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(Pages : 19)

Name.....

Reg. No.....

CALICUT UNIVERSITY CENTRALIZED ENTRANCE TEST (CU-CET)

APRIL 2025

M.Sc. APPLIED GEOLOGY

Time : Two Hours

Maximum : 400 Marks

Each question carries 4 marks.

1 mark will be deducted for each wrong answer.

Answer all questions.

1. Which mineral is hardest on the Mohs scale ?
 - (a) Quartz.
 - (b) Talc.
 - (c) Diamond.
 - (d) Gypsum.
2. One of the most fundamental principles in geology proposed by James Hutton :
 - (a) Law of Uniformitarianism.
 - (b) Law of Faunal Succession.
 - (c) Law of Original Horizontality.
 - (d) Principles of Catastrophism.
3. The transformation of existing rock through elevated temperature and pressure :
 - (a) Igneous intrusion.
 - (b) Metamorphism
 - (c) Sedimentation.
 - (d) Volcanic activity.
4. Match the following geologic principles in Group II with their respective explanations in Group I :

Group I	Group II
A Rocks are initially deposited in horizontal layers	i Law of Superposition
B Geologic processes occurring today are consistent with those in the past	ii Law of Uniformitarianism
C Younger rocks overlie older rocks	iii Cross-cutting relationships
D Intrusions and faults are younger than the rocks they affect	iv Law of Original Horizontality

- (a) A-i, B-iv, C-ii, D-iii
- (b) A-ii, B-i, C-iv, D-iii
- (c) A-iv, B-iii, C-ii, D-i
- (d) A-iv, B-ii, C-i, D-iii

Turn over

5. The main component of soil that is responsible for its fertility :
- (a) Sand.
 - (b) Silt.
 - (c) Clay.
 - (d) Humus.
6. The primary mechanism responsible for the movement of tectonic plates :
- (a) Solar wind.
 - (b) Gravitational pull of the Moon.
 - (c) Convection currents in the mantle.
 - (d) Earth's rotation.
7. Why is feldspar abundant in the Earth's crust ?
- (a) Feldspar is a recent addition through meteorite impacts.
 - (b) Feldspar is resistant to erosion and remains unchanged over time.
 - (c) It forms through biological processes, enhancing its prevalence.
 - (d) Feldspar is a common product of magmatic processes and is present in various rock types.
8. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following
- Assertion (A) :* Objects weigh less at higher altitudes on Earth's surface compared to lower altitudes.
- Reason (R) :* The force of gravity weakens with increasing distance from the center of the Earth, causing a reduction in weight at higher elevations.
- (a) Both A and R are true and R is the correct explanation of A.
 - (b) Both A and R are true and but R is not the correct explanation of A.
 - (c) A is true, but R is false.
 - (d) A is false, but R is true.
9. The Miller-Bravais for the crystallographic face having the crystallographic axes $1a, 1b, \infty c$ is :
- (a) (110) .
 - (b) (101) .
 - (c) (112) .
 - (d) $\{110\}$.

10. An open form consisting of three or more parallel faces :

- (a) Pinacoid. (b) Prism.
(c) Dome. (d) Sphenoid.

11. Match the crystallographic axes and their respective angular orientations in Group II with corresponding crystal systems in Group I :

Group I	Group II
A Orthorhombic system	i $a \neq b \neq c, \alpha = \gamma = 90^\circ, \beta \neq 90^\circ$
B Monoclinic system	ii $a = b \neq c, \alpha = \beta = 90^\circ, \gamma = 120^\circ$
C Hexagonal system	iii $a \neq b \neq c, \alpha \neq \beta \neq \gamma$
D Triclinic system	iv $a \neq b \neq c, \alpha = \beta = \gamma = 90^\circ$

- (a) A-iv, B-i, C-ii, D-iii. (b) A-iii, B-iv, C-ii, D-i.
(c) A-iv, B-iii, C-ii, D-i. (d) A-ii, B-i, C-iv, D-iii.

12. The form symbol which is used to designate the crystal form is :

- (a) $\{101\}$. (b) $[101]$.
(c) (101) . (d) $\{101\}$.

13. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following

Assertion (A) : There are three types of twinning in crystallography.

Reason (R) : Contact twins and Penetration twins are 2 types of twins in crystallography.

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true and but R is not the correct explanation of A.
(c) A is true, but R is false.
(d) A is false, but R is true.

14. The two common twin laws exhibited by plagioclase and microcline :
- (a) Carlsbad and Manebach law. (b) Albite and Carlsbad law.
(c) Pericline and Carlsbad law. (d) Albite and Pericline law.
15. Existence of two minerals with single chemical composition and different crystal structures is called :
- (a) Polytypism. (b) Isotropism.
(c) Polymorphism. (d) Pseudomorphism.
16. Tetragonal system is characterized by the presence of :
- (a) 2-fold axis of symmetry. (b) 4-fold axis of symmetry.
(c) 3-fold axis of symmetry. (d) 1-fold axis of symmetry.
17. Optical indicatrix of uniaxial minerals with positive optic sign is :
- (a) Prolate spheroid. (b) Oblate spheroid.
(c) Irregular in shape. (d) Spheroid.
18. The property of the mineral in which it shows different absorption color associated with different vibration directions.
- (a) Anisotropism. (b) Pleochroism.
(c) Polarization colors. (d) Birefringence.
19. Identify a mineral from the pyroxene mineral class :
- (a) Pyrite. (b) Diopside.
(c) Ilmenite. (d) Sanidine.
20. Match the following minerals with appropriate mineral formula :

Group I	Group II
A Scheelite	i NaCl
B Pyrite	ii FeS ₂
C Halite	iii Al (OH) ₃
D Gibbsite	iv CaWO ₄

- (a) A-i, B-iv, C-ii, D-iii (b) A-iv, B-i, C-ii, D-iii
(c) A-iv, B-ii, C-i, D-iii (d) A-iv, B-iii, C-i, D-ii

21. What is the degree of rotation for a 3-fold axis of symmetry ?

- (a) 360° . (b) 60° .
(c) 90° . (d) 120° .

22. Identify the point group associated with Triclinic system :

- (a) 4. (b) 622.
(c) 1. (d) 43 m.

23. Which of the following mineral have a covalent bond ?

- (a) Sphalerite. (b) Corundum.
(c) Olivine. (d) Amphibole.

24. Match the following minerals with appropriate optical properties :

Group I	Group II
A Anisotropic	i Pyrite
B Isotropic	ii Zircon
C Opaque	iii Plagioclase
D Uniaxial	iv Fluorite

- (a) A-iii, B-ii, C-iv, D-iii. (b) A-iii, B-iv, C-i, D-ii.
(c) A-iv, B-iii, C-i, D-ii. (d) A-iv, B-ii, C-i, D-iii.

25. Si : O ratio for sheet/phylosilicates :

- (a) 2 : 5. (b) 1 : 4.
(c) 4 : 11. (d) 2 : 7.

26. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following

Assertion (A) : Based on Goldich's Weathering Series, olivine and Ca-plagioclase weather first and most rapidly.

Reason (R) : Olivine and Ca-plagioclase crystallize from high-temperature magma, lack Si and O ; hence, unstable on Earth.

Note : The Goldich's Weathering Series is similar to the Bowen's Reaction Series.

- (a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true and but R is not the correct explanation of A.

Turn over

- (c) A is true, but R is false.
 - (d) A is false, but R is true.
27. A mineral exhibiting contact twin :
- (a) Spinel.
 - (b) Staurolite.
 - (c) Orthoclase.
 - (d) Fluorite.
28. A lateral variation in lithology and fossil assemblage in a formation that result from change in the environment of deposition is called :
- (a) Facies.
 - (b) Stratigraphy.
 - (c) Facies variation.
 - (d) None of the above.
29. The principle of stratigraphy that states 'Sediments in a basin are always deposited horizontally irrespective of the shape of the basin' is :
- (a) Law of lateral continuity.
 - (b) Law of original horizontality.
 - (c) Law of superposition.
 - (d) Law of cross-cutting relationships.
30. Who introduced the term strata (singular 'stratum') to denote the layers of sedimentary rocks, thus giving a name to the science of stratigraphy ?
- (a) William Smith.
 - (b) Nicolas Steno.
 - (c) Charles Lyell.
 - (d) James Hutton.
31. One of the following statements is wrong. Identify.
- (a) The principle of inclusions is that the inclusions are all younger than the rock in which they are seen.
 - (b) Sediments in a basin spread out in all directions during deposition.
 - (c) When something cross-cuts a sedimentary sequence, it is always younger than that sequence.
 - (d) In a sedimentary sequence, younger of beds occur as we go up from bottom.

32. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following

Assertion (A) : On the basis of the type of fossils in a bed, it is possible to differentiate between the beds at different levels.

Reason (R) : Fossils help in establishing a succession in time of deposition.

- (a) Both A and R are true and R is the correct explanation of A.
 - (b) Both A and R are true and but R is not the correct explanation of A.
 - (c) A is true, but R is false.
 - (d) A is false, but R is true.
33. Match the type of unconformities in Group II with their respective explanations in Group I

Group I	Group II
A When the layers above and below an erosional border have the same orientation	i Angular conformity
B When sediments are deposited on top of an igneous or metamorphic rock surface that has eroded	ii Disconformity
C There is little visible erosion and parallel strata on both sides of the unconformity	iii Para-conformity
D Strata are deposited above eroded and inclined layers	iv Non-conformity

- (a) A-ii, B-iv, C-i, D-iii.
 - (b) A-iii, B-i, C-iv, D-ii.
 - (c) A-iv, B-ii, C-iii, D-i.
 - (d) A-ii, B-iv, C-iii, D-i.
34. The determination of the geological contemporaneity of events in the geological histories of two areas is called :
- (a) Stratigraphy.
 - (b) Lithology.
 - (c) Correlation.
 - (d) None of the above.

35. Identify the correct sequence of chronostratigraphic units from the following :

- (a) Supergroup - Group - Formation - Member - Bed.
- (b) Eonothem - Erathem - System - Series - Stage.
- (c) Supergroup - Group - Member - Formation - Bed.
- (d) Eonothem - Erathem - System - Series - Age.

Turn over

36. Which one among the following is mismatched ?

- (a) Eon - Eonothem. (b) Era - Erathem.
(c) Epoch - System. (d) Age - Stage.

37. Which one among the following is an example for System ?

- (a) Upper Triassic. (b) Cryptozoic.
(c) Paleozoic. (d) Jurassic.

38. Which of the following is a mobile belt ?

- (a) Baster. (b) Satpura.
(c) Dharwar. (d) Cuddapah.

39. The Western Dharwar Craton (WDC) and Eastern Dharwar Craton (EDC) are separated by which shear zone :

- (a) Chitradurga. (b) Moyar-Bhavani.
(c) Achankovil. (d) Palghat-Cauvery.

40. Which of the following mass extinctions coincided with the Deccan Volcanic Eruptions around 66 Ma ?

- (a) Permian-Triassic. (b) Ordovician-Silurian.
(c) Triassic-Jurassic. (d) Cretaceous-Paleogene.

41. Match the following minerals with appropriate regions :

Group I	Group II
A Bauxite	i Mahadek.
B Gold	ii Khetri.
C Uranium	iii East Coast.
D Pyrite	iv Hutti.

- (a) A-ii, B-iii, C-iv, D-i. (b) A-iii, B-iv, C-i, D-ii.
(c) A-iv, B-i, C-ii, D-iii. (d) A-i, B-iv, C-ii, D-iii.

42. What is the age of the Delhi Supergroup ?

- (a) Archean. (b) Hadean.
(c) Proterozoic. (d) Phanerozoic.

43. Identify the regions not related to carbonatite deposits in India :
- (a) Sung Valley.
 - (b) Sevattur.
 - (c) Sukinda Ultramafic Complex.
 - (d) Kamthai.
44. Which of the following states/union territories encompass the majority of Trans Himalayas ?
- (a) Jammu and Kashmir.
 - (b) Ladakh.
 - (c) Himachal Pradesh.
 - (d) Uttarakhand.
45. Which one of the following pair of rock and eruptive setting is correctly matched ?
- (a) Schoshonite - Subduction zone.
 - (b) Carbonatite - Ocean Island.
 - (c) Boninite - Greenstone belt.
 - (d) Trachyte - Continental rifting
46. Ijolite is the plutonic equivalent of :
- (a) Trachyte.
 - (b) Basalt.
 - (c) Dacite.
 - (d) Nephelinites.
47. A coarse grained ultramafic rock :
- (a) Granite.
 - (b) Peridotite.
 - (c) Gabbro.
 - (d) Diorite.
48. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following
- Assertion (A)* : Rocks can be classified based on the color index.
- Reason (R)* : This classification is based on the percentage volume of sodium or dark-coloured minerals present in the rock.
- (a) Both A and R is true and R is the correct explanation of A.
 - (b) Both A and R are true and but R is not the correct explanation of A.
 - (c) A is true, but R is false.
 - (d) A is false, but R is true.

49. Match the Types of rock classification in Group I with their explanation in Group II :

Group I	Group II
A CIPW classification	i They are Leucocratic, Mesocratic, Melanocratic
B Based on colour index	ii Based on both the silica content and relative proportion of feldspars
C IUGS classification	iii Based on the normative calculation from the bulk chemistry of the rocks.
D Tabular classification	iv On the basis of their actual mineral contents measured in volume percent

(a) A-iii, B-i, C-iv, D-ii.

(b) A-iii, B-ii, C-iv, D-i.

(c) A-iv, B-i, C-iii, D-ii.

(d) A-iii, B-i, C-ii, D-iv.

50. The Tabular classification is not based on :

(a) The mode of occurrence.

(b) SiO_2 percentage and free quartz.

(c) Proportion of K-Feldspar, lime (calcic) and sodic (Na) plagioclase.

(d) MgO-FeO composition.

51. A large intrusion of igneous rock, usually granite, which is irregular in shape and occupies large area, and formed deep beneath the surface of Earth so the rock cooled very slowly. :

(a) Laccolith.

(b) Lopolith.

(c) Batholith.

(d) Xenolith.

52. Identify the correct sequence of solid solution series of plagioclase :

(a) Anorthite - Bytownite - Andesine - Oligoclase - Labradorite - Albite.

(b) Albite - Bytownite - Andesine - Labradorite - Oligoclase - Anorthite.

(c) Anorthite - Bytownite - Andesine - Labradorite - Oligoclase - Albite.

(d) Anorthite - Bytownite - Labradorite - Andesine - Oligoclase - Albite.

53. The characteristic texture of Komatiite :
- (a) Spherulitic texture.
 - (b) Spinifex texture.
 - (c) Cumulate texture.
 - (d) Poikilitic texture.
54. Which of the following is an example of chemical weathering ?
- (a) Frost action.
 - (b) Abrasion.
 - (c) Oxidation.
 - (d) Exfoliation.
55. What is lithification in the context of sedimentary rock formation ?
- (a) The cooling of molten rock.
 - (b) The process of cementation and compaction of sediments into solid rock.
 - (c) The transformation of rocks due to high pressure and temperature.
 - (d) The breaking down of rocks into smaller particles.
56. Which type of sedimentary rock is formed from the accumulation of organic remains, such as shells and coral fragments ?
- (a) Sandstone.
 - (b) Shal.
 - (c) Limestone.
 - (d) Conglomerate.
57. In which environment is shale most likely to form ?
- (a) Desert sand dunes.
 - (b) Deep ocean floor.
 - (c) Volcanic regions.
 - (d) High mountain ranges.
58. What are mud cracks ?
- (a) Fossils found in sedimentary rocks.
 - (b) Structures formed by the drying and cracking of mud or clay.
 - (c) Underground fractures in igneous rocks.
 - (d) Erosional features in riverbeds.

59. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following

Assertion (A) : Sedimentary rocks are commonly formed through the process of lithification.

Reason (R) : Lithification is the process by which sediments loss porosity due to pressure from loading.

- (a) Both A and R is true and R is the correct explanation of A.
- (b) Both A and R are true and but R is not the correct explanation of A.
- (c) A is true, but R is false.
- (d) A is false, but R is true.

60. Match the following sedimentary rocks in Group II and its formation processes in Group I.

Group II	Group I
A Formed from the accumulation of plant and animal remains, often in marine environments.	i Sandstone
B Composed of rounded gravel-sized particles, cemented together.	ii Limestone
C Fine-grained rock formed from the compaction and cementation of silt and clay.	iii Shale
D Comprised of sand-sized particles, often deposited in beach or desert environments.	iv Conglomerate

- (a) A-ii, B-iv, C-iii, D-i.
- (b) A-iv, B-ii, C-i, D-iii.
- (c) A-ii, B-iii, C-iv, D-i.
- (d) A-ii, B-iii, C-i, D-iv.

61. Which of the following is NOT a type of sedimentary rock ?

- (a) Sandstone.
- (b) Basalt.
- (c) Conglomerate.
- (d) Limestone.

62. What is the primary factor that distinguishes breccia from conglomerate ?

- (a) Grain size.
- (b) Composition.
- (c) Sorting.
- (d) Angularity.

63. Halite is commonly associated with which other evaporites :

- (a) Gypsum. (b) Calcite.
(c) Quartz. (d) Feldspar.

64. Orogenic, burial and ocean floor are subtypes of which of the following metamorphism ?

- (a) Contact Metamorphism. (b) Regional Metamorphism.
(c) Hydrothermal Metamorphism. (d) Fault-zone Metamorphism.

65. Match the following characterizes with appropriate terms :

Group II	Group I
A Increasing metamorphic grade	i Retrograde metamorphism
B A metamorphic agent	ii Prograde metamorphism
C Decreasing grade as a body of rock cools	iii Geothermal gradient
D Relationship between depth and temperature	iv Deviatoric stress

- (a) A-ii, B-iv, C-iii, D-i. (b) A-ii, B-iv, C-i, D-iii.
(c) A-ii, B-iii, C-iv, D-i. (d) A-ii, B-iii, C-i, D-iv.

66. Identify the metamorphic mineral assemblage for kyanite zone :

- (a) Staurolite, biotite, muscovite, quartz, garnet, plagioclase.
(b) Garnet, biotite, chlorite, muscovite, quartz, albite.
(c) Biotite, chlorite, muscovite, quartz, oligoclase.
(d) Kyanite, biotite, muscovite, quartz, plagioclase.

67. A metamorphic rock that contains omphacite and pyrope :

- (a) Granulite. (b) Marble.
(c) Eclogite. (d) Greenschist.

68. Define the mineral assemblage for greenschist facies :

- (a) Chlorite + albite + epidote + actinolite $\pm$ quartz.
(b) Glaucophane + lawsonite or epidote/zoisite.
(c) Hornblende + plagioclase.
(d) Orthopyroxene + clinopyroxene + plagioclase $\pm$ garnet.

Turn over

69. The Barrovian Facies Series is associated with which of the following ?
- (a) High P/T series. (b) Medium P/T series.
(c) Low P/T series. (d) Very low P/T series.
70. What is the approximate temperature range for initiation of metamorphism in a parent rock ?
- (a) 200 - 300°C. (b) 300 - 400°C.
(c) 20 - 80°C. (d) 100- 150°C.
71. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following

Assertion (A) : Porphyroblasts are commonly associated with contact metamorphism.

Reason (R) : In contact metamorphism, large porphyroblasts of biotite are common.

- (a) Both A and R is true and R is the correct explanation of A.
(b) Both A and R are true and but R is not the correct explanation of A.
(c) A is true, but R is false.
(d) A is false, but R is true
72. The 'line of intersection between two nonparallel surfaces' is called :
- (a) Trend. (b) Trace.
(c) Lineation. (d) Plunge.
73. The region of greatest curvature in a fold :
- (a) Fold axis. (b) Crest.
(c) Hinge line. (d) Hinge.
74. Match the fault types with the most appropriate characteristics :

Group I	Group II
A Normal Fault	i Plate Boundaries
B Transform Fault	ii Hanging wall move up with respect to the footwall
C Reverse Fault	iii Hanging wall move down with respect to the footwall

- (a) A-ii, B-i, C-iii. (b) A-ii, B-iii, C-i.
(c) A-iii, B-ii, C-i. (d) A-iii, B-i, C-ii.

75. Horizontal faults have a dip of _____ and subhorizontal faults have a dip of _____.
- (a) 0° , $0^\circ - 10^\circ$. (b) 30° , $30^\circ - 60^\circ$.
 (c) 10° , $10^\circ - 30^\circ$. (d) 90° , $80^\circ - 90^\circ$.
76. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following
- Assertion (A)* : Cylindrical folds have straight hinge lines.
Reason (R) : Non-cylindrical folds have straight hinge lines.
- (a) Both A and R is true and R is the correct explanation of A.
 (b) Both A and R are true and but R is not the correct explanation of A.
 (c) A is true, but R is false.
 (d) A is false, but R is true.
77. Which among the following is found below CCD ?
- (a) Radiolaria. (b) Foraminifera.
 (c) Ostracoda. (d) Coccolithophore.
78. Match the *Lamellibranchia* genera in Group I with their dentition pattern in Group II.

Group I	Group II
A Trigonia	i Desmodont
B Ostrea	ii Dysodont
C Spondylus	iii Schizodont
D Mytilus	iv Isodont

- (a) A-iv, B-iii, C-ii, D-i. (b) A-iii, B-i, C-iv, D-ii.
 (c) A-iii, B-i, C-ii, D-iv. (d) A-ii, B-i, C-iii, D-iv.
79. Trilobites are used for correlation and dating of rocks, since it is a _____.
- (a) Macrofossil. (b) Microfossil.
 (c) Nanofossil. (d) Index fossil.

80. Which among the following is not a dextral form of Gastropoda ?
- (a) Murex. (b) Natica.
(c) Voluta (d) Physa
81. A bivalve's two valves are connected by a _____ with a series of interlocking teeth and sockets that keep the valves aligned, especially when opening and closing.
- (a) Pallial line. (b) Umbo.
(c) Hinge. (d) Lunule.
82. In a pelecypod shell, if umbo curve in such a way that the beak points towards each other across the dorsal margin, the umbos are :
- (a) Opisthogyrate. (b) Orthogyrate.
(c) Spirogyrate. (d) Prosogyrate.
83. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following
- Assertion (A) : Pleistocene is within the Tertiary period.*
- Reason (R) : Pleistocene is popularly known as 'Modern Ice age'.*
- (a) Both A and R is true and R is the correct explanation of A.
(b) Both A and R are true and but R is not the correct explanation of A.
(c) A is true, but R is false.
(d) A is false, but R is true.
84. Which of the following is not a magmatic ore deposit ?
- (a) Cu-Ni sulphide deposits. (b) REE deposits.
(c) Diamond in kimberlite. (d) Mesothermal load gold deposits.
85. Match the different ore formation processes with appropriate examples.

Group I	Group II
A Sedimentary	i Pegmatites
B Magmatic	ii Porphyry Cu
C Magmatic-hydrothermal	iii BIF

- (a) A-ii, B-i, C-iii. (b) A-ii, B-iii, C-i.
(c) A-iii, B-ii, C-i. (d) A-iii, B-i, C-ii.

86. Which of the following metals are most associated with porphyry deposits (arrange in order of abundance) ?
- (a) Au-Ni-Pb. (b) Cu-Mo-Au.
(c) W-Co-Au. (d) Mo-Fe-Ni.
87. Which of the following processes hinder the formation of pegmatite deposits ?
- (a) Low viscosity of magma.
(b) High rate of diffusion.
(c) High viscosity of magma.
(d) High solidus temperature.
88. Which are of the following are true about the formation of BIF deposits ?
- (a) Anoxic conditions-direct transfer of Fe^{2+} to sea-formed during Mid Archean-Early Proterozoic (3.3-2.3 Ga).
(b) Oxidic conditions- direct transfer of Fe^{2+} to sea- formed during Mid Archean-Early Proterozoic (3.3-2.3 Ga).
(c) Anoxic conditions-no transfer of Fe^{2+} to sea- formed only during Mid Archean (3.3Ga).
(d) Oxidic conditions-direct transfer of Fe^{2+} to sea- formed only during Early Proterozoic (3.3-2.3 Ga).
89. What is the starting magma composition for the formation of skarn deposits ?
- (a) Granitic magma.
(b) Basaltic magma.
(c) Granitic and granodioritic magma.
(d) Basaltic and granodioritic magma.
90. Which of the following is not a property of carbonate melt ?
- (a) High concentration of SiO_2 .
(b) High concentration of CO_2 .
(c) Low concentration of SiO_2 .
(d) Low viscosity.

91. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following

Assertion (A) : Liquid immiscibility is the prime process aiding in the formation of magmatic Ni-Cu deposits.

Reason (R) : On cooling, sulphide melt forms the major component and silicate melt forms the minor component.

- (a) Both A and R is true and R is the correct explanation of A.
 - (b) Both A and R are true and but R is not the correct explanation of A.
 - (c) A is true, but R is false.
 - (d) A is false, but R is true.
92. Which state is India's leading producer of bauxite, the primary ore for aluminum ?
- (a) Odisha.
 - (b) Gujarat.
 - (c) Chhattisgarh.
 - (d) Maharashtra.
93. Which state in India is the leading producer of coal ?
- (a) Odisha.
 - (b) Jharkhand.
 - (c) Chhattisgarh.
 - (d) Madhya Pradesh.
94. Which state in India is a major producer of mica, contributing significantly to the country's mica production ?
- (a) Bihar.
 - (b) Karnataka.
 - (c) Andhra Pradesh.
 - (d) None of these.
95. In Kerala, glass sand deposits are located in —————.
- (a) Neendakara.
 - (b) Chavara.
 - (c) Payyangadi.
 - (d) Cherthala.
96. In which Indian state is the Chiria iron ore mine complex situated ?
- (a) Jharkhand.
 - (b) Odisha.
 - (c) Chhattisgarh.
 - (d) Karnataka.

97. Given below are two statements marked as Assertion (A) and Reason (R). Read both the statements carefully and choose the correct alternative from the following

Assertion (A) : Madhya Pradesh contributes to nearly 50 % of the country's bauxite production.

Reason (R) : The presence of bauxite deposits in Madhya Pradesh is observed in various regions, including Amarkantak Plateau in Shahdol district, Maikala hills, the plateau area of Sarguja-Bilaspur-Raigarh-Katni, Durg, and Balaghat region.

- (a) Both A and R is true and R is the correct explanation of A.
- (b) Both A and R are true and but R is not the correct explanation of A.
- (c) A is true, but R is false.
- (d) A is false, but R is true.

98. Tummalapalle mine is associated with which mineral ?

- (a) Bauxite.
- (b) Uranium.
- (c) Iron.
- (d) Coal.

99. Mineral oil deposits in India are present in the belt of _____.

- (a) North-Eastern Plateau region.
- (b) South-Western Plateau region.
- (c) Himalayan region.
- (d) North-Western region.

100. The East Coast Bauxite deposits of India had formed from :

- (a) Khondalite.
- (b) Kodurite.
- (c) Basalt.
- (d) Charnockite.