

Sl. No. : 30000601

GEOPG/17

Register
Number

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2017
GEOLOGY
(PG Degree Standard)

Time Allowed : 3 Hours]

[Maximum Marks : 300

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

IMPORTANT INSTRUCTIONS

1. The applicant will be supplied with Question Booklet 10 minutes before commencement of the examination.
2. This Question Booklet contains 200 questions. Prior to attempting to answer the candidates are requested to check whether all the questions are there and ensure there are no blank pages in the question booklet. **In case any defect in the Question Paper is noticed it shall be reported to the Invigilator within first 10 minutes and get it replaced with a complete Question Booklet. If any defect is noticed in the Question Booklet after the commencement of examination it will not be replaced.**
3. Answer all questions. All 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 Invigilator to mark the answers.
6. You will also encode your Register Number, Subject Code, Question Booklet Sl. No. etc. with Blue or Black ink Ball point pen in the space provided on the side 2 of the Answer Sheet. If you do not encode properly or fail to encode the above information, action will be taken as per commission's notification.
7. Each question comprises *four* responses (A), (B), (C) and (D). You are to select **ONLY ONE** correct response and mark in your Answer Sheet. In case you feel that there are more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each question. Your total marks will depend on the number of correct responses marked by you in the Answer Sheet.
8. In the Answer Sheet there are four circles (A), (B), (C) and (D) against each question. To answer the questions you are to mark with Ball point pen **ONLY ONE** circle of your choice for each question. Select one response for each question in the Question Booklet and mark in the Answer Sheet. If you mark more than one answer for one question, the answer will be treated as wrong. *e.g.* If for any item, (B) is the correct answer, you have to mark as follows :

(A) ● (C) (D)
9. 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 Hall during the examination. After the examination is concluded, 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.
10. The sheet before the last page of the Question Booklet can be used for Rough Work.
11. Do not tick-mark or mark the answers in the Question Booklet.
12. Failure to comply with any of the above instructions will render you liable to such action or penalty as the Commission may decide at their discretion.

SEAL

SPACE FOR ROUGH WORK

10,000,000

1. The lateral motion of transverse fault ridges that produces sharp vertical displacement is called

- (A) Displacement of ridge axis (B) Relative displacement
 (C) Escarpment (D) Rafting

2. A typically outstanding outcrop of hard rock having erosional slopes on either side is

- (A) Hogback (B) Mesa
(C) Cuesta (D) Butte

3. San Andras fault is an example of _____ boundary.

- (A) convergent (B) plate
(C) divergent (D) transform

4. Match the following :

- | | |
|---------------|--|
| (a) Bronzite | 1. Na, Al (SiO ₃) ₂ |
| (b) Acmite | 2. (Mg, Fe) SiO ₃ |
| (c) Jadeite | 3. Li, Al (SiO ₃) ₂ |
| (d) Spodumene | 4. NaFe (SiO ₃) ₂ |

- | | (a) | (b) | (c) | (d) |
|---|-----|-----|-----|-----|
| (A) | 2 | 1 | 4 | 3 |
| <input checked="" type="checkbox"/> (B) | 2 | 4 | 1 | 3 |
| (C) | 2 | 4 | 3 | 1 |
| (D) | 4 | 2 | 1 | 3 |

5. In this theory, the sun is supposed to have formed earlier and later it gathered inter stellar material to form a disc around the sun as it sweeps in the space

- (A) Protosun theory (B) Multistar theory
(C) Evolutionary theory (D) Urey's theory

6. The edges of the land masses present below the ocean surface and steep slopes of these masses that descend to the deep sea floor are known as
- (A) continental shelf (B) continental slope
 (C) continental margin (D) continental shelf break
7. The falling tide is a
- (A) Flood tide (B) Diurnal tide
 (C) Ebb tide (D) Mixed tide
8. The cretaceous succession of Trichinopoly was first mapped and studied by
- (A) Blanford (1862) (B) W. King (1872)
 (C) H.B. Medicott (1872) (D) Edward Suess (1885)
9. The Cuddapah rocks are alternately made up of
- (A) Sandstones and Quartzites
 (B) Quartzites and Shales
 (C) Quartzites and Limestones
 (D) Limestones and Shales
10. The regional strike of Dharwar group of rocks is
- (A) N - S (B) NNW - SSE
 (C) W - E (D) NW - SE
11. Dharwars exhibit _____ plunging folds.
- (A) southerly (B) easterly
 (C) northerly (D) westerly
12. The Tsunami waves characteristically has very high velocity in the open sea having a period around
- (A) 10 - 15 minutes (B) 15 - 30 minutes
 (C) 30 - 35 minutes (D) 30 - 45 minutes

13. Ammonoids are well preserved in
- (A) Neyveli sandstone
 - (B) Sivaganga graphite deposits
 - (C) Ariyalur group
 - (D) Chalk hills of Salem
14. Dinosaur remains are identified from variegated clays of Ariyalur group in _____ formation.
- (A) Sillakudi
 - (B) Kallankurichi
 - (C) Ottakovil
 - (D) Kallamedu
15. Order of superposition of Trichy cretaceous is as follows
- (A) Niniyur, Uttatur, Trichinopoly, Ariyalur
 - (B) Ariyalur, Uttatur, Niniyur, Trichinopoly
 - (C) Uttatur, Trichinopoly, Ariyalur, Niniyur
 - (D) Trichinopoly, Niniyur, Uttatur, Ariyalur
16. B. Rama Rao has divided the Dharwars from west to east into _____ geographical groups.
- (A) 4
 - (B) 5
 - (C) 3
 - (D) 6
17. The middle division of the Deccan traps are confined to
- (A) Malwa
 - (B) Kathiawar
 - (C) Bombay
 - (D) Eastern India
18. Siderolites and Lepidorbitoides are characteristic of
- (A) Trichinopoly group
 - (B) Uttatur group
 - (C) Ariyalur group
 - (D) Niniyur group

19. Which one of the following exhibits Ammonoid type of suture?
(A) Goniatites (B) Phylloceras
(C) Orthoceras (D) Ceratites
20. Which one of the following is important lower gondwana floral assemblage?
(A) Glossopteris, Gangamopteris, Vertebraria and Gondwanadium
(B) Glossopteris, Williamsonia, Gangamopteris and Vertebraria
(C) Glossopteris, Plitophyllum, Gangamopteris and Vertebraria
(D) Glossopteris, Gangamopteris, Otozamites and Vertebraria
21. The geological range in time of Nummulites is
(A) Paleocene to Oligocene
(B) Oligocene to Miocene
(C) Paleocene to Recent
(D) Eocene to Recent
22. The ammonite possessing single foliole in the saddle is called
(A) Diphyllic (B) Monophyllic
(C) Ceratitic (D) Goniatitic
23. The variations or the evolutionary changes that occur along certain definite straight lines is known as _____ theory.
(A) continuity (B) isolation
(C) synthetic (D) orthogenesis
24. Ammonoid suture line first appeared in
(A) Triassic (B) Devonian
(C) Carboniferous (D) Permian

25. The suture line with rounded saddles and angular lobes in Ammonoid is called
- (A) Goniatic (B) Ammonitic
(C) Ceratitic (D) Nautilitic
26. Spot sampling process of collection of sedimentary rock is preferred for the study of microfossils at
- (A) predetermined stratigraphic level
(B) surface outcrop level
(C) constant vertical interval of strata ranging from 1-3 m
(D) great depth from bore holes
27. Which acid can be used for the separation of calcareous microfossils from carbonate rocks?
- (A) Hydrochloric acid (B) Nitric acid
(C) Sulphuric acid (D) Acetic acid
28. The middle Cambrian trilobite index fossil is
- (A) Olenus (B) Paradoxide
(C) Calymene (D) Phacops
29. Throw is the vertical component of
- (A) dip separation
(B) normal separation
(C) stratigraphic separation
(D) strike separation
30. The panjal thrust is seen in
- (A) Nappe zone of Simla Himalaya
 (B) Kashmir Nappe
(C) Nappe of Garhwal Himalaya
(D) Klippe of Lower Himalayas

31. If the intensity of the compressive force diminish downward, the uppermost layers moving more than the lower layers, a couple is superimposed upon the simple compression, this causes
- (A) asymmetry and overturning of folds
 - (B) symmetry and parallel folds
 - (C) asymmetry and recumbent folds
 - (D) symmetry and drag folds
32. Lithostatic pressure increases enormously with
- (A) time
 - (B) depth
 - (C) increase time with decrease depth
 - (D) increase depth with decrease time
33. Minute displacement along closely spaced fractures is called as
- (A) Drag fold
 - (B) Flexural-slip folding
 - (C) Flexure folding
 - (D) Slip folding
34. If the opposite block moves to the right, as viewed by an observer standing on one side of the fault is termed as
- (A) dextral
 - (B) sinistral
 - (C) lag
 - (D) normal
35. Of two adjacent beds, the upper one that moves away from the synclinal axis relative to the lower bed is known as
- (A) shear folding
 - (B) flexural-slip folding
 - (C) slip folding
 - (D) flow folding

36. ● Stereographic projection is derived from

- (A) Gnomonic projection
- (B) Spherical projection
- (C) Orthographic projection
- (D) Clinographic projection

37. In stereographic projection, two fold symmetry is represented by the symbol

- (A) 
- (B) 
- (C) 
- (D) 

38. In gnomonic projection, the plane of projection is usually taken as

- (A) Horizontal plane tangent to North pole of the sphere
- (B) Equatorial plane tangent to South pole of the sphere
- (C) Tangential North pole of the stereographic projection
- (D) Horizontal plane tangent to South pole of spherical projection

39. The international symbol $\bar{3}2m$ has

- (A) combination of rotation axes
- (B) rotoinversion with rotation and mirror
- (C) one rotation with parallel mirrors
- (D) three rotation axes and perpendicular mirrors

40. Dipyramid is in the class

- (A) $\frac{2}{m} \frac{2}{m} \frac{2}{m}$
- (B) $2mm$
- (C) 222
- (D) $\frac{2}{m}$

41. Leucite does not occur in
- (A) Plutonic rocks
 - (B) Volcanic rocks
 - (C) Sedimentary rocks
 - (D) Intermediate Igneous rocks

42. Match the following
- | | |
|-----------------------|--------------|
| (a) Uniaxial Negative | 1. Leucite |
| (b) Uniaxial Positive | 2. Sodalite |
| (c) Isotropic | 3. Nepheline |
| (d) Biaxial Positive | 4. Albite |

- | | (a) | (b) | (c) | (d) |
|---|-----|-----|-----|-----|
| <input checked="" type="checkbox"/> (A) | 3 | 1 | 2 | 4 |
| (B) | 4 | 2 | 3 | 1 |
| (C) | 1 | 2 | 3 | 4 |
| (D) | 4 | 3 | 2 | 1 |

43. The "Hornblende series" is more correctly called as the
- (A) Magnesio hornblende series
 - (B) Ferro hornblende series
 - (C) Magnescio Ferro hornblende series
 - (D) Magnesio hornblende-ferro hornblende series

44. Diameter of Macro-tunnel is measured
- (A) between 0.25 m to 0.5 m
 - (B) between 0.50 m to 0.60 m
 - (C) upto 0.75 m
 - (D) above 0.75 m

45. ● The constant proportion in which two or more constituents crystallize out simultaneously from a melt is termed as
- (A) Subsequent process ✓ (B) Eutectic
(C) Reaction serious (D) Assimilation
46. Plutonic rocks are always formed from the cooling of
- (A) the lava under water
(B) magma just below the surface of the earth
(C) lava over the surface of the earth
✓ (D) magma at great depths below the surface of the earth
47. Migmatites consists of two lithological elements intimately mixed, one is country rock variously altered by metamorphism and metasomatism, the other is
- (A) granulitic (B) pelitic
✓ (C) granitic (D) syenitic
48. Komatiite consist of major minerals such as
- ✓ (A) Olivine, Clinopyroxene, Orthopyroze
(B) Clino and Orthopyroxene
(C) Olivine
(D) Spinel
49. Phaneritic texture is seen in
- (A) Rhyolite (B) Andesite
(C) Basalt ✓ (D) Granite
50. The volcanic equivalent rock for monzonite is
- (A) trachyte ✓ (B) latite
(C) andesite (D) basalt

51. Match the following

- | | |
|----------------|---------------------------------|
| (a) Rhyolite | 1. Plagioclase |
| (b) Rhyodacite | 2. Plagioclase and quartz |
| (c) Dacite | 3. Sanidine, quartz |
| (d) Andesite | 4. Plagioclase, Sanidine quartz |

- | | (a) | (b) | (c) | (d) |
|---|-----|-----|-----|-----|
| (A) | 1 | 2 | 3 | 4 |
| (B) | 2 | 3 | 4 | 1 |
| <input checked="" type="checkbox"/> (C) | 3 | 4 | 2 | 1 |
| (D) | 4 | 1 | 2 | 3 |

52. The actual difference in gravity between the equator and poles is about

- | | |
|-------------|---|
| (A) 2.3 Gal | (B) 3.3 Gal |
| (C) 4.3 Gal | <input checked="" type="checkbox"/> (D) 5.3 Gal |

53. Acidic rocks contains atleast

- | | |
|-------------------|---|
| (A) 20% of silica | (B) 30% of silica |
| (C) 40% of silica | <input checked="" type="checkbox"/> (D) 50% of silica |

54. Match the following

- | | |
|------------------|---|
| (a) Harzburgite | 1. Quartz, Plagioclase |
| (b) Trondhjemite | 2. Olivine, Orthopyroxene Clinopyroxene |
| (c) Picrite | 3. Olivine, Orthopyroxene |
| (d) Lherzolite | 4. Olivine, Plagioclase, Clino-Pyroxene |

- | | (a) | (b) | (c) | (d) |
|---|-----|-----|-----|-----|
| <input checked="" type="checkbox"/> (A) | 3 | 1 | 4 | 2 |
| (B) | 1 | 2 | 3 | 4 |
| (C) | 3 | 2 | 4 | 1 |
| (D) | 1 | 3 | 2 | 4 |

55. ● Diamond pipes of South Africa are examples of

- (A) Late Magmatic Injection deposits
- (B) Early Magmatic Dissemination deposits
- (C) Syngenetic deposits
- (D) Early Magmatic segregation deposits

56. Consider the following statements

- (a) Chromite deposits have long been considered as early magmatic segregation deposits
- (b) However few workers cite evidence of late magmatic or even hydrothermal chromite.
- (A) (a) only is correct
- (B) (a) and (b) are wrong
- (C) only (b) is correct
- (D) (a) and (b) are correct

57. Match the following hydrothermal solution deposits and choose the correct answer from the codes given below

List I

List II

- | | |
|--------------------------|---|
| (a) Epithermal deposits | 1. Nearest to the intrusive |
| (b) Mesothermal deposits | 2. Very far from intrusive |
| (c) Telethermal deposits | 3. Farther from intrusive |
| (d) Hypothermal deposits | 4. Intermediate distance from intrusive |

Codes :

- | | (a) | (b) | (c) | (d) |
|---|-----|-----|-----|-----|
| (A) | 3 | 2 | 4 | 1 |
| <input checked="" type="checkbox"/> (B) | 3 | 4 | 2 | 1 |
| (C) | 3 | 4 | 1 | 2 |
| (D) | 4 | 2 | 3 | 1 |

58. The structure of Bombay High is

- (A) an elongated basin
- (B) an elongated geosyncline
- (C) an elongated dome
- (D) a faulted limestone

59. Match the List I with List II and choose the correct answer from the codes given below.

List I		List II	
(a) Acidic Refractory		1. Magnesite and dolomite	
(b) Raniganj		2. Kyanite and Sillimanite	
(c) Neutral refractory		3. Fire clays	
(d) Basic refractory		4. Chromite and graphite	
(a)	(b)	(c)	(d)
(A) 4	3	2	1
<input checked="" type="checkbox"/> (B) 2	3	4	1
(C) 3	4	1	2
(D) 1	3	2	4

60. The siwalik deposits give evidence of a _____ climate through the greater part of the period of sedimentation.

- (A) Warm humid
 (B) Humid
 (C) Cold humid
 (D) Glacial

61. Problem of ground water exists in

- (A) Sivaganga graphite mines
 (B) Neyveli lignite mines
 (C) Magnesite mine of salem
 (D) Granite mine of salem

62. At Neyveli, lignite occurs in two stratigraphic levels in

- (A) Eocene and pleistocene
 (B) Eocene and Ologocene-Miocene
 (C) Pleistocene and Holocene
 (D) Pliocene and Pleistocene

63. Andalusite is used in the manufacture of

- (A) Ceramic
 (B) Fertilizer
 (C) Mullite refractories and spark plugs
 (D) Insulator

64. ● Heavy mineral assemblage of fluorite, Garnet, Topaz and Monazite occur in
- (A) Acid igneous rocks
 - (B) Granite pegmatitis
 - (C) Basic igneous rocks
 - (D) Metamorphic rocks
65. Enstatite is a typical mineral of
- (A) Green schist facies
 - (B) Glaucophane schist facies
 - (C) Granulite facies
 - (D) Eclosite facies
66. Consider the following statements:
- (a) Fracturing, crushing and squashing of detrital grains, pressure solution and stylolite seams are diagenetic features
 - (b) The listed features point out deep burial diagenesis
- (A) Both (a) and (b) are false
 - (B) Only (a) is true
 - (C) Both (a) and (b) are true
 - (D) Only (b) is false
67. Which one of the following factor is responsible for preservation of feldspars in the sedimentary horizons?
- (A) Cold climate and quick burial
 - (B) Long distance of transportation
 - (C) Oxidising environment
 - (D) Weathering
68. Solubility of silica and quartz increases with
- (A) acidic environment, low temperature
 - (B) alkaline environment, high temperature
 - (C) brackish environment, low temperature
 - (D) low grade metamorphism

69. The series showing heavy minerals only is
- (A) Quartz, Feldspar, Garnet, Magnetite
 - (B) Zircon, Garnet, Magnetite, Ilmenite
 - (C) Monazite, Quartz, Plagioclase, Zircon
 - (D) Biotite, Quartz, Orthoclase, Magnetite
70. Alluvial deposits of roughly triangular shape that are deposited by major rivers at their mouths are
- (A) Alluvial cones
 - (B) Natural levees
 - (C) Flood plains
 - (D) Deltas
71. Actinolite widely occurs in
- (A) Soda rich granite only
 - (B) Metamorphosed limestone only
 - (C) Green Schists only
 - (D) Both (B) and (C)
72. The metamorphic petrology relies heavily on theoretical thermodynamic considerations. Because
- (A) Metamorphic system consists of volatile fluids
 - (B) Metamorphic reactions are very slow
 - (C) Metamorphic rocks suffer tectonic deformation
 - (D) There is no clear cut distinction between metamorphism and diagenesis
73. The type of metasomatism that is widespread around carbonatite intrusions is
- (A) Uralitization
 - (B) Fenitization
 - (C) Propylitization
 - (D) Sericitization

74. The term "hard" and "soft" water dates back from Hippocrates that ranges
- (A) 760–653 B.C. (B) 660–563 B.C.
(C) 560–463 B.C. (D) 460–354 B.C.
75. Temperature of ground water is generally
- (A) Higher than atmospheric temperature during winter and lower during summer
(B) Lower than atmospheric temperature during winter and higher during summer
(C) Same as atmospheric temperature in winter and summer
(D) Lower than mean annual air temperature
76. Average concentration of chloride ion in sea water is
- (A) 10,000 ppm (B) 20,000 ppm
(C) 30,000 ppm (D) 40,000 ppm
77. Tritium method is applicable for estimating groundwater residence times upto
- (A) 50,000 years (B) 5,000 years
 (C) 50 years (D) 500 years
78. Water for irrigation, after Wilcox, where the specific conductance in $\mu\text{s}/\text{cm}$ ranges from 250–750 is classified as
- (A) Excellent (B) Good
(C) Permissible (D) Doubtful
79. In U.S. Salinity Laboratory diagram, C1S3 indicates
- (A) Medium salinity low sodium hazard
(B) Low salinity medium sodium hazard
 (C) Low salinity high sodium hazard
(D) Medium salinity high sodium hazard

86. Which of the correction is not applied for the field magnetic data?
- (A) Terrain correction
 (B) Drift correction
 (C) Diurnal correction
 (D) Temperature correction
87. In resistivity prospecting, an electrode array with same inter electrode separation between two consecutive electrodes, is called
- (A) Wenner array
 (B) Schlumberger array
 (C) Dipole – Dipole array
 (D) Pole – Dipole array
88. In vertical electrical resistivity sounding
- (i) Current electrode separation remains constant
 (ii) Current electrode separation changes
 (iii) Depth of investigation remains constant
 (iv) Depth of investigation changes
- (A) (i) and (ii) only
 (B) (i) and (iii) only
 (C) (ii) and (iv) only
 (D) (iii) and (iv) only
89. Isogonic maps show lines of equal
- (A) Total magnetic field
 (B) Vertical component of magnetic field
 (C) Magnetic declination
 (D) Magnetic inclination
90. Which of the following is not an effect produced by gamma rays?
- (A) Photoelectric effect
 (B) Dielectric effect
 (C) Compton scattering
 (D) Creation of positron electron pairs

91. Kant-Laplace nebular hypothesis describes
- (A) Particles attracted by the Sun's gravity condensed into planets
 - (B) Sun and Planets were formed from the dust cloud
 - (C) Electromagnetic separation of particles and later agglomeration of planets
 - (D) Planets formed from the cooling, contracting, gravitationally segregated nebula
92. The temperature of lavas during eruptions usually ranges between
- (A) 500°C to 800°C
 - (B) 700°C to 1000°C
 - (C) 900°C to 1200°C
 - (D) 1100°C to 1400°C
93. The large sized angular solid rock fragments released in a volcanic eruption are called
- (A) volcanic tuffs
 - (B) volcanic dust
 - (C) volcanic bombs
 - (D) volcanic blocks
94. By isostatic adjustments greater length of blocks are sunken to greater depths. Shorter denser blocks are balanced by a small sinking. Who proposed this hypothesis?
- (A) J.H. Pratt
 - (B) G.B. Airy
 - (C) Heiskanen
 - (D) Vening Meinesz
95. The asthenosphere is the low velocity zone and is a weak or soft zone in the
- (A) lower mantle
 - (B) upper mantle
 - (C) upper crust
 - (D) lower crust
96. 'S'-waves do not pass through
- (A) Sedimentary rocks
 - (B) Ore bodies
 - (C) Liquids
 - (D) Solidified igneous masses
97. Mountain Building process is called as
- (A) Epirogeny
 - (B) Murogeny
 - (C) Orogeny
 - (D) Endogeny

98. The P-wave and S-wave paths within the earth emerge at an angular distance of _____ from the epicenter.
- (A) 143° (B) 103°
(C) 180° (D) 90°
99. Chemical composition of the Inner core is
- (A) Si and Mg (B) Fe and Mu
(C) Ni and Fe (D) Mg and Fe
100. Surface earthquakes are those in which the depth of the focus is less than _____ metres.
- (A) 9,000 m (B) 10,000 m
(C) 12,000 m (D) 15,000 m
101. The word 'volcano' has been derived from the Island of vulcano which lies off
- (A) one of the Indian Islands
(B) the NE coast of Sicily
(C) east coast of South America
(D) west coast of Africa
102. The boundary of core and mantle is marked by a discontinuity termed as
- (A) Moho discontinuity
(B) Weichert-Gutenberg discontinuity
(C) Conrad discontinuity
(D) Low velocity layer
103. In the basis of evolutionary changes of animals, biologists have estimated the age of the earth to be about
- (A) 500 my (B) 100 my
(C) 1000 my (D) 2000 my

104. Nautilus danicus is characteristic of
- (A) Ariyalur group (B) Trichinopoly group
 (C) Niniyur group (D) Uttatur group
105. Initial attempts to demarcate cretaceous Eocene boundary in Tamil Nadu were made on the basis of
- (A) Isotopic studies
(B) Geochemical studies
 (C) Planktonic foraminiferal studies
(D) Ammonite studies
106. A flow line is defined as a line such that the macroscopic velocity vector is everywhere
- (A) Horizontal to it
(B) Vertical to it
 (C) Tangent to it
(D) Inclined to it
107. The Deccan volcanics have erupted causing major mass extinction which is close to Cretaceous-Tertiary boundary at about
- (A) 56 million years (B) 65 million years
(C) 60 million years (D) 58 million years
108. The world famous Barite deposit of mangampet that belongs to Cuddapah occurs in _____ group.
- (A) Nallamalai (B) Papaghani
(C) Kistna (D) Cheyair
109. Which one of the following mineral is associated with champion quartz lodes and sulphide bearing reefs of Karnataka?
- (A) Iron (B) Lead
 (C) Gold (D) Zinc

110. Which one of the following is a characteristic Eocene genus that occurs in the Inter-trappean beds?
- (A) *Cardita beaumonti*
(B) *Globotruncana*
 (C) *Nipadites*
(D) *Nautilus bouchardianus*
111. Reptiles and fishes are found in
- (A) Uttatur group (B) Trichinopoly group
 (C) Ariyalur group (D) Niniyur group
112. Lameta beds in the Deccan traps are of _____ origin.
- (A) Volcanic
 (B) Fluvial and estuarine
(C) Estuarine and shallow marine
(D) Shallow marine and Aeolian
113. The four stiped graptolites is
- (A) *Bryograptus* (B) *Diplograptus*
(C) *Tetragraptus* (D) *Monograptus*
114. Cylindrical theca is exhibited by
- (A) *Didymograptus* (B) *Bryograptus*
(C) *Diplograptus* (D) *Tetragraptus*
115. Which one of the following is not an Ammonite?
- (A) *Hoplites* (B) *Acanthoceras*
 (C) *Inoceramus* (D) *Placentoceras*
116. Which one of the following exhibits a coiled shell?
- (A) *Belemnites* (B) *Cyrtoceras*
 (C) *Goniatites* (D) *Orthoceras*

117. Extinction of Ammonoids took place at the end of
(A) Triassic (B) Jurassic
(C) Permian (D) Cretaceous
118. Which one of the following graptolites appeared in the Silurian?
(A) Dictyonema (B) Bryograptus
(C) Dichograptus (D) Orthograptus
119. The geological age of Monograptus is
(A) Cambrian (B) Silurian
(C) Ordovician (D) Devonian
120. The ammonite fossil which has two rows of tubercle ornamentation is
(A) Hoplites
(B) Perisphinctes
(C) Goniatites
 (D) Acanthoceras
121. Williamsonia and Otozamites are index fossils of
(A) Upper Carboniferous to lower Triassic
(B) Upper Triassic to Lower Jurassic
 (C) Upper Jurassic to Lower Cretaceous
(D) Upper Carboniferous to Lower Permian
122. The important characteristic morphological feature of the plant fossil glossopteris of lower gondwana is
(A) . Absence of mid rib
 (B) Presence of prominent mid rib
(C) Acute apex
(D) Parallel venation

123. Under the influence of horizontal tension, which type of fault is produced?
(A) Horst (B) Graben
 (C) Gravity fault (D) Reverse fault
124. Joints perpendicular to the axes of folds then it is represent as
 (A) Extension joints (B) Release joints
(C) Mural joints (D) Master joints
125. Sudden disappearance of certain type of fossils in the succeeding beds is called
(A) Non-conformity (B) Angular unconformity
 (C) Para unconformity (D) Disconformity
126. Long linear ridges may also represent which type of fault?
(A) Thrust fault (B) Step fault
(C) Trough fault (D) Horst
127. Which one of the following is more prone to flexure folding?
 (A) Limestone (B) Clay
(C) Shale (D) Granite
128. If the wavelength of the inner thinner layers is much shorter than that of the outer layers, the folds are known as _____ folds.
(A) Parasitic (B) Harmonic
 (C) Disharmonic (D) Cylindrical
129. An unconformity can be recognised by means of
(A) direct observation
 (B) a sharp contact in the degree of intrusion
(C) by geophysical methods
(D) litholog observation

130. If the unconformity is marked by the absence of an elastic zone between younger and older sets, it is termed as
- (A) non-conformity
 - (B) paraconformity
 - (C) diastems
 - (D) angular unconformity
131. The extension joints that develop at an angle of 45° with the fault plane is called as
- (A) cross joints
 - (B) conjugate joints
 - (C) radial joints
 - (D) pinnate joints
132. The feather like markings on the joint surface is called as
- (A) feather joints
 - (B) rib marks
 - (C) plume structure
 - (D) radial joints
133. In disconformity, the younger and older set beds are
- (A) angular
 - (B) parallel
 - (C) of different origin
 - (D) separated by shorter gaps
134. The low angle normal fault with large displacement linked to an overlying system of imbricate normal faults is known as
- (A) thrust
 - (B) synthetic faults
 - (C) detachment faults
 - (D) antithetic faults
135. Hinges are sharp and angular in
- (A) Box fold
 - (B) Monocline fold
 - (C) Chevron fold
 - (D) Close fold

136. Hexoctahedron is in the class

(A) $\bar{4}3m$

(B) $\frac{4}{m} \bar{3} \frac{2}{m}$

(C) $\frac{2}{m} \bar{3}$

(D) 23

137. Ditetragonal dipyramid is in the class

(A) 422

(B) 4mm

(C) $\bar{4}2m$

(D) $\frac{4}{m} \frac{2}{m} \frac{2}{m}$

138. The optic sign of Muscovite is

(A) uniaxial +ve

(B) biaxial -ve

(C) uniaxial -ve

(D) biaxial +ve

139. Which one of the following is an orthorhombic amphibole?

(A) Anthophyllite

(B) Cummingtonite

(C) Grunerite

(D) Tremolite

140. Hardness of olivine is

(A) 5.5

(B) 6

(C) 6.5

(D) 5

141. Barium feldspar similar in composition to Anorthite but without calcium is

(A) Hyalophane

(B) Celsian

(C) Orthoclase

(D) Albite

142. Tourmaline is typically a mineral of
- (A) granite pegmatite's, pneumatolytic veins and of some granites
 - (B) not common metamorphic rock found in schist
 - (C) sedimentary rock found only in slate
 - (D) granite rock especially not in pegmatites
143. The most common type of cordierite alters to
- (A) Muscovite or chlorite
 - (B) Corundum or Beryl
 - (C) Tourmaline or Stanolite
 - (D) Sphene or Topaz
144. Optically, Andalusite is
- (A) Anisotropic, biaxial (-)
 - (B) Isotropic, biaxial (+)
 - (C) Anisotropic, Uniaxial (+)
 - (D) Isotropic, Uniaxial (-)
145. The capacity of a stone to with stand scratching or indention action is defined as its
- (A) Strength
 - (B) Hardness
 - (C) Durability
 - (D) Meability
146. Stereographic projection was first utilized by
- (A) F.E. Neumann
 - (B) W.H. Miller
 - (C) W. Phillips
 - (D) H.J. Brook
147. What is the volcanic equivalent rock of granite?
- (A) Andesite
 - (B) Syenite
 - (C) Rhyolite
 - (D) Basalt

148. The term "nuée ardente" refers to
- (A) pyroclastic deposit
 - (B) ashes travelled to a long distance
 - (C) glowing cloud overshadowing the flow
 - (D) newly formed volcanic rocks
149. High positive europium anomalies in the trace element pattern of anorthosite indicate
- (A) metasomatic homogenization of interbedded evaporites
 - (B) plagioclase equilibrated with some sort of silicate melt
 - (C) crystallization of plagioclase from basalt
 - (D) cumulates of plagioclase crystals
150. Pyroxene geothermometry of anorthosite yields crystallization temperature of
- (A) 1200°C to 1000°C
 - (B) 1400°C to 1200°C
 - (C) 1500°C to 1450°C
 - (D) 1450°C to 1350°C
151. Metasomatic rock produced by solid state transformation of older wall rocks by fluids rich in Na and K derived from carbonatite magmas
- (A) ijolite
 - (B) nepheline syenite
 - (C) fenite
 - (D) phonolite
152. The composition of shoshonite is
- (A) Olivine, Pyroxene, Plagioclase, Sanidine
 - (B) Plagioclase, Ca-Pyroxene, Sanidine
 - (C) Hornblende, Plagioclase, Mica, Sanidine
 - (D) Biotite, Plagioclase, Pyroxene, Sanidine
153. What is the silica percentage in the acid igneous rocks?
- (A) 52 - 66
 - (B) 45 - 52
 - (C) 45 or less
 - (D) 66 or more wt %

154. A granite with large anhedral grains of k-feldspar rimmed by sodic plagioclase is called
- (A) Orbicular granite (B) Spherulitic granite
 (C) Rapakivi granite (D) Porphyritic granite
155. The proper magmatic differentiation lineages of alkaline rocks is
- (A) hawiite-trachyte-phonolite-basanite
 (B) basanite-hawaiiite-trachyte-phonolite
 (C) basanite-phonolite-hawaiiite-trachyte
 (D) trachyte-phonolite-basanite-hawiite
156. An exceptionally rich shoot of gold or silver ore is designated as
- (A) Chimneys (B) Pockets
 (C) Bonanza (D) Ore shoots
157. On heating to _____ °C kyanite, Sillimanite, Andalusite and Topaz decomposes into Mullite $Al_6Si_2O_{13}$ and a silica rich glass used as a refractory.
- (A) 1450°C (B) 1200°C
 (C) 1300°C (D) 1250°C
158. High temperature hydrothermal deposits formed nearest to the intrusive are called
- (A) Epithermal deposits
 (B) Mesothermal deposits
 (C) Telethermal deposits
 (D) Hypothermal deposits
159. For cement manufacturing, 5% of gypsum is added to act as
- (A) an oxidising agent
 (B) a setting retardant
 (C) an acidity enhancer
 (D) a bonding agent

160. Which one of the following term is NOT related to ore shoot?
- (A) Bunches (B) Kidneys
(C) Nests (D) Pitches
161. Bauxite is the chief ore of
- (A) Aluminium (B) Iron
(C) Copper (D) Manganese
162. Iron deposits of Goa are mainly of
- (A) BIF (Banded Iron Formation)
(B) Blue dust
(C) Metamorphic schist
(D) BHQ (Banded Hematite Quartzite)
163. The minimum specific gravity of Baryte specified by oil well drilling companies
- (A) 4 (B) 4.05
(C) 4.1 (D) 4.15
164. Major part of the Raniganj coalfield is located in the state of
- (A) Bihar
(B) Assam
(C) West Bengal
(D) Madhya Pradesh
165. In Immisible liquid segregation the lead-zinc-copper sulphide deposits of Hesatu-Balbathan belt occurs associated with altered
- (A) Charnokite gneiss
(B) Anorthosite
(C) Chlorite
(D) Basic schists

166. Commercial extraction of graphite is in process in
- (A) Kancheepuram district (B) Salem district
 (C) Sivaganga district (D) Vellore district
167. Commercial variety of ceramic grade feldspar is chiefly obtained from
- (A) pegmatite dikes (B) schistose rocks
 (C) sandstones (D) gneissic rocks
168. Asymmetrical structures found on the bottom of some sandstone beds particularly in environments where turbidity currents have been common are known as
- (A) Current bedding (B) Flute casts
 (C) Graded bedding (D) Ripple marks
169. Which one of the following is not a bedding structure?
- (A) Scour (B) Lamination
 (C) Rosette (D) Swash mark
170. Which one of the following is not a solution structure?
- (A) Stylolite (B) Vug
 (C) Oolite (D) Geode
171. Which one of the following represents a loose network of carbonate with large voids?
- (A) Boundstone (B) Packstone
 (C) Wackestone (D) Mudstone
172. The presence of Jadeite, Pyrope and kyanite indicate _____ metamorphic facies.
- (A) Green schist (B) Amphibolite
 (C) Hornfels (D) Eclogite

173. Granulite metamorphic facies of Eskola is

- (A) high-grade, deep-seated regional metamorphism
- (B) low-grade, deep-seated regional metamorphism
- (C) high-grade, intermediate depth regional metamorphism
- (D) low-grade, intermediate depth regional metamorphism

174. Match the List I with List II and select the answer using the codes given below.

- | | |
|---------------------------------|---|
| (a) Acid igneous rocks | 1. Fluorite, Garnet, Tourmaline |
| (b) High-rank metamorphic rocks | 2. Apatite, Biotite, Hornblende, Sphene |
| (c) Pegmatite | 3. Augite, Chromite, Ilmenite and Magnetite |
| (d) Basic igneous rocks | 4. Kyanite, Sillimanite, Staurolite, Andalusite |

- | | (a) | (b) | (c) | (d) |
|--------------------------------------|-----|-----|-----|-----|
| (A) | 2 | 1 | 4 | 3 |
| (B) | 4 | 3 | 2 | 1 |
| <input checked="" type="radio"/> (C) | 2 | 4 | 1 | 3 |
| (D) | 4 | 3 | 1 | 2 |

175. Which of the following statement(s) is/are true?

- I. Contact metasomatic deposits are not found within ultrabasic rocks
- II. Contact metasomatic deposits are rarely found with mafic rocks
- III. Contact metasomatic deposits are frequently found with ultrabasic rocks
- IV. Contact metasomatic deposits can never be produced by felsic intrusives

- (A) I and II
- (B) II and III
- (C) III and IV
- (D) I and IV

176. The age of the Cuddapah rocks is approximately

- (A) 1500 million years
- (B) 1200 million years
- (C) 2000 million years
- (D) 2400 million years

177. The appropriate name for dynamo-thermal metamorphism is
- (A) Syntectonic metamorphism
 - (B) Shear metamorphism
 - (C) Burial metamorphism
 - (D) Hydrothermal metamorphism
178. A relatively impermeable formation neither containing nor transmitting water, like granite is called
- (A) Aquifer
 - (C) Aquifuge
 - (B) Aquiclude
 - (D) Aquitard
179. The intermediate zone in the zone of aeration is
- (A) Phreatic water
 - (C) Vadose zone
 - (B) Soil-water zone
 - (D) Capillary zone
180. The rate at which water of prevailing kinematic viscosity is transmitted through a unit width of aquifer under a unit hydraulic gradient is called
- (A) Intrinsic permeability
 - (B) Permeability
 - (C) Transmissivity
 - (D) Storage-coefficient
181. Tracer test can be done to determine
- (A) Porosity
 - (C) Hydraulic conductivity
 - (B) Storativity
 - (D) Transmissivity
182. The following is not a major constituent of dissolved solids in potable water
- (A) Arsenic
 - (B) Bicarbonate
 - (C) Calcium
 - (D) Silica

189. Two dimensional square shaped picture element displayed on a computer is called
- (A) Digit (B) Nadir point
 (C) Pixel (D) Origin
190. Frequency of change and arrangement of tones in an image is called
- (A) Landform (B) Texture
 (C) Contrast (D) Period
191. Visible light range of electromagnetic radiations have wavelengths between
- (A) $0.2 - 0.5 \mu m$ (B) $0.3 - 0.6 \mu m$
 (C) $0.4 - 0.7 \mu m$ (D) $0.5 - 0.8 \mu m$
192. Which of the following emit electromagnetic radiations?
- (1) Frozen water
 (2) Boiling water
 (3) Lake water
- (A) 1 only (B) 1 and 2 only
 (C) 1, 2 and 3 (D) 1 and 3 only
193. B2/B1 band ratio gives information about
- (A) Iron oxide
 (B) Clay minerals
 (C) Vegetation
 (D) Aluminum Hydroxide
194. If ' T ' is the intensity of magnetization, ' k ' is the susceptibility and ' H ' is the external magnetic field, then
- (A) $I = k/H$ (B) $I = k.H$
 (C) $I = k+H$ (D) $I = k-H$

195. Which one of the following dams is known as the safest dam?
(A) Buttress (B) Arch
(C) Earth (D) Gravity
196. _____ was driven into the hillside to intersect the ore at a lower level.
(A) Shaft (B) Ore bin
(C) Open pit (D) Adit
197. The portion of a dam that touches the ground on the upstream side is called _____ of the dam.
(A) Toe (B) Heel
(C) Axis (D) Foot
198. For the construction of which one of the following dams is sound foundation rock required?
(A) Arch dam
(B) Earth dam
(C) Embankment dam
 (D) Gravity dam
199. Brick, stone, cast iron or steel casing placed around a tunnel is called
(A) Over break (B) Face
(C) Shaft (D) Lining
200. The _____ dams are most rigid masonry or concrete dams with high unit loads.
(A) Buttress
(B) Arch
(C) Earth
 (D) Gravity

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