorphism
(E) Answer not known
108. The destruction of dolomite and reconstitution of calcite is called
(A) Dolomitisation (B) ☒ Dedolomitisation
(C) Forsterite Marble (D) Brucite
(E) Answer not known
109. Lutites are made up of
(A) Cementing materials (B) Non-detrital rocks
(C) Carbonate deposits (D) ☒ Silt and Clay
(E) Answer not known
110. The most abundant siliceous deposits of chemical origin are
(A) Breccia and Conglomerate (B) Travertine
(C) ☒ Flint and Chert (D) Sand Stone
(E) Answer not known
111. The process of submarine rock weathering through which iron has been concentrated in these sediments has been called
(A) ☒ Halmyrolysis (B) Pyrolysis
(C) Clay iron stone (D) Blackband iron stone
(E) Answer not known

112. Sandstone with abundance of feldspar usually derived from the disintegration of Granite is called
- (A) Grit (B) ☒ Arkose
(C) Quartzite (D) Freestone
(E) Answer not known
113. Flint is a
- (A) ☒ Non-Clastic chemical deposits
(B) Non-Clastic organic deposits
(C) Residual deposits
(D) Mechanically or clastic sediments
(E) Answer not known
114. Which one is the example of argillaceous rocks of glacial origin
- (A) Mudstone (B) Shab
(C) Silt stone (D) ☒ Boulder clay
(E) Answer not known
115. Bedding shows an alternation of coarse, current-bedded material and fine horizontal laminae are called
- (A) Cross bedding (B) Festoon bedding
(C) ☒ Torrential bedding (D) Graded bedding
(E) Answer not known
116. Rapid changes in direction and strength of a stream can be inferred from
- (A) ☒ Current bedding (B) Concordant bedding
(C) Graded bedding (D) Ripple marks
(E) Answer not known

117. _____ structure is typically developed in argillaceous rocks under thermal (or) contact metamorphism.
- (A) Schisrose (B) ☒ Maculose
(C) Gneissose (D) Granulose
(E) Answer not known
118. Alternation of coarse, coarse current bedding and fine horizontal laminae represents _____ structure.
- (A) Pit and mond structure (B) Ripple marks
(C) ☒ Torrential bedding (D) Delta structure
(E) Answer not known
119. The chief processes of decomposition are
- (A) Chemical reaction and solution
(B) Molecule Replacement and Carbonation
(C) ☒ Oxidation and Hydration
(D) Reduction and Carbonation
(E) Answer not known
120. In which type of fold, the two limbs dip at equal angles in the same direction?
- (A) Fan Fold (B) Chevron Fold
(C) ☒ Isoclinal Fold (D) Recumbent Fold
(E) Answer not known

121. Which one of the following statement is correct in case of the mineral "Calcite"
- (A) Two twin laws are common on calcite
 - (B) Calcite is the stable form of CaCO_3 at most temperatures and pressures
 - (C) Colourless calcite exhibits excellent double refraction
 - (D) ☒ All are correct
 - (E) Answer not known
122. Topaz mineral occurs in
- (A) Volcanic Rocks
 - (B) Basic igneous Rocks
 - (C) ☒ Acid igneous Rocks
 - (D) Intrusive Rocks
 - (E) Answer not known
123. The shape of cross section of the prismatic crystals of tourmaline is
- (A) a Hexagon
 - (B) ☒ a Triangle
 - (C) a Rhomb
 - (D) a Pentagon
 - (E) Answer not known
124. Among the following minerals, which one is having greasy lustre other than cleavage surface is
- (A) ☒ Talc
 - (B) Tourmaline
 - (C) Quartz
 - (D) Andalusite
 - (E) Answer not known

125. Physical properties of feldspars are
- (A) ✓ Light in colour, lower sp. gravity, Two sets of cleavage
 - (B) Dark in colour, Lighter sp. gravity, one set of cleavage
 - (C) Light colour, higher sp. gravity, no cleavage
 - (D) Dark colour, medium sp. gravity, basal cleavage
 - (E) Answer not known
126. The mineral having two types of hardness is
- (A) Staurolite
 - (B) ✓ Kyanite
 - (C) Sillimanite
 - (D) Topaz
 - (E) Answer not known
127. Among the following which one is the lithium bearing mica?
- (A) Muscovite
 - (B) Phlogopite
 - (C) Glauconite
 - (D) ✓ Lepidolite
 - (E) Answer not known
128. The violet color variety of spodumene is
- (A) hiddenite
 - (B) ✓ kunzite
 - (C) amethyst
 - (D) adularia
 - (E) Answer not known

129. Select the correct sequence :

- | | |
|--------------------------|---------------|
| (a) White mica | 1. Biotite |
| (b) Black mica | 2. Lepidolite |
| (c) Green mica | 3. Muscovite |
| (d) Lithium bearing mica | 4. Chlorite |

- | | (a) | (b) | (c) | (d) |
|---|-----|-----|-----|-----|
| (A) <input checked="" type="checkbox"/> 3 | 1 | 4 | 2 | |
| (B) 1 | 2 | 3 | 4 | |
| (C) 2 | 1 | 3 | 4 | |
| (D) 4 | 2 | 1 | 3 | |
| (E) Answer not known | | | | |

130. The Manganese bearing variety of Garnet is

- | | |
|----------------------|---|
| (A) Pyrope | (B) Almandine |
| (C) Andradite | (D) <input checked="" type="checkbox"/> Spessartine |
| (E) Answer not known | |

131. Amazon stone is a variety of

- | | |
|--------------------------|---|
| (A) Amphipole group | (B) <input checked="" type="checkbox"/> Alkali feldspar |
| (C) Plagioclase feldspar | (D) Orthopyroxene group |
| (E) Answer not known | |

132. Transparent, purple, semi-precious variety of quartz is

- | | |
|----------------------|--|
| (A) Rose quartz | (B) Milky quartz |
| (C) Agate | (D) <input checked="" type="checkbox"/> Amethyst |
| (E) Answer not known | |

133. Match the following :

- | | |
|-------------------|--------------------------|
| (a) Uniaxial | 1. Only one optic axis |
| (b) Biaxial | 2. Double refraction |
| (c) Pleochroism | 3. Two optic axis |
| (d) Birefringence | 4. Colour and absorption |

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

134. When analcite takes the place of nepheline it is called as

- | | |
|----------------------|--|
| (A) Tonalite | (B) <input checked="" type="checkbox"/> Teschenite |
| (C) Theralite | (D) Trachyte |
| (E) Answer not known | |

135. In biaxial minerals, light traveling normal to 'Z' has

- | | |
|--|-----------------------------|
| (A) <input checked="" type="checkbox"/> Minimum velocity | (B) Maximum velocity |
| (C) Intermediate velocity | (D) (B) and (C) are correct |
| (E) Answer not known | |

136. Strength of Double-refraction is referred as

- | | |
|----------------------|---|
| (A) Refractive Index | (B) <input checked="" type="checkbox"/> Birefringence |
| (C) Critical angle | (D) Diffraction |
| (E) Answer not known | |

137. If a mineral is scratched by k-feldspar but not by quartz, then what will be the hardness of mineral?
- (A) Between 5 and 6 (B) ☒ Between 6 and 7
(C) Between 7 and 8 (D) Between 8 and 9
(E) Answer not known
138. In a Biaxial Indicatrix the 3rd semi axis which is always perpendicular to the optic Axial Plane (OAP), is known as
- (A) Obtuse Bisectrix (B) Acute Bisectrix
(C) ☒ Optic Normal (D) Optic Sign
(E) Answer not known
139. The ratio between the volume of a material to the equal volume of water is, termed as
- (A) Density (B) ☒ Specific Gravity
(C) Hardness (D) Diaphancity
(E) Answer not known
140. The tendency of a crystallized mineral to break in definite directions, yielding more or less smooth surfaces is known as
- (A) Fracture (B) Parting
(C) ☒ Cleavage (D) Lineation
(E) Answer not known
141. Arrange the following minerals in the correct order of sp. gravity
- (A) Diamond > Celestine > Barite > Angle site
(B) Diamond > Barite > Colestine > Angle site
(C) Diamond < Barite < Celestine < Angle site
(D) ☒ Diamond < Celestine < Barite < Angle site
(E) Answer not known

142. Glacial striations on an outcrop trend NE-SW. The direction of the movement was :
- (A) ✓ NE to SW (B) NW to SE
(C) SW to NE (D) Could be either NE or SW
(E) Answer not known
143. In what type of tectonic setting island arcs forms?
- (A) Divergent
(B) Ocean-Continental plate convergence
(C) ✓ Ocean-Ocean plate convergence
(D) Transform fault
(E) Answer not known
144. The Mercalli intensity scale, used to measure the earthquakes in into _____ divisions.
- (A) 08 (B) 10
(C) ✓ 12 (D) 14
(E) Answer not known
145. Consider the following statements:
- I : Commonly, lavas are basic, quite mobile and poured out without much noise.
- II : The solid materials thrown out by volcanoes are called pyroclasts
- (A) ✓ Both (I) and (II) are true
(B) (I) is true (II) is false
(C) (I) is false (II) is true
(D) Both (I) and (II) are false
(E) Answer not known

146. The majority of the earthquakes including the catastrophic are due to sudden earth movements generally along
- (A) ☒ Faults (B) Folds
 (C) Unconformities (D) Diapirs
 (E) Answer not known
147. The classic example of a vast shield volcano is the
- (A) Wizard island (B) ☒ Hawaiian islands
 (C) Mayon in Phillipines (D) Cascade ranges
 (E) Answer not known
148. The Volcanoes which have not been erupted during the historic period but may have the chance in future. Such volcanoes are termed as
- (A) ☒ Dormant volcanoes (B) Extinct volcanoes
 (C) Shield volcanoes (D) Plinian volcanoes
 (E) Answer not known
149. Consider the following statements:
- Assertion (A) : River terraces are step like flat level surfaces cut by stream erosion
- Reason (B) : These are due to the lateral erosion of streams which migrate back and forth
- (A) ☒ Both (A) and (B) are true and (B) is the reason for (A)
 (B) Both (A) and (B) are true, (B) is not the correct reason for (A)
 (C) (A) is true, but (B) is false
 (D) Both (A) and (B) are false
 (E) Answer not known

150. _____ are the most probable locations in disaster for some vegetation growth.

- (A) Quattara (B) Hammade
(C) ☒ Oases (D) Desert pavements
(E) Answer not known

151. When a channel flowing with water in full form, it is said to be

- (A) Flood stage (B) ☒ Bankfull stage
(C) Riverfull stage (D) Channelfull stage
(E) Answer not known

152. Match List I with List II and select answers using the codes given below :

List I

List II

- | | |
|-----------------------------|---------------------------------|
| (a) Massive rocks | 1. Rectangular drainage pattern |
| (b) Joint and fault terrain | 2. Centrepetal drainage pattern |
| (c) Domes | 3. Dendritic drainage pattern |
| (d) Craters | 4. Radial drainage pattern |

- | | (a) | (b) | (c) | (d) |
|---|------------------|-----|-----|-----|
| (A) | 3 | 2 | 4 | 1 |
| (B) <input checked="" type="checkbox"/> | 3 | 1 | 4 | 2 |
| (C) | 1 | 2 | 4 | 3 |
| (D) | 1 | 3 | 2 | 4 |
| (E) | Answer not known | | | |

153. The feature sill lapies is produced by

- (A) Wind (B) River
(C) Sea (D) ☒ Groundwater
(E) Answer not known

154. The canyon is formed by cutting through a ridge by the following processes. Choose the correct near answer.
- (A) The crust is uplifted across the course of the stream
 - (B) The stream erode down into a buried ridge and the overlying cover is stripped away
 - (C) ☒ A huge flood carries a canyon
 - (D) A pereplain is uplifted and resistant rocks form ridges
 - (E) Answer not known
155. Rocks disintegrated due to formation of sodium chloride (NaCl) within the cavities is said to be
- (A) Insolation
 - (B) Exfoliation
 - (C) ☒ Exudation
 - (D) Hydration
 - (E) Answer not known
156. Consider the following statements:
- Statement (A) : Eluvium is the end product of weathering
- Statement (B) : Eluvium is produced from Deluvium
- (A) Both (A) and (B) are true
 - (B) ☒ (A) is true, but (B) is false
 - (C) (A) is false, but (B) is true
 - (D) Both (A) and (B) are false
 - (E) Answer not known

157. Match List I with List II and select answers using the codes given below :

List I	List II
(a) Sial and Sima	1. Mantle
(b) Crust and Mantle	2. Core
(c) Asthenosphere	3. Crust
(d) Nickel Iron alloy	4. Mohorovicic

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

158. Which planet is known for its retrograde spin around the sun?

- | | |
|----------------------|-------------|
| (A) Jupiter | (B) ✓ Venus |
| (C) Mars | (D) Saturn |
| (E) Answer not known | |

159. Find the correct sequence of transformation of Uranium-238 to Lead 214

- | |
|---|
| (A) Uranium, Thorium, Polonium, Radium, Radon, Lead |
| (B) Uranium, Thorium, Radon, Radium, Polonium, Lead |
| (C) Uranium, Radon, Radium, Thorium, Polonium, Lead |
| (D) ✓ Uranium, Thorium, Radium, Radon, Polonium, Lead |
| (E) Answer not known |

160. Which hypothesis is Widely accepted regarding the origin of Moon?
- (A) Capture hypothesis (B) Double planet hypothesis
(C) Fission hypothesis (D) ☒ Impact hypothesis
(E) Answer not known
161. Mohorovicic Discontinuity is in between _____ and _____.
(A) ☒ Crust-Mantle (B) Mantle-Core
(C) Sial-Sima (D) Inner Core-Outer Core
(E) Answer not known
162. What is the temperature at inner core of the Earth?
- (A) ~3500°C (B) ~4000°C
(C) ~4500°C (D) ☒ ~5000°C
(E) Answer not known
163. The horizontal angle between the True North and the magnetic North is called as
- (A) ☒ Declination (B) Magnetic Dip
(C) Deviation (D) Inclination
(E) Answer not known
164. The stresses acting at a point may be referred to three mutually perpendicular axes is known as
- (A) Stress difference (B) Stress ellipsoid
(C) ☒ Principal stress axes (D) Stress rupture
(E) Answer not known

165. The stress-difference at any point in a body is the algebraic difference between
- (A) $P_{\max} \sim P_{\text{int}}$ (B) $P_{\min} \sim P_{\text{int}}$
 (C) ☒ $P_{\max} \sim P_{\min}$ (D) $P_{\text{int}} \sim P_{\min}$
 (E) Answer not known
166. The deformational processes in the upper crust are chiefly controlled by
- (A) Ductile processes (B) ☒ Brittle processes
 (C) Ductile-Brittle processes (D) Plastic-Deformational processes
 (E) Answer not known
167. If igneous rocks are unconformably overlined by young or sedimentary rock, the resulting structure will be
- (A) Disconformity (B) ☒ Non conformity
 (C) Angular unconformity (D) Local unconformity
 (E) Answer not known
168. The nature of sedimentary rock that can undergo some irregular jointing is
- (A) Plastic in nature
 (B) Non-plastic in nature
 (C) Rich in moisture
 (D) ☒ Plastic in nature and rich in moisture
 (E) Answer not known
169. The fractures along which there has been no relative displacement of the bed is called
- (A) Fault (B) Folds
 (C) ☒ Joints (D) Unconformity
 (E) Answer not known

170. The property of the rocks whereby they break along approximately parallel surface is called
- (A) Bedding fissility (B) Schistosity
(C) ☒ Foliation (D) Lineation
(E) Answer not known
171. Ripples which are asymmetrical and both crest and trough are rounded is
- (A) ☒ Current Ripples (B) Oscillation Ripples
(C) Fan fold (D) Recumbent fold
(E) Answer not known
172. A fault which strikes parallel to the strike of the adjacent rocks
- (A) Transverse fault (B) Longitudinal fault
(C) ☒ Strike fault (D) Parallel fault
(E) Answer not known
173. Horst and Graben are believed to occur due to
- (A) Lateral compression (B) Shear compression
(C) ☒ Lateral tension (D) Bending
(E) Answer not known
174. Choose the incorrect answer :
- The bed dips outward symmetrically or asymmetrically from the crest towards periphery
- (A) Dome fold (B) ☒ Centrocline
(C) Quaquaversal fold (D) Pericline
(E) Answer not known

175. Circular or elliptical outcrop wholly or partly seen with outward dip it represent
- (A) ✓ Dome fold
 - (B) Basin fold
 - (C) Centrocline fold
 - (D) Carinate fold
 - (E) Answer not known
176. Hade small and towards downthrow side $10^{\circ} - 20^{\circ}$, it represent
- (A) Lateral fault
 - (B) Reverse fault
 - (C) ✓ Gravity fault
 - (D) Strike-slip fault
 - (E) Answer not known
177. The best example of a strike slip fault is
- (A) South African faults
 - (B) ✓ San Andres fault of California
 - (C) Himalayan faults
 - (D) Dasmanian faults
 - (E) Answer not known
178. The classification of faults are
- (A) ✓ Geometric classification – Genetic classification
 - (B) Geometric classification only
 - (C) Genetic classification only
 - (D) Mineralogical classification
 - (E) Answer not known

179. A synform may be described as a fan
- (A) downward facing syncline
 - ☒ (B) downward facing anticline
 - (C) upward facing syncline
 - (D) upward facing anticline
 - (E) Answer not known
180. (1) A 'Horst' is a block, that has been lowered relative to the blocks on either side.
- (2) A 'Grabon' is a block that has been raised relative to the blocks on either side.
- ☒ (A) Both statements are incorrect
 - (B) Statement (1) is correct and (2) is incorrect
 - (C) Statement (1) is incorrect and (2) is correct
 - (D) Both statements are correct
 - (E) Answer not known
181. The wall rock of one side rotated along an axis to the fault plane with respect to the other, it is called as
- (A) Diagonal-slip fault
 - (B) Right-lateral fault
 - (C) Left-lateral fault
 - ☒ (D) Hinge fault
 - (E) Answer not known
182. How many kinds of normal faults are recognised, in the classification based on "absolute movements"?
- (A) 3-Three
 - ☒ (B) 5-Five
 - (C) 8-Eight
 - (D) 4-Four
 - (E) Answer not known

183. The sides of a fold are called as

- (A) hinges
- (B) axis
- (C) ☒ flanks
- (D) crest
- (E) Answer not known

184. _____ is the height of large dam as defined by international congress on large dams.

- (A) 10 m
- (B) 12 m
- (C) 15 m
- (D) ☒ 15 m
- (E) Answer not known

185. Chandrayaan-1 is a _____ type of satellite.

- (A) Experimental
- (B) Geo stationary
- (C) ☒ Space mission
- (D) Earth observation
- (E) Answer not known

186. Topography with massive, rounded, unbedded, dome like hills with variable summit elevations and steep side slopes identified through air-photo indicates

- (A) Sandstone
- (B) ☒ Granite
- (C) Extrusive rocks
- (D) Limestone
- (E) Answer not known

187. TIN can be created using

- (A) river network
- (B) aerial photos
- (C) satellite image
- (D) ☒ spot heights
- (E) Answer not known

188. Which of the following is related to landslides?
- (A) Debris slides (B) Rock slides
(C) Rock falls (D) ☒ All the above
(E) Answer not known
189. _____ rock layers offer best resistance to the resultant forces in a Dam.
- (A) Folded
(B) Horizontally bedded
(C) ☒ Gently dipping towards upstream
(D) Gently dipping towards downstream
(E) Answer not known
190. Maithan and Panchet dams are
- (A) ☒ Earth dams (B) Coffer dams
(C) Masonary dams (D) Gravity dams
(E) Answer not known
191. Identify the largest dam in India
- (A) Hirakud dam (B) ☒ Bhakra dam
(C) Krishnaraja Sagar dam (D) Nagarjun Sagar dam
(E) Answer not known
192. Which of the following has a least bearing capacity?
- (A) Clay bed of different types (B) ☒ Ordinary sand and alluvial soil
(C) Softer rocks (D) None of the above
(E) Answer not known

193. The central portion of the dam that directly overlie on the channel is known as
- (A) Crest (B) Heel
(C) Axis of dam (~~D~~) River section
(E) Answer not known
194. _____ is an extensive storage facility for a predetermined quantity of water behind a dam constructed across river.
- (A) Back stream (B) Storage tank
(~~C~~) Reservoir (D) Backwater
(E) Answer not known
195. Tunnels running parallel to strike of vertical beds is always
- (A) Safe (~~B~~) Unsafe
(C) Moderately safe (D) Safe with corrective measures
(E) Answer not known
196. Hirakud dam in Orissa is one of the longest _____ dams of our country.
- (A) Arch (~~B~~) Embankment
(C) Gravity (D) Buttress
(E) Answer not known
197. The shallow bore well generally is
- (A) >15 m (~~B~~) <15 m
(C) 30-40 m (D) 40-50 m
(E) Answer not known

198. The jetting method for drilling is suitable for

- (A) consolidated formation (B) ☒ unconsolidated formation
(C) coastal aquifers (D) none of the above
(E) Answer not known

199. The versatile drilling method designed for mineral exploration of _____.

- (A) Calyx drill (B) ☒ Diamond core drill
(C) Downhole rotary drill (D) Churn drill
(E) Answer not known

200. The ratio of Lime and Clay in cement is

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