

Question Booklet No. :

AGUG/2021

Register
Number

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2021
GEOLOGY
(Degree Standard)

Duration : Three Hours]

[Total Marks : 300

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS

1. You will be supplied with this question booklet 15 minutes prior to the commencement of the examination.
2. This question booklet contains 200 questions. Before answering the questions, you shall check whether all the questions are printed serially and ensure that there are no blank pages in the question booklet. **If any defect is noticed in the question booklet, it shall be reported to the invigilator within the first 10 minutes and get it replaced with a complete question booklet. If the defect is reported after the commencement of the examination, it will not be replaced.**
3. Answer all the questions. All the questions carry equal marks.
4. You must write your register number in the space provided on the top right side of this page. Do not write anything else on the question booklet.
5. An answer sheet will be supplied to you separately by the room invigilator to shade the answers. Instructions regarding filling of answers etc., which are to be followed mandatorily, are provided in the answer sheet and in the memorandum of admission (Hall Ticket).
6. You shall write and shade your question booklet number in the space provided on page one of the answer sheet with **BLACK INK BALL POINT PEN**. If you do not shade correctly or fail to shade the question booklet number, your answer sheet will be invalidated.
7. Each question comprises of five responses (answers) : i.e. (A), (B), (C), (D) and (E). You have to select **ONLY ONE** correct answer from (A) or (B) or (C) or (D) and shade the same in your answer sheet. If you feel that there are more than one correct answer, shade the one which you consider the best. **If you do not know the answer, you have to mandatorily shade (E).** In any case, choose **ONLY ONE** answer for each question. If you shade more than one answer for a question, it will be treated as a wrong answer even if one of the given answers happens to be correct.
8. You should not remove or tear off any sheet from this question booklet. You are not allowed to take this question booklet and the answer sheet out of the examination room during the time of the examination. After the examination, you must hand over your answer sheet to the invigilator. You are allowed to take the question booklet with you only after the examination is over.
9. **You should not make any marking in the question booklet except in the sheets before the last page of the question booklet, which can be used for rough work. This should be strictly adhered to.**
10. Failure to comply with any of the above instructions will render you liable for such action as the Commission may decide at their discretion.

SEAL

SPACE FOR ROUGH WORK



1. The metasomatic changes are also termed as
- (A) Kaolinisation (B) Greisening
(C) Dolomitization (D) Granulation
(E) Answer not known
2. The development of tectonic is widespread in _____ metamorphism.
- (A) Dynamothermal (B) Plutonic
(C) Cataclastic (D) Pyroclastic
(E) Answer not known
3. The Chief chemically active fluid in metamorphism is
- (A) Carbon dioxide (B) Water
(C) Boric acid (D) Hydrofluoric acid
(E) Answer not known
4. Consider the following pairs :
- | | |
|------------------------------|---------------------------|
| I. Argillaceous lime stone | - Pure lime stone |
| II. Kankar | - Carbonate material |
| III. Lithographic lime stone | - Lime stone contain clay |
- Which pair is correct?
- (A) I only (B) I and III
(C) III only (D) II only
(E) Answer not known
5. Which clay have high alumina and plasticity?
- (A) China Clay (B) Fire clay
(C) Pottery clay (D) Tillite
(E) Answer not known

6. Medium sand grain size measured between

(A) 2 mm and $\frac{1}{2}$ mm

(B) $\frac{1}{4}$ mm and $\frac{1}{16}$ mm

(C) $\frac{1}{2}$ mm and $\frac{1}{4}$ mm

(D) 1 mm and $\frac{1}{2}$ mm

(E) Answer not known

7. Argillaceous rocks are made up of

(A) Sand grade

(B) Sand and silt

(C) Clay particles

(D) Boulders

(E) Answer not known

8. Antigenic deposits are

(A) Formed on the spot

(B) Originated elsewhere

(C) Detrital

(D) Originated everywhere

(E) Answer not known

9. Quartz is almost the only component in

(A) Metaquartzites

(B) Orthoquartzites

(C) Quartzose sand stones

(D) Quartzarenite

(E) Answer not known

10. The process whereby foreign rock - material, either in liquid or solid form, is incorporated within the magma is known as

(A) Assimilation

(B) Differentiation

(C) Segregation

(D) Crystallization

(E) Answer not known

11. _____, _____ and _____ are felsic minerals.
- (A) Quartz, Albite, Hypersthene
 - (B) Quartz, Albite, Hornblende
 - (C) Quartz, Orthoclase, Leucite
 - (D) Quartz, Orthoclase, Olivine
 - (E) Answer not known
12. Crystals better developed in two spatial direction than in the third may be referred to as
- (A) Irregular
 - (B) Elongated
 - (C) Tabular
 - (D) Prismatic
 - (E) Answer not known
13. The Rocks purely made of glass are called by special term known as
- (A) Bostonite
 - (B) Obsidian
 - (C) Tonalite
 - (D) Trachyte
 - (E) Answer not known
14. Plagioclase becomes the predominant feldspar in nepheline and bearing rock, then it is called
- (A) Teschenite
 - (B) Theralite
 - (C) Wordmurkite
 - (D) Pulaskite
 - (E) Answer not known
15. The texture in which large crystals enveloped in a groundmass is called as
- (A) Poikilitic
 - (B) Porphyritic
 - (C) Ophitic
 - (D) Directive
 - (E) Answer not known

16. Which among the following is not a structure in folded regions?
- (A) Phacolith (B) Batholith
(C) Laccolith (D) Chonolith
(E) Answer not known
17. When a bedding or foliation present in the country rock is squeezed by a magma to give rise to parallel or essentially rock mass to the intruding pluton is called
- (A) Xenoliths (B) Laccoliths
(C) Diapir (D) Phacoliths
(E) Answer not known
18. $(\text{Fe, Ti})_2 \text{O}_3$ refers to
- (A) Apatite (B) Sphere
(C) Ilmenite (D) Zircon
(E) Answer not known
19. Viscosity is a measure of the resistance to flow of a liquid ; more viscous liquids are
- (A) Solid immediately (B) Vapourised
(C) Fast mobile (D) Less mobile
(E) Answer not known
20. Quartz cannot co-exist with
- (A) Biotite (B) Olivine
(C) Hornblende (D) Augite
(E) Answer not known

21. The oldest bed occupy at the base and every upper layer will be younger in geological age in ascending order. Such a sequence is uninterrupted in its deposition is known as
- (A) Angular unconformity
 - (B) Disconformity
 - (C) Conformable
 - (D) Unconformity
 - (E) Answer not known
22. Joints which are developed perpendicular to the fold axis are called
- (A) Released joints
 - (B) Tension joints
 - (C) Shear joints
 - (D) Extension joints
 - (E) Answer not known
23. The columnar joints are seen in
- (A) Sandstone
 - (B) Hypabyssal rock
 - (C) Granite
 - (D) Rhyolite
 - (E) Answer not known
24. Joints which are parallel to the strike of the bedding of a sedimentary rock
- (A) Strike joints
 - (B) Dip joints
 - (C) Parallel joints
 - (D) Bedding joints
 - (E) Answer not known
25. The ripples which are symmetrical, consist of broad troughs and sharp crests are named as
- (A) Oscillation ripples
 - (B) Current ripples
 - (C) Box fold
 - (D) Fan fold
 - (E) Answer not known

26. A _____ fold is one which both limbs are overturned.
- (A) Chevron
 - (B) Box
 - (C) Fan
 - (D) Monocline
 - (E) Answer not known
27. On the basis of inter-limb angle, how many folds have been classified?
- (A) Five
 - (B) Four
 - (C) Three
 - (D) Two
 - (E) Answer not known
28. Most common angle of normal fault is
- (A) 30° to 45°
 - (B) 60° to horizontal
 - (C) 45° to vertical
 - (D) 0° to 180°
 - (E) Answer not known
29. An entire orogenic belt may show a sharp bend, which is called
- (A) Anticlinorium
 - (B) Synclinorium
 - (C) Orocline
 - (D) Homocline
 - (E) Answer not known
30. In an "Asymmetrical fold",
- I. The axial plane is inclined
 - II. The two limbs dip in the opposite direction at different angles
- (A) Statements (I) and (II) are correct
 - (B) Statement (I) is correct and Statement (II) is incorrect
 - (C) Statement (I) is incorrect and Statement (II) is correct
 - (D) Statements (I) and (II) are incorrect
 - (E) Answer not known

31. Which of the following is incorrectly paired?
- (A) Hawaiian – Mild eruption
 - (B) Strombolian – Violent eruption
 - (C) Pelean – Violent explosion
 - (D) Plinian – Most violent explosion
 - (E) Answer not known
32. The elastic rebound theory is postulated by
- (A) Reid
 - (B) Wegner
 - (C) Max Planck
 - (D) Hooke
 - (E) Answer not known
33. Non tectonic earthquakes do not occur due to
- (A) Avalanches
 - (B) Huge Waterfalls
 - (C) Cyclone
 - (D) Dams and reservoirs
 - (E) Answer not known
34. The loop-like channels are called,
- (A) Meanders
 - (B) Ox-Bow lakes
 - (C) Chutes
 - (D) None of these
 - (E) Answer not known
35. More or less circular coral reefs enclosing a lagoon, is known as,
- (A) Spits
 - (B) Bars
 - (C) Barrier reef
 - (D) Atoll
 - (E) Answer not known

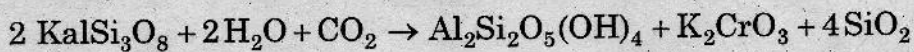
36. Consider the following statements :

Assertion (A) : Karren is a landform and it develops on limestone terrain

Reason (B) : The land form develops due to Chemical weathering

- (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

37. Identify the mineral in the blank space of the equation



Orthoclase + Carbonic acid \rightarrow _____ + pot. Carbonate + Silica

- (A) Illite
(B) Kaolinite
(C) Montmorillonite
(D) Halloysite
(E) Answer not known

38. When a depression is created by deflation, then the term used is

- (A) Slack
(B) Oasis
(C) Yardangs
(D) Ventifacts
(E) Answer not known

39. _____ planet has the largest number of moons and moonlets in the solar system.

- (A) Saturn
(B) Uranus
(C) Jupiter
(D) Neptune
(E) Answer not known

40. Planetesimals are basically

- (A) Semi-Solid
(B) Solid
(C) Gases and vapours
(D) Gases and solids
(E) Answer not known

41. _____ sensors are used to find out the oil spills
- (A) Thermal
 - (B) Colour Infrared
 - (C) Ultraviolet and microwave
 - (D) Biometric
 - (E) Answer not known
42. What is the name of first satellite launched by India?
- (A) Bhaskara-I
 - (B) Aryabhata
 - (C) Rohini
 - (D) INSAT-1A
 - (E) Answer not known
43. Granitic terrain can be recognized in the aerial photos by means of _____ type of drainage pattern
- (A) Rectangular
 - (B) Radial
 - (C) Dendritic and sickle shaped
 - (D) Annual
 - (E) Answer not known
44. Avalanches are mass movements of which of the following class?
- (A) Slow Flowage
 - (B) Rapid Flowage
 - (C) Sliding
 - (D) Subsidence
 - (E) Answer not known
45. The blocks of rocks of varying size suddenly crashing downwards from cliff along steep slop is called
- (A) Rock slide
 - (B) Rock fall
 - (C) Debris slide
 - (D) Earth flow
 - (E) Answer not known

46. The Jawahar Tunnel pass through _____ rocks.
- (A) ✓ Lavas, Slates and Limestones
 - (B) Gneiss, Limestone and Shales
 - (C) Sandstone, Shale and Granite
 - (D) Granite, Schist and Sandstones
 - (E) Answer not known
47. In a Dam near the top to let off excess water of the reservoir to the downstream side is called
- (A) Sluice
 - (B) Cut-off wall
 - (C) ✓ Spillway
 - (D) Diversion tunnel
 - (E) Answer not known
48. In soft rock, hydraulic rotary method is suitable for _____
- (A) 50 – 100 m depth
 - (B) ✓ 100 – 150 m depth
 - (C) 200 – 300 m depth
 - (D) 500 – 600 m depth
 - (E) Answer not known
49. Grouting may be described as
- (A) ✓ The injection of suitable material into the earth's crust to seal any open fissures
 - (B) A process of determining the coefficient or water saturation of a material
 - (C) A process of lining of tunnel to support the pressure exerted by the material in which the tunnel is exerted
 - (D) None of the above
 - (E) Answer not known

50. The crushing strength of dolerite is
- (A) 1000 tons per square feet
 - (B) 600 tons per square feet
 - (C) 700 tons per square feet
 - (D) 400 tons per square feet
 - (E) Answer not known
51. The Neyveli lignite belongs to _____ formations.
- (A) Cretaceous
 - (B) Jurrasic
 - (C) Cambrian
 - (D) Tertiary
 - (E) Answer not known
52. The Neyveli lignite seams are interbedded with the
- (A) Limestones
 - (B) Clay
 - (C) Sand stone
 - (D) Shale
 - (E) Answer not known
53. The occurrence of lignite in Gujarat is in
- (A) Ahmedabad
 - (B) Jaisalmer
 - (C) Kutch
 - (D) Baramulla
 - (E) Answer not known
54. Composition of the mineral pyrolusite is
- (A) $Mn_2O_3 \cdot H_2O$
 - (B) Mn_3O_4
 - (C) $MnCO_3$
 - (D) MnO_2
 - (E) Answer not known

55. Mechanical concentration by river water

- (A) Eolian Placer (B) Eluvial Placer
(C) Alluvial Placer (D) Beach Placer
(E) Answer not known

56. Dissemination ores are characterised by

- (A) Pepper-and-salt texture
(B) Colloform texture
(C) Porphyritic texture
(D) Coarse texture
(E) Answer not known

57. Match the followings :

	Zone	Sulphide type
(a)	Zone of oxidation	1. Chalcopyrite
(b)	Zone of secondary enrichment	2. Native copper
(c)	Zone of primary ore	3. Covellite
(d)	Level of oscillating water	4. Malachite

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

58. Diamond in kimberlite is present as _____ nature

- (A) Segregated (B) Injected
(C) Diluted (D) Disseminated
(E) Answer not known

59. The ore deposits formed at the end of magmatic differentiation are termed as
- (A) Ortho tectic deposits
 - (B) Ortho magmatic deposits
 - (C) Metasomatic deposit
 - (D) Hydrothermal deposit
 - (E) Answer not known
60. Hardness of Tourmaline is between
- (A) 7.0 – 7.5
 - (B) 6.5 – 7.0
 - (C) 7.5 – 8.0
 - (D) 8.0 – 8.5
 - (E) Answer not known
61. Chlorophalite is formed by
- (A) A chromite formed by the alteration of quartz
 - (B) A kaolinite formed by the alteration of feldspar
 - (C) A chlorite formed by the alteration of volcanic glass
 - (D) A zircon formed by the alteration of quartz
 - (E) Answer not known
62. The iron rich variety of chlorite, that is commonly found in sedimentary iron ores is
- (A) Prehnite
 - (B) Chamosite
 - (C) Apophyllite
 - (D) Arfred sonite
 - (E) Answer not known
63. Zircon and Quartz usually occur as
- (A) Unaltered minerals
 - (B) Altered minerals
 - (C) Insoluble minerals
 - (D) Soluble minerals
 - (E) Answer not known

64. A soda-rich basaltic type in which albite or albite-oligoclase is the predominating Feldspar

- (A) Oceanite
(B) Spilite
(C) Augitite
(D) Tachylite
(E) Answer not known

65. Match the following :

- | | |
|------------------|-------------------|
| (a) Quartz | 1. Orthorhombic |
| (b) Tridymite | 2. Hydrous silica |
| (c) Crystotalite | 3. Tetragonal |
| (d) Opal | 4. Trigonal |

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

66. Select the correct extinction for Quartz from the following

- (A) Straight extinction
(B) Inclined extinction
(C) Symmetrical extinction
(D) Wavy extinction
(E) Answer not known

67. The sign of the ordinary ray and extra ordinary in optical mineralogy is

- (A) Ordinary ray is optically (-) Negative extraordinary optically (+)ve positive
(B) Ordinary ray is optically (+) Positive extraordinary ray is optically (+) positive
(C) Ordinary ray is optically (-) Negative and extraordinary ray is optically (-) Negative
(D) Ordinary ray is optically (+) Positive and extraordinary ray is optically (-) Negative
(E) Answer not known

68. Identify the Non Silicate minerals arranged below in correct pair
- (A) ✓ Oxides, hydroxides, Carbonates, Sulphides, Sulphates
 - (B) Hydroxide, Quartz, Feldspar, Mica, Garnet
 - (C) Carbonates, Mica, Garnet, Spinel, Feldspar
 - (D) Sulphides, Sulphates, Olivine, Fayallite, Forsterite
 - (E) Answer not known
69. Property of Fluorescence is
- (A) ✓ A few minerals have the property of glowing or emitting light when they are exposed to radiation
 - (B) Minerals behave differently on heating to elevated temperature
 - (C) The light is emitted by mineral not during the act of exposure to radiation
 - (D) Some minerals an electric charge may be developed by heating
 - (E) Answer not known
70. Hardness of a mineral is greater when
- (A) ✓ the atoms or ions are smaller
 - (B) the valency is smaller
 - (C) the packing density is lesser
 - (D) the specific gravity is greater
 - (E) Answer not known
71. Twin crystals often appear to consist crystals symmetrically united, the individual crystals will be in the order of
- (A) Five or more crystals
 - (B) Four or more crystals
 - (C) Three or more crystals
 - (D) ✓ Two or more crystals
 - (E) Answer not known
72. According to _____ law octahedral face is the Twinning Plane.
- (A) ✓ Spinel
 - (B) Rutile
 - (C) Japanese
 - (D) Brazillian
 - (E) Answer not known

73. Pick out the odd pair.

- (A) a axis – brachy axis
- (B) prism – pyramids
- (C) b axis – macro axis
- (D) c axis – vertical axis
- (E) Answer not known

74. The only symmetry element exhibited by Axinite crystal is

- (A) Centre of Symmetry
- (B) Plane of Symmetry
- (C) Axis of Symmetry
- (D) Pseudo symmetry
- (E) Answer not known

75. The normal interfacial angle of two adjacent tetrahedral faces is

- (A) $109^{\circ} 28' 16''$
- (B) $90^{\circ} 0' 00''$
- (C) $60^{\circ} 55' 43''$
- (D) $100^{\circ} 04' 44''$
- (E) Answer not known

76. Find out the correct pair.

- (A) Beryl – Isometric Normal
- (B) Beryl – Monoclinic Normal
- (C) Beryl – Hexagonal Normal
- (D) Beryl – Orthorhombic Normal
- (E) Answer not known

77. The type mineral for the Normal Class of Tetragonal system is

- (A) Hornblende
- (B) Tourmaline
- (C) Galena
- (D) Zircon
- (E) Answer not known

78. How many classes are classified in crystallography?
- (A) 34 (B) 32
(C) 33 (D) 35
(E) Answer not known
79. Miller indices for hexoctahedron crystal is
- (A) {3 2 1} (B) {2 2 1}
(C) {2 1 1} (D) {2 1 0}
(E) Answer not known
80. How many faces are there in Trapezohedron (h11)
- (A) 12 (B) 24
(C) 48 (D) 32
(E) Answer not known
81. The shells of foraminifera are
- (A) Unichambered
(B) Multichambered
(C) Both Unichambered and Multichambered
(D) None of the above
(E) Answer not known
82. The first formed Chamber in foraminifera shell is called as
- (A) Protoconch (B) Conch
(C) Proloculus (D) Palacoconch
(E) Answer not known

83. Which of the following is correctly matched?

- I. Productus - Ordovician
- II. Orthis - Carboniferous
- III. Rhyconella - Jurassic
- IV. Terebratula - Triassic

- (A) I
- (B) II
- (C) III
- (D) IV
- (E) Answer not known

84. In compound Corals, the skeleton of each individual members of a colony is known as

- (A) Theca
- (B) Corallite
- (C) Epitheca
- (D) Calyx
- (E) Answer not known

85. Hydrozoans are common in

- (A) Fresh water
- (B) Marine
- (C) Wet lands
- (D) Hyper saline
- (E) Answer not known

86. When the early part of the Ammonoid shell is coiled and its later part is in the form of Hook or curve, it is termed as

- (A) Lituitic cone
- (B) Baculitic cone
- (C) Gyrocera cone
- (D) Gyroceratic cone
- (E) Answer not known

87. The fossils of Graptolites are preserved as a film of _____ matter.
- (A) Siliceous
 - (B) Phosphatic
 - (C) Carbonaceous
 - (D) Both siliceous and Phosphatic
 - (E) Answer not known
88. Embryonic part of graptolite colony is
- (A) Nema
 - (B) Sricula
 - (C) Autothica
 - (D) Virgella
 - (E) Answer not known
89. Which of the following conditions influence preservation?
- (A) Geographic condition
 - (B) Topographic condition
 - (C) Climatic condition
 - (D) All of the above
 - (E) Answer not known
90. Fossils of _____ life discovered from limestone formation at great heights of Himalayas.
- (A) Marine
 - (B) Fluvial
 - (C) Wind
 - (D) Glacial
 - (E) Answer not known
91. Complete dissolution of original shell and deposit some other substance in its place is known as
- (A) Petrification
 - (B) Impregnation
 - (C) Distillation
 - (D) Leaching
 - (E) Answer not known

92. Anthracite variety of coal is available in
- (A) Cuddapah system
 - (B) Vindhyan system
 - (C) Gondwana system
 - (D) Aravalli system
 - (E) Answer not known
93. The youngest elements of the Precambrian Basement of the Dharwar region are known as
- (A) Sargur Schist
 - (B) Closepet Granite
 - (C) Peninsular Gneissic complex
 - (D) Bundelkhand Gneiss
 - (E) Answer not known
94. The Delhi system is intruded by
- (A) Jalor granite
 - (B) Idar granite
 - (C) Malani granite
 - (D) Erinpura granite
 - (E) Answer not known
95. The most common rock of the upper Vindhyan is
- (A) Shale
 - (B) Limestone
 - (C) Sandstone
 - (D) Gneiss
 - (E) Answer not known
96. The thickness of lower Vindhyan group is
- (A) 1000 m
 - (B) 500 m
 - (C) 1300 m
 - (D) 2000 m
 - (E) Answer not known

97. Half-Life period of U^{238} is
- (A) 7.675×10^9 years
 - (B) 5.89×10^9 years
 - (C) 4.468×10^9 years
 - (D) 5.678×10^9 years
 - (E) Answer not known
98. Establishing equivalence in rock formations with regard to their geological age is termed as
- (A) Comparison
 - (B) Correlation
 - (C) Homotaxis
 - (D) Nomenclature
 - (E) Answer not known
99. Find out the system which is not grouped under TERTIARY
- (A) Pliocene
 - (B) Miocene
 - (C) Permian
 - (D) Eocene
 - (E) Answer not known
100. Fundamental concept of historical geology is
- (A) Lithification
 - (B) Correlation
 - (C) Sedimentation
 - (D) Deposition
 - (E) Answer not known

101. _____ minerals are able to assert their proper crystalline form, even against the resistance of a solid medium.
- (A) Crystalloblastic (B) Idioblastic
(C) Xenoblastic (D) Palimpsest
(E) Answer not known
102. The rock with alkali feldspar + plagioclase + biotite + hornblende mineral composition is
- (A) Granulites (B) Amphibolites
(C) Greenstone (D) Charnochite
(E) Answer not known
103. The Augen structure is produced due to _____ metamorphism.
- (A) Regressive (B) Cataclastic
(C) Regional (D) Dynamo-thermal
(E) Answer not known
104. Which is high temperature zone in metamorphism?
- (A) Epizone (B) Mesozone
(C) Kata zone (D) Isograd zone
(E) Answer not known
105. _____ and _____ are the examples for Anti-stress minerals.
- (A) Chlorite and Kyanite (B) Olivine and Andalusite
(C) Talc and Muscovite (D) Hornblende and Quartz
(E) Answer not known
106. Maculose structure is typically developed in argillaceous rocks under
- (A) Cataclastic metamorphism (B) Plutonic metamorphism
(C) Thermal metamorphism (D) Metasomatism
(E) Answer not known

107. _____ is a rock of earthy and clay like with Oolitic and Pilolitic structures.
- (A) Laterite
(B) Bauxite
(C) Regolith
(D) Terra-Rossa
(E) Answer not known
108. _____ is a white kaolinite mixed with fragments of quartz, feldspar and mica.
- (A) Tillite
(B) Fire clay
(C) China clay
(D) Marl
(E) Answer not known
109. Which is Argillaceous limestone?
- (A) Chalk
(B) Kankar
(C) Pelagic limestone
(D) Marl
(E) Answer not known
110. Sorting of particles is best in _____ sediments.
- (A) Fluvial
(B) Sand dune
(C) Beach
(D) Loess
(E) Answer not known
111. Among the following, shale have both clastic and non-clastic sources.
- (A) Transported shale
(B) Residual shale
(C) Hybrid shale
(D) Chloritic shale
(E) Answer not known
112. The grain size of silt deposits are
- (A) 0.1 mm to 0.01 mm
(B) 1 mm to 0.1 mm
(C) 2 mm to 1 mm
(D) 0.5 mm to 0.25 mm
(E) Answer not known

113. Norite is a Gabbroic rock in which

- (A) ✓ OPX > CPX (B) OPX < CPX
(C) OPX = CPX (D) OPX absent
(E) Answer not known

114. Match the following volcanic rock equivalent for plutonic :

- | | |
|-------------------|-------------|
| (a) Syenite | 1. Dacite |
| (b) Diorite | 2. Andesite |
| (c) Grano diorite | 3. Rhyolite |
| (d) Granite | 4. Trachyte |

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

115. Which of the following mineral is low silication mineral?

- (A) ✓ Biotite (B) Orthoclase
(C) Augite (D) Hornblende
(E) Answer not known

116. Soda rich basaltic types are called on

- (A) ✓ Spilite (B) Andesite
(C) Rhyolite (D) Phonolite
(E) Answer not known

117. A variety of equigranular texture is
- (A) Porphyritic
(B) Panidiomorphic
(C) Poikilitic
(D) Ophitic
(E) Answer not known
118. The holocrystalline texture is characteristic of
- (A) Volcanic igneous rocks
(B) Hypabyssal igneous rocks
(C) Plutonic igneous rocks
(D) Volcanic lavas
(E) Answer not known
119. Textures which are produced by flow in magma during their crystallisation are called
- (A) Granular texture
(B) Intergranular texture
(C) Optitic texture
(D) Directive texture
(E) Answer not known
120. Reaction rims produced by primary magmatic reaction is called as
- (A) Coronas
(B) Kelyphitic borders
(C) Myrmekite
(D) Enclaves
(E) Answer not known
121. _____ is a form of igneous intrusion in unfolded region.
- (A) Phacolith
(B) Batholith
(C) Chonolith
(D) Laccolith
(E) Answer not known

122. Match the following :

- | | |
|------------------------|-----------------------------------|
| (a) Compressive stress | 1. strain |
| (b) Tensile stress | 2. normal component push apart |
| (c) Shear | 3. normal component push together |
| (d) Distortion | 4. tangential component |

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

123. The distance between the successive crest is called

- | | |
|----------------------|---------------|
| (A) Axial plane | (B) Amplitude |
| (C) ✓ Wave length | (D) Plunge |
| (E) Answer not known | |

124. In geology, a compression is treated as

- | | |
|----------------------|--------------|
| (A) ✓ Positive | (B) Negative |
| (C) Neutral | (D) Couple |
| (E) Answer not known | |

125. In a overturned beds, the top of beds can be identified by using _____ structure.

- | | |
|----------------------|-------------------------------|
| (A) Faults | (B) Stalactite and stalagmite |
| (C) Pillow structure | (D) Orbicular |
| (E) Answer not known | |

THE QUESTION AND ANSWER ARE TO BE PLACED BEFORE THE EXPERT COMMITTEE FOR FINAL DECISION.

இக்கேள்வி மற்றும் விடை இறுதி முடிவிற்காக வல்லுநர் குழுவின் முன் வைக்கப்பட உள்ளது.

126. The thrust faults in which the foot wall has been the active element.
- (A) Down thrust
(B) Over thrust
(C) Up thrust
(D) Under thrust
(E) Answer not known
127. A fold characterised by well-defined, sharp hinge point is called
- (A) Conjugate fold
(B) Chevron fold
(C) Cuspate fold
(D) Cylindrical fold
(E) Answer not known
128. Plunging fold is a
- (A) Fold with fold axis horizontal
(B) Fold with fold axis only vertical
(C) Fold with fold axis inclined
(D) This is not a type of fold
(E) Answer not known
129. The strata that dip in one direction at a relatively uniform angle is
- (A) Kink bands
(B) Isoclinal folds
(C) Fan fold
(D) Homocline
(E) Answer not known
130. In a recumbent fold, the axial plane is
- (A) Vertical
(B) Horizontal
(C) Both horizontal and vertical
(D) Inclined
(E) Answer not known

131. Folds of continental proportions are
- (A) Tens of miles wide (B) Hundreds of miles wide
(C) Thousands of miles wide (D) Millions of miles wide
(E) Answer not known
132. Fold that has younger rocks in the centre is called as
- (A) Syncline (B) Anticline
(C) Trough (D) Crest
(E) Answer not known
133. A pyramid-shaped peak formed by glacial erosion is a
- (A) Fiord (B) Cirque
(C) Medial moraine (D) Horn
(E) Answer not known
134. Which one is not a transform plate boundary?
- (A) Subduction Zone
(B) Ridge-Trench margin
(C) Ridge-Ridge margin
(D) Trench-Trench margin
(E) Answer not known
135. Solidified pyroclastic debris on ground are called as
- (A) Tephra (B) Lapilli
(C) Tuff (D) Pumice
(E) Answer not known

136. Consider the following statements :

Assertion (A) : Stack and Hook are erosional features of sea

Reason (B) : They develop and withstand due to some resistant rocks

- (A) Both (A) and (B) are true (B) is correct reason for (A)
- (B) Both (A) and (B) are true (B) is not correct reason for (A)
- (C) (A) is true (B) is false
- (D) Both (A) and (B) are false
- (E) Answer not known

137. The removal of particles of dust and sand by strong winds is called

- (A) Abrasion
- (B) Depletion
- (C) Deflation
- (D) Aeration
- (E) Answer not known

138. The drainage pattern that develops upon uniform resistant rocks and implies lack of structural control is known as

- (A) Rectangular
- (B) Barbed
- (C) Trellis
- (D) Dendritic
- (E) Answer not known

139. Water draped in fractures, expands by 9.0% in volume when freezes, thus exerting pressure to the walls and widening the fracture, results in the disintegration of the rock. This phenomenon is known as

- (A) Exfoliation
- (B) Root wedging
- (C) Frost wedging
- (D) Oxidation
- (E) Answer not known

140. Half-life period of carbon-14 is
- (A) ✓ 5730 years (B) 5250 years
(C) 6520 years (D) 6340 years
(E) Answer not known
141. What will be the temperature at the top of the mantle?
- (A) around 4000° C (B) around 2000° C
(C) around 1560° C (D) ✓ around 870° C
(E) Answer not known
142. Nebular hypothesis on origin of earth is an improved one of hypothesis proposed by
- (A) Sir William Herschell (B) Laplace
(C) ✓ Kant (D) Sir James Jeans
(E) Answer not known
143. Which planet is characterized with a retrograde spin?
- (A) ✓ Venus (B) The Earth
(C) Mars (D) Mercury
(E) Answer not known
144. The expansion of 'IRSS' is
- (A) Indian Rare Sensing
(B) ✓ Indian Remote Sensing Satellite
(C) Indian Meteorological sensing
(D) (A) and (C) are correct
(E) Answer not known

145. During tunneling, geological profile is prepared to know
- (A) Structure of rocks
 - (B) Types of rocks
 - (C) Centre line of the proposed tunnel
 - (D) Dip and strike of the rocks
 - (E) Answer not known
146. The Arch dam is best suitable for in which site?
- (A) Flat lands
 - (B) Plateaus
 - (C) Narrow Valleys
 - (D) Very wide valleys
 - (E) Answer not known
147. "Water" Which is on the down stream side of the dam is known as?
- (A) Reservoir water
 - (B) Tail water
 - (C) Surface water
 - (D) Parched water
 - (E) Answer not known
148. Which dam in India has distinction of being the longest earth dam?
- (A) Rihand dam
 - (B) Hirakud dam
 - (C) Bhakra dam
 - (D) Sikidari dam
 - (E) Answer not known
149. Idukki dam in Kerala is an example for
- (A) An arch dam
 - (B) Butress dam
 - (C) Rock hill dam
 - (D) Gravity dam
 - (E) Answer not known

150. The instrument used for

- (A) Boring shallow depth (B) Boring deep well
(C) More than 100 ft (D) Both (B) and (C)
(E) Answer not known

151. If closed contours have increasing value away from the center, it shows a _____ on map

- (A) Depression (B) Ridge
(C) Hillock (D) None of the above
(E) Answer not known

152. Silica sand is produced from _____ district in Tamil Nadu.

- (A) Chengalpattu (B) Salem
(C) Madurai (D) Theni
(E) Answer not known

153. Consider the following statement :

Assertion (A) : Chrysotile asbestos occurs in serpentinized limestone.

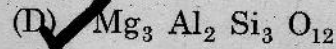
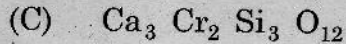
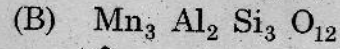
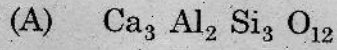
Reason (R) : Certain bands of limestone were converted to serpentine by circulatory solutions and undergo molecular rearrangement into fibrous form.

- (A) Both (A) and (R) are false
(B) Both (A) and (R) are true
(C) (A) is true and (R) is false
(D) (A) is false and (R) is true
(E) Answer not known

154. The hardness of Magnesite is
- (A) 4.5 to 5.5 (B) 5.5 to 6.5
(C) 3.5 to 4.5 (D) 2.5 to 3.5
(E) Answer not known
155. Magnesite is believed to be an alteration product of
- (A) Diorite (B) Dunite
(C) Dolerite (D) Diamictite
(E) Answer not known
156. The Gold-Bearing lodes are confined to the contacts of _____ rock varieties in Kolar Gold field
- (A) Gneisses (B) Amphibolites
(C) Ferruginous Quartzites (D) Conglomerates
(E) Answer not known
157. Transportation of material in contact with surface is called as
- (A) Rolling (B) Solution
(C) Abrasion (D) Attrition
(E) Answer not known
158. Common salt is formed through _____ process.
- (A) Sublimation (B) Evaporation
(C) Dissemination (D) Segregation
(E) Answer not known

159. The recrystallisation temperature of copper is
- (A) 300°C (B) 450°C
(C) 350°C (D) 550°C
(E) Answer not known
160. Mineral deposits that have formed simultaneous with the enclosing rock is known as
- (A) Epigenetic deposits (B) Endogenetic deposits
(C) Syngenetic deposits (D) Exogenetic deposits
(E) Answer not known
161. Bauxite is formed by the process of
- (A) Mechanical concentration
(B) Residual concentration
(C) Magmatic concentration
(D) Sublimation
(E) Answer not known
162. Tenor of silver is
- (A) 10 Ounce/Tonne (B) 50 Ounce/Tonne
(C) 75 Ounce/Tonne (D) 100 Ounce/Tonne
(E) Answer not known
163. Tenor of Platinum is
- (A) 0.7 % (B) 0.1 Ounce/Tonne
(C) 0.8 % (D) 10 Ounce/Tonne
(E) Answer not known

164. Chemical composition of Pyrope is



(E) Answer not known

165. Feldspar atomic structure is

(A) Continuous three-dimensional network type

(B) Discontinuous three-dimensional network type

(C) Continuous two-dimensional network type

(D) Discontinuous two-dimensional network type

(E) Answer not known

166. Find out the K-Feldspar mineral

(A) Albite

(B) Oligoclase

(C) Orthoclase

(D) Anorthite

(E) Answer not known

167. Tektosilicates has

(A) Chain structure

(B) Double chain structure

(C) Framework structure

(D) Single chain structure

(E) Answer not known

168. Match the following :

(a) Orthorhombic

1. Hedenbergite

(b) Monoclinic

2. Bronzite

(c) Alkali

3. Pectolite

(d) Triclinic

4. Johannsenite

(a) (b) (c) (d)

(A) 1 2 4 3

(B) 2 4 3 1

(C) 4 3 2 1

(D) 2 1 4 3

(E) Answer not known

169. _____ crystals transmit light with different velocities in different direction.
- (A) Isometric (B) Isotropic
(C) Anisotropic (D) Garnet
(E) Answer not known
170. Berek compensator is
- (A) also known as quarter-wave plate
(B) useful for the determination of interference colour
(C) also known as sensitive – tint plate
(D) a accessory device made of calcite
(E) Answer not known
171. The following microscopes used in the study of thin section of rocks and minerals?
- (A) Compound microscope (B) Petrological microscope
(C) Reflecting microscope (D) Binocular microscope
(E) Answer not known
172. Among the following, which mineral is having silky luster?
- (A) Topaz (B) Ziron
(C) Asbestos (D) Quartz
(E) Answer not known
173. Which one of the following is not correctly matched :
- I. Highly magnetic – Feldspars
II. Moderately magnetic – Hematite
III. Weakly magnetic – Tourmaline
IV. Non-magnetic – Quartz
- (A) I (B) II
(C) III (D) IV
(E) Answer not known

174. Find out the incorrect pair.
- (A) Fluorite - Gypsum
 - (B) Fluorite - Garnet
 - (C) Fluorite - Galena
 - (D) Fluorite - Pyrite
 - (E) Answer not known

175. Choose the incorrect pair.
- (A) Pyroxene - Pyrite
 - (B) Pyroxene - Orthoclase
 - (C) Pyroxene - Epidote
 - (D) Pyroxene - Gypsum
 - (E) Answer not known

176. Match the following of the orthorhombic crystal system :

- | | |
|---------------------|---------------|
| (a) Macro Pinacoid | 1. c-Pinacoid |
| (b) Brachy Pinacoid | 2. hkl |
| (c) Basal Pinacoid | 3. a-pinacoid |
| (d) Pyramids | 4. b-pinacoid |

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

177. Tourmaline crystallizes in _____ class of _____ system.

- (A) Rhombohedral - Hemimorphic - Hexagonal
- (B) Normal class - Hexagonal
- (C) Normal - Isometric
- (D) Hemimorphic - Orthorhombic
- (E) Answer not known

178. All forms are general form in

- (A) Cubic system (B) Hexagonal system
(C) Monoclinic system (D) Triclinic system
(E) Answer not known

179. Name of the form each of whose sixteen similar faces meets the three axes at unequal distance

- (A) Ist order pyramid (B) IInd order pyramid
(C) Ditetragonal pyramid (D) Prism
(E) Answer not known

180. Choose the correct pair.

- (A) Cuprite - Gypsum
(B) Albite - Anorthite
(C) Zircon - Garnet
(D) Beryl - Borite
(E) Answer not known

181. Grade of symmetry of Asymmetrical class of Triclinic system

- (A) 20 (B) 10
(C) -0- (D) 5
(E) Answer not known

182. Spinel law of twinning _____ is the twinning plane.

- (A) Cube face (100) (B) Octahedral face (111)
(C) Dodecahedral face (110) (D) Tetrahedron (hko)
(E) Answer not known

183. The class Echinoids are exclusively _____ and _____ forms.
- (A) Fresh water and shallow living
 - (B) Marine and bottom dwelling
 - (C) Terrestrial and bottom dwelling
 - (D) Lacustrine and shallow
 - (E) Answer not known
184. In trilobites, the central segment running from a point at or near the anterior margin to the Posterior extremity is termed
- (A) Doublure
 - (B) Thorax
 - (C) Pleural lobe
 - (D) Axial lobe
 - (E) Answer not known
185. In Trilobites, the most primitive suture line is described as
- (A) Ophisthoparian
 - (B) Hypoparian
 - (C) Gonatoparian
 - (D) Proparian
 - (E) Answer not known
186. The teeth, sockets and other associated structures in pelecypoda are collectively termed as
- (A) Surface Sculpture
 - (B) Shell Structure
 - (C) Ostracum
 - (D) Dentition
 - (E) Answer not known

187. Which of the following statements are correct?

- I. The subclasses Nautiloidea and Ammonoidea are grouped as 'Tetrabranchia'
- II. The subclass Nautiloidea have 14 orders
- III. The subclass Ammonoidea have 4 orders

- (A) Only I and II are correct
- (B) All are correct
- (C) Only II and III are correct
- (D) Only I and III are correct
- (E) Answer not known

188. *Cardita beaumonti* is an Index fossil for _____ age.

- (A) Upper Triassic
- (B) Lower Carboniferous
- (C) Upper Cretaceous
- (D) Lower Eocene
- (E) Answer not known

189. The calyx is the depression which is present in

- (A) Foraminifera
- (B) Ostracoda
- (C) Corallite polyp
- (D) Brachiopods
- (E) Answer not known

190. The successive whorls of gastropoda lie in mutual contact along a line is called

- (A) Apex
- (B) Spire
- (C) Callus
- (D) Suture
- (E) Answer not known

191. Internal moulds and cast are collectively termed as
- (A) Trails (B) Burrow
(C) Tubes (D) Steinkerns
(E) Answer not known
192. What is the general dip for cretaceous of Trichinopoly?
- (A) N-N-E to S-S-W at low angle
(B) E-S-E at low angle
(C) N-N-E to S-S-W at high angle
(D) E-S-E at high angle
(E) Answer not known
193. Cuddalore sandstone generally like unconformably over the cretaceous rocks, Upper Gondwanas or gneisses which represent a marine transgression in
- (A) Mio-Pliocene (B) Lower Pleistocene
(C) Upper Cretaceous (D) Upper Gondwana
(E) Answer not known
194. Deposits of Gondwana sequence belongs to _____ origin.
- (A) Marine (B) Fluvio-Marine
(C) Fluvial (D) Deltaic
(E) Answer not known
195. Talchir boulder beds are of
- (A) Marine origin (B) Glacial origin
(C) Aeolian origin (D) Fluvial origin
(E) Answer not known

196. The most primitive life occur in which system?
(A) ✓ Cuddapah (B) Dharwar
(C) Archean (D) Vindhyan
(E) Answer not known
197. In papaghani group, the lower formation is named as
(A) Vempalle shales (B) ✓ Gulcheru Quartzite
(C) Nagri Quartzite (D) Cumbum shales
(E) Answer not known
198. Bundelkhand Gneiss or Mysore Gneisses are as old as
(A) ✓ 2500 Million years (B) 1800 Million years
(C) 1600 Million years (D) 1000 Million years
(E) Answer not known
199. Chromite deposits in Tamil Nadu are associated with
(A) Anorthosites of Kadavur
(B) Anorthosites of Sittampundi
(C) Anorthosites of Chalkhills
(D) ✓ Both (B) and (C)
(E) Answer not known
200. The whole suite of rocks of Sivanmalai in Tamil Nadu are characterised by
(A) ✓ Na rich feldspars
(B) Ca rich feldspars
(C) Ca and Na rich feldspars
(D) Ba rich feldspars
(E) Answer not known

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