

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

Test Booklet Series

T. B. C. : GGM – 4/2019

A

TEST BOOKLET

**MINING OFFICER
(APPLIED GEOLOGY)**

Sl. No. **4000**

Time Allowed : 3 Hours

PAPER – II

Maximum Marks : 300

: INSTRUCTIONS TO CANDIDATES :

1. IMMEDIATELY AFTER COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET OF THE SAME SERIES ISSUED TO YOU.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES 'A, B, C OR D, AS THE CASE MAY BE, IN THE APPROPRIATE PLACE IN THE ANSWER SHEET USING BALL POINT PEN (BLUE OR BLACK).
3. You have to enter your **Roll No.** on the Test Booklet in the Box provided alongside. **DO NOT** write *anything else* on the Test Booklet.
4. **YOU ARE REQUIRED TO FILL UP & DARKEN ROLL NO., TEST BOOKLET / QUESTION BOOKLET SERIES IN THE ANSWER SHEET AS WELL AS FILL UP TEST BOOKLET / QUESTION BOOKLET SERIES AND SERIAL NO. AND ANSWER SHEET SERIAL NO. IN THE ATTENDANCE SHEET CAREFULLY. WRONGLY FILLED UP ANSWER SHEETS ARE LIABLE FOR REJECTION AT THE RISK OF THE CANDIDATE.**
5. This Test Booklet contains **150** items (questions). Each item (question) comprises four responses (answers). You have to select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer), you should mark (darken) the response (answer) which you consider the best. In any case, choose **ONLY ONE** response (answer) for each item (question).
6. You have to mark (darken) all your responses (answers) **ONLY** on the **separate Answer Sheet** provided by using **BALL POINT PEN (BLUE OR BLACK)**. See instructions in the Answer Sheet.
7. All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet. **There will be no negative markings for wrong answers.**
8. Before you proceed to mark (darken) in the Answer Sheet the responses to various items (questions) in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions sent to you with your **Admission Certificate**.
9. After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the *Answer Sheet* issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the **Test Booklet**, after completion of the examination, for your reference.
10. Sheets for rough work are appended in the Test Booklet at the end.

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SEAL

1. Turbidity currents commonly deposit :
 - (A) Shale
 - (B) Limestone
 - (C) Arkose
 - (D) Graywacke

2. Which kind of information can be determined from sedimentary structures ?
 - (A) Topping direction
 - (B) Means of transport of sediment
 - (C) Depositional environment
 - (D) All of these

3. Which type of cross bedding is definite indicator of tidal environment ?
 - (A) Epsilon cross bedding
 - (B) Herringbone cross bedding
 - (C) Hummocky cross bedding
 - (D) Trough cross bedding

4. Allochems in limestone consists of :
 - (A) Micrite only
 - (B) Spar only
 - (C) Ooids only
 - (D) Bioclasts and ooids

5. Which of the following does not contain information about paleocurrents ?
 - (A) Planar cross bedding
 - (B) Parting lineation
 - (C) Asymmetric ripples
 - (D) Laminar bedding

6. The diameter of sand size is 1 mm. In Phi(Φ) grade, it is equivalent to :
 - (A) - 1
 - (B) 0
 - (C) 1
 - (D) 2

7. Breccia and conglomerate differ in :
 - (A) Size of the clasts
 - (B) Shape of the clasts
 - (C) Cementing materials
 - (D) Environment of deposition

8. Which of the following properties does not affects the permeability of the sandstone ?
 - (A) Pore size
 - (B) Sorting
 - (C) Tortuosity of the pores
 - (D) Mineralogy of the framework grains

9. A salt dome is characterised by :
- (A) Low velocity and low density
 - (B) Low velocity and high density
 - (C) High velocity and high density
 - (D) High velocity and low density
10. Rift valleys are bounded by :
- (A) Normal faults
 - (B) Reverse faults
 - (C) Strike slip faults
 - (D) Transform faults
11. Which of the following sedimentary rocks indicate long distance transportation of the sediments ?
- (A) Quartz sandstone
 - (B) Breccia
 - (C) Arkose (sandstone with lots of feldspar particles)
 - (D) None of these
12. _____ is well-sorted sandstone containing upto 75% quartz, with rock fragments in excess of feldspar.
- (A) Arkose
 - (B) Lithic arenite
 - (C) Quartz arenite
 - (D) Feldspathic arenite
13. Mud-supported limestone containing greater than 10% allochems is called _____.
- (A) Packstone
 - (B) Wackestone
 - (C) Grainstone
 - (D) Mudstone
14. A vertical sequence of rocks that changes from sandstone at the base through shale to limestone at the top of the sequence indicates a :
- (A) Transgression
 - (B) Regression
 - (C) Lagoonal environment
 - (D) Braided river
15. Shale displays fissility because of the :
- (A) Recrystallization of minerals
 - (B) Parallel arrangement of clay minerals
 - (C) Shearing
 - (D) Presence of mica plates

16. Prior to compaction, deposits of sand in a quiet environment may have:
- (A) 20-30% volume open pore space
 - (B) 80-90% volume open pore space
 - (C) 40-50% volume open pore space
 - (D) 60-70% volume open pore space
17. Cubic packing of uniform size grains result in:
- (A) 48% porosity
 - (B) 26% porosity
 - (C) 32% porosity
 - (D) 65% porosity
18. Coral reefs are generally found in:
- (A) Polar regions
 - (B) Tropical regions
 - (C) Mid-latitude region
 - (D) Subtropical region
19. Amongst the following rock types, we can expect best porosity in:
- (A) Shaly siltstone
 - (B) Granular sandstone
 - (C) Medium grained sandstone
 - (D) Silty shale
20. In a rift basin, sandstones are likely to be:
- (A) Arkosic in composition
 - (B) Litharenitic in composition
 - (C) Quartz arenitic in composition
 - (D) Greywacke in composition
21. The Siwalik basin is classified as:
- (A) Back-arc Basin
 - (B) Fore-arc Basin
 - (C) Foreland Basin
 - (D) Intracratonic Basin
22. Guano is:
- (A) Calcereous deposits
 - (B) Phosphatic deposits
 - (C) Ferruginous deposits
 - (D) Siliceous deposits

23. Which of the following method is used for detailed exploration oil and gas ?
- (A) Gravity method
 - (B) Seismic refraction method
 - (C) Magnetic method
 - (D) Seismic reflection method
24. Seismic survey is used in exploration most often to determine :
- (A) The presence or absence of ore minerals associated with petroleum
 - (B) The presence or absence of a petroleum deposit
 - (C) Whether there are rock structures that could trap petroleum
 - (D) Whether there have been changes in petroleum deposits over time
25. Reservoirs with grains that have the same size are called :
- (A) Well Sorted
 - (B) Poorly Sorted
 - (C) Half Sorted
 - (D) Fully Sorted
26. The distribution of grain sizes within a reservoir refers to :
- (A) Compaction
 - (B) Sorting
 - (C) Packing
 - (D) Cementation
27. Primary porosity is defined as :
- (A) Pore space created by dissolution or fracturing of rock
 - (B) Pore space that is interconnected
 - (C) Pore space that is isolated or not interconnected
 - (D) Pore space created during deposition of sediments
28. For seismic S-wave velocity (V), the rigidity modulus (μ) is proportional to :
- (A) \sqrt{V}
 - (B) V^2
 - (C) V^3
 - (D) V

29. Which of the following logging techniques is best suited to estimate the shaliness of hydrocarbon reservoirs ?
- (A) Resistivity
 - (B) Sonic
 - (C) Induction
 - (D) Gamma ray
30. Choose the correct combination of the ore and location of its deposits :
- (A) Uranium -- Jaduguda
 - (B) Lead -- Khètri
 - (C) Gold -- Panna
 - (D) Iron -- Malanghand
31. Which of the following variety of limestone is entirely composed of organic matter ?
- (A) Coquina
 - (B) Encrinites
 - (C) Spengenite
 - (D) Oolite
32. Which of the following structures is of Bombay High ?
- (A) Doubly-plunging anticline
 - (B) Doubly-plunging syncline
 - (C) Non-plunging anticline
 - (D) Non-plunging syncline
33. The polished and straited surface resulting due to friction along a fault plane is called as :
- (A) Slickenside
 - (B) Lamination
 - (C) Ventifact
 - (D) None of these
34. The resulting movement in a transcurrent fault is predominantly :
- (A) Vertical
 - (B) Horizontal
 - (C) Along the dip of fault
 - (D) Along the dip of bed

35. The isotope ^{14}C is produced in the earth atmosphere by the interaction of cosmic rays with :
- (A) ^{16}O resulting in release of α particles
- (B) ^{14}N absorbing the neutron and releasing the proton
- (C) ^{10}B resulting in the addition of two α particles
- (D) ^{13}C absorbing a neutron
36. Ratios of elemental abundances of the bulk earth are similar to that of :
- (A) Moon
- (B) Fe-Ni meteorites
- (C) Chondrites
- (D) Basaltic chondrites
37. The space lattice structure of minerals is determined by :
- (A) Chemical analysis
- (B) Scanning Electron Microscopy
- (C) X-ray diffraction
- (D) ICP-MS
38. Which of the following represents the correct order of abundance of elements in the earth's crust ?
- (A) $\text{Si} > \text{O} > \text{Fe} > \text{Al} > \text{Ca} > \text{Mg}$
- (B) $\text{O} > \text{Al} > \text{Fe} > \text{Mg} > \text{Ca} > \text{Si}$
- (C) $\text{O} > \text{Si} > \text{Fe} > \text{Mg} > \text{Ca} > \text{Al}$
- (D) $\text{O} > \text{Si} > \text{Al} > \text{Fe} > \text{Mg} > \text{Ca}$
39. Platinum Group Elements are :
- (A) Lithophile only
- (B) Chalcophile only
- (C) Siderophile only
- (D) Both chalcophile and siderophile
40. The wave length range of the microwave region of electromagnetic radiation is :
- (A) 0.4 to 0.7 μm
- (B) 1 mm to 1 m
- (C) 1.3 to 3 μm
- (D) 3 to 14 μm

41. GPS is used as :
- (A) Gravity Profiling System
 - (B) Gas Prospective System
 - (C) Ground Penetrating System
 - (D) Geographic Location System
42. An igneous rock comprising predominantly of quartz and K-feldspar can be classified as :
- (A) Gabbro
 - (B) Granite
 - (C) Peridotite
 - (D) Tonalite
43. The surface expression of the lithosphere descending into the asthenosphere is known as :
- (A) Island Arc
 - (B) Benioff Zone
 - (C) Canyon
 - (D) Trench
44. Which of the following formation is rich in lignite with its correct stratigraphic age ?
- (A) Palana Formation – Paleocene
 - (B) Disang Formation – Eocene
 - (C) Subhatu Formation – Eocene
 - (D) Kopili Formation – Oligocene
45. In India, bituminous coals are found at :
- (A) Palana
 - (B) Neyveli
 - (C) Jharia
 - (D) Kutch
46. Phosphorite deposits are found in which stratigraphic unit ?
- (A) Udaipur Group
 - (B) Sausar Group
 - (C) Nallamalai Group
 - (D) Kaimur Group
47. The disappearance of dinosaurs marks the end of which geological era ?
- (A) Precambrian
 - (B) Cambrian
 - (C) Mesozoic
 - (D) Cenozoic

48. The Earthquakes with deep foci (~700 km) are common in :
- (A) Mid-oceanic ridges
(B) Continental rifts
(C) Himalayan Mountain Belts
(D) Island Arc
49. "Ediacaran Fossils" have significance in determining the :
- (A) Archean / Proterozoic boundary
(B) Precambrian / Cambrian boundary
(C) Permian / Triassic boundary
(D) Cretaceous / Tertiary boundary
50. Ammonoids are abundantly present in which of the following rock sequence ?
- (A) Gondwana
(B) Cuddapah
(C) Jurassic of Kutch
(D) Siwalik
51. Conversion of remains of plants and animals into rocks is known as :
- (A) Transformation
(B) Petrification
(C) Alteration
(D) Lithification
52. The fossils which had short geological duration but wide geographical distribution are called as :
- (A) Type fossils
(B) Rare fossils
(C) Index fossils
(D) Typical fossils
53. Most faults in the Himalayas are :
- (A) Strike-slip
(B) Thrust
(C) Normal
(D) Transform
54. Which of the following minerals in Moh's scale of hardness is a silicate ?
- (A) Topaz
(B) Apatite
(C) Fluorite
(D) Corundum

55. Find the odd one out of the following :
- (A) Enstatite
 - (B) Hypersthene
 - (C) Anthophyllite
 - (D) Diopside
56. Tetrahedra structure of a silicate minerals develops Si : O ratio of 4 : 11. The silicate structure of the mineral is :
- (A) Nesosilicate
 - (B) Inosilicate
 - (C) Tectosilicate
 - (D) Sorosilicate
57. Find the odd one out of the following pairs :
- (A) Aragonite – Calcite
 - (B) Diamond – Graphite
 - (C) Quartz – Chalcedony
 - (D) Microcline – Labradorite
58. Mesozoic-Cenozoic boundary is placed at:
- (A) 75 Ma
 - (B) 65 Ma
 - (C) 45 Ma
 - (D) 110 Ma
59. A line on a map connecting points of equal elevation is called :
- (A) Map line
 - (B) Base line
 - (C) Contour line
 - (D) Isotherm
60. In which of the following regions, the thickness of the crust is maximum ?
- (A) Continental rifts
 - (B) Mid-oceanic ridges
 - (C) Orogenic belts
 - (D) Passive margins
61. Reverse faults are responsible for :
- (A) Lengthening of the strata
 - (B) Shortening of the strata
 - (C) Overturning of the strata
 - (D) Thinning of the strata
62. If the heave of a fault is zero, then the fault is :
- (A) High angle fault
 - (B) Low angle fault
 - (C) Horizontal fault
 - (D) Vertical fault

63. Taking a photograph of an object on a clear bright day is an example of :
- (A) Active remote sensing
 (B) Passive remote sensing
 (C) Microwave remote sensing
 (D) Thermal remote sensing
64. Which one of the following was the first Indian Remote Sensing Satellite ?
- (A) Rohini
 (B) IRS-1A
 (C) Bhaskara-1
 (D) Cartosat
65. Which one of the following methods is used for dating recent geological events ?
- (A) $^{235}\text{U} - ^{206}\text{Pb}$
 (B) ^{14}C
 (C) $^{40}\text{K} - ^{40}\text{Ar}$
 (D) $^{87}\text{Rb} - ^{87}\text{Sr}$
66. Which of the following is the ore of tungsten ?
- (A) Psilomelane
 (B) Azurite
 (C) Scheelite
 (D) Pyrite
67. The petroleum deposits of Digboi oil field occur in the rock formation of :
- (A) Miocene age
 (B) Oligocene age
 (C) Eocene age
 (D) Jurassic age
68. Fault line, railway line and roads are best represented in GIS by :
- (A) TIN models
 (B) Raster data models
 (C) Vector data models
 (D) Georelational data models
69. Geiger-Muller Counter is commonly used for the exploration of :
- (A) Uranium deposits
 (B) Bauxite deposits
 (C) Iron ore deposits
 (D) Copper ore deposits

70. How many silicate minerals in the Moh's scale of hardness ?
- (A) 7
 - (B) 5
 - (C) 3
 - (D) 4
71. Which one is the main constituent of gas form of petroleum ?
- (A) Propane
 - (B) Butane
 - (C) Methane
 - (D) Ethane
72. Which of the following mineral is most resistant to weathering ?
- (A) Muscovite
 - (B) Biotite
 - (C) Calcite
 - (D) Quartz
73. Twinning observed in plagioclase :
- (A) Carlsbad twinning
 - (B) Polysynthetic twinning
 - (C) Penetration twinning
 - (D) Cross-hatch twinning
74. Which mineral is used for the age determination of the Vindhyan Sandstone ?
- (A) Quartz
 - (B) Pyrite
 - (C) Glauconite
 - (D) Ilmenite
75. "Smith test" is used to determine the following properties of the building stone ?
- (A) Density
 - (B) Porosity
 - (C) Durability
 - (D) Permeability
76. Which of the following is a geostationary satellite ?
- (A) Landsat
 - (B) INSAT
 - (C) SPOT
 - (D) IRS
77. The graphite deposits of Odisha are associated with :
- (A) Granite
 - (B) Basic granulite
 - (C) Charnokite
 - (D) Khondalite

78. Manganese desposits of Madhya Pradesh and Maharashtra belt are associated with rocks of :
- (A) Sakoli Group
 - (B) Mahakoshal Group
 - (C) Bababudan Group
 - (D) Sausar Group
79. The volcanic equivalent of Diorite is :
- (A) Rhyolite
 - (B) Andesite
 - (C) Trachyte
 - (D) Basalt
80. If the color of gossan is black, it indicates the presence of :
- (A) Copper
 - (B) Iron
 - (C) Manganese
 - (D) Graphite
81. Heavy minerals are those which have specific gravity of more than :
- (A) 3.52
 - (B) 2.87
 - (C) 3.00
 - (D) 3.87
82. The bauxite of East-coast bauxite deposit is formed from rock like :
- (A) Granite
 - (B) Basalt
 - (C) Khondalite
 - (D) Charnokite
83. Which of the following formation contains asbestos deposits in Andhra Pradesh ?
- (A) Gulcheru
 - (B) Vampalle
 - (C) Cumbum
 - (D) Bairenkonda
84. Maximum separation of the reflectance value of vegetation, soil and water is seen in :
- (A) Green band
 - (B) Red band
 - (C) Infrared band
 - (D) Blue band
85. Bauxite is a :
- (A) Residual deposit
 - (B) Chemical deposit
 - (C) Transported deposit
 - (D) Ferruginous deposit

86. Fuel ratio of a coal is defined by :
- (A) Organic sulphur / Organic phosphorous
 - (B) Moisture / Volatile matter
 - (C) Volatile matter / Ash content
 - (D) Fixed carbon / Volatile matter
87. Spatial resolution of the passive sensors depends on their :
- (A) GPS
 - (B) FOV
 - (C) IFOV
 - (D) Pixel
88. Which of the following data gives maximum vertical accuracy ?
- (A) RADAR
 - (B) LIDAR
 - (C) Thermal Image
 - (D) Microwave
89. Kimberlite indicates the possibility of the presence of:
- (A) Ruby
 - (B) Diamond
 - (C) Kyanite
 - (D) Sapphire
90. The primary source of energy that moves heat and water through the hydrosphere and atmosphere is :
- (A) Wind energy
 - (B) Solar energy
 - (C) Heat energy released from the earth
 - (D) None of these
91. What percentage of earth's water is fresh water ?
- (A) 50%
 - (B) 22%
 - (C) 3%
 - (D) 7%
92. Best grade chromite in India mined in which state ?
- (A) Rajasthan
 - (B) Bihar
 - (C) Odisha
 - (D) Jharkhand
93. The study of earthquakes is called :
- (A) Petrology
 - (B) Seismology
 - (C) Paleontology
 - (D) Petrography

94. The point of origin of earthquakes below the earth's surface is called :
- (A) Isocenter
 - (B) Focus
 - (C) Epicenter
 - (D) Isopoint
95. The magnitude of an earthquake is based on :
- (A) Time period
 - (B) Frequency
 - (C) Amplitude
 - (D) Intensity
96. Which one of the following is a trace fossil ?
- (A) Shells
 - (B) Bones
 - (C) Teeth
 - (D) Burrows
97. In IR band water body is marked by which of the following color ?
- (A) Dark color
 - (B) White color
 - (C) Red color
 - (D) Blue color
98. The average radius of the Earth is :
- (A) 5420
 - (B) 6370
 - (C) 9880
 - (D) 3340
99. Odham discontinuity marks the boundary between :
- (A) Crust and Upper Mantle
 - (B) Mantle and Outer core
 - (C) Outer core and inner core
 - (D) Upper mantle and lower mantle
100. The average thickness of the earth crust is :
- (A) 11 km
 - (B) 22 km
 - (C) 33 km
 - (D) 65 km
101. What is the average height of the GPS satellite from the earth surface ?
- (A) 36100 km
 - (B) 20200 km
 - (C) 40000 km
 - (D) 45000 km

102. The abbreviation DEM in remote sensing stands for :
- (A) Digital Electro Magnetism
 (B) Digital Elevation Model
 (C) Digitally Enhanced Measurement
 (D) Digital Exponential Magnitude
103. Name the first Indian Satellite :
- (A) Rohini
 (B) Bhaskar
 (C) INSAT-1
 (D) Aryabhata
104. The arrangement of terrain features which provide shape, size and textural attributes is called :
- (A) Temporal variation
 (B) Spectral variation
 (C) Altitude variation
 (D) Apatial variation
105. Uniconformity between igneous and sedimentary strata is called :
- (A) Angular unconformity
 (B) Disconformity
 (C) Non-conformity
 (D) Local unconformity
106. The age of Nautilus is :
- (A) Triassic to present
 (B) Cretaceous to present
 (C) Jurassic to present
 (D) Cambrian to present
107. The grade of an ore body, which can be economically mined, is named as :
- (A) Average grade
 (B) Cut-off grade
 (C) Absolute grade
 (D) Mill grade
108. Which rock has maximum specific yield ?
- (A) Khondalite
 (B) Limestone
 (C) Sandstone
 (D) Unconsolidated sand

109. Altimeter is used in aerial photography:

- (A) For recording temperature
- (B) For recording speed of aeroplane
- (C) For recording atmospheric pressure
- (D) For recording height from MSL

110. For stereoscopic study, the overlap of aerial photographs should be better, if overlap is:

- (A) 5%
- (B) 66%
- (C) 30%
- (D) 15%

111. The gem variety of olivine is:

- (A) Epidote
- (B) Ruby
- (C) Peridot
- (D) Zirconium

112. Lahar deposits are formed by:

- (A) Detrital sediments

- (B) Organic sediments
- (C) Chemical sediments
- (D) Volcaniclastic sediments

113. The eutectic intergrowth of orthoclase and quartz produce well known rock:

- (A) Perthite
- (B) Syenite
- (C) Graphic granite
- (D) Graphic rhyolite

114. What are the cleavage angles in Hornblende?

- (A) 60° and 86°
- (B) 56° and 124°
- (C) 56° and 154°
- (D) 87° and 93°

115. The drifting of continents began during:

- (A) Late Precambrian
- (B) Permo-carboniferous
- (C) Mesozoic
- (D) Devonian

116. Columnar joints in basalt are :

- (A) Shear joints
- (B) Tension joints
- (C) Dip joints
- (D) Strike joints

117. Presence of unconformity in a rock

sequence can be recognized by :

- (A) Angular relationship
- (B) Presence of conglomerate
- (C) Residual soil
- (D) All of these

118. The space based remote sensing

sensors operate from an altitude between :

- (A) 10-100 km
- (B) 100-300 km
- (C) 200-20000 km
- (D) 200-40000 km

119. Which one of the following is GIS

software ?

- (A) Arc GIS
- (B) Map Info
- (C) IDRISI
- (D) All of these

120. Indian satellite CARTOSAT-2

launched by ISRO in the year :

- (A) 2007
- (B) 2006
- (C) 2012
- (D) 2016

121. Wavelength of radio wave is :

- (A) > 20 cm
- (B) between 10-30 cm
- (C) > 30 cm
- (D) > 50 cm

122. The live planet is known as :

- (A) Venus
- (B) Pluto
- (C) Earth
- (D) Mars

123. In a 1 : 50,000 scale topographic

map a distance of 0.25 cm

represents :

- (A) 1250 m
- (B) 125 m
- (C) 250 m
- (D) 500 m

124. Coral reefs are generally found in the latitudinal extensions of :

- (A) 20° N 20° S
- (B) 30° N 30° S
- (C) 60° N 60° S
- (D) 50° N 50° S

125. The "Iddiki" dam in Kerala belongs to which type of dam ?

- (A) Gravity dam
- (B) Arch dam
- (C) Earthen dam
- (D) Butteres dam

126. Gold mine in India is located at :

- (A) Khetri
- (B) Kolar
- (C) Zawar
- (D) Juduguda

127. Which one of the following is a fertilizer mineral ?

- (A) Quartz
- (B) Feldspar
- (C) Gypsum
- (D) Mica

128. What percentage of the earth's atmosphere does O_2 comprise ?

- (A) 21%
- (B) 71%
- (C) 45%
- (D) 3%

129. Which gas makes the majority of our atmosphere ?

- (A) Oxygen
- (B) Carbon dioxide
- (C) Nitrogen
- (D) Ozone

130. Wave generated by underwater earthquakes is called :

- (A) El-nino
- (B) Tidal wave
- (C) Tsunami
- (D) Microwave

131. The "Seismic shadow zone angle" that exist from the epicenter is :

- (A) 48° to 92°
- (B) 105° to 143°
- (C) 145° to 165°
- (D) 165° to 178°

132. Seismic P-waves can travel through :
- (A) Crust only
 - (B) Mantle only
 - (C) Mantle and core
 - (D) Crust, mantle and core
133. The total number of Rare Earth Elements (REE) is :
- (A) 15
 - (B) 17
 - (C) 18
 - (D) 26
134. The core of the earth is made up of :
- (A) Nickel and iron
 - (B) Nickel and chromium
 - (C) Iron and calcium
 - (D) Silica and Iron
135. Lapsa Buru mineral deposit is famous for which mineral ?
- (A) Kyanite
 - (B) Actinolite
 - (C) Mica
 - (D) Uranium
136. Bilaspur Dam is constructed on which river ?
- (A) Chambal River
 - (B) Banas River
 - (C) Luni River
 - (D) Son River
137. An example of Embankment dam is :
- (A) Bilaspur Dam
 - (B) Hirakud Dam
 - (C) Sai Dam
 - (D) Mahi Dam
138. Monazite is produced most abundantly in :
- (A) Bihar
 - (B) Odisha
 - (C) Rajasthan
 - (D) Kerala
139. Goldschmidt's phase rule is expressed as :
- (A) $F = C + 2 - P$
 - (B) $F = C + P - 2$
 - (C) $F = C + 2$
 - (D) $F = C - P + 1$

140. The age of the Singhbhum Granite

is :

- (A) 2000-2400 Ma
- (B) 3000-3400 Ma
- (C) 1000-1400 Ma
- (D) 100-400 Ma

141. Which is the radiogenic isotope of Lead ?

- (A) Pb^{204}
- (B) Pb^{206}
- (C) Pb^{207}
- (D) Pb^{208}

142. Athgarh(Odisha) is known for :

- (A) Cretaceous fossils
- (B) Cambrian fossils
- (C) Carboniferous fossils
- (D) Jurassic fossils

143. The red color iron rich soil is known

as :

- (A) Loamy soil
- (B) Alluvial soil
- (C) Laterite
- (D) Lime soil

144. A static test concluded to know the

in-situ deformation of rocks, is known

as :

- (A) RQD
- (B) Jill test
- (C) Crushing test
- (D) Jack test

145. The property of a rock to transmit

fluids through it, is known as :

- (A) Porosity
- (B) Permeability
- (C) Transmittivity
- (D) Hydraulic conductivity

146. Which planet has highest density

among these ?

- (A) Mercury
- (B) Earth
- (C) Mars
- (D) Venus

147. Which one is high temperature

feldspar ?

- (A) Sanidine
- (B) Microcline
- (C) Orthoclase
- (D) Albite

148. Which one is a pyroclastic rock ?

- (A) Pitchstone
- (B) Ignimbrite
- (C) Rhyolite
- (D) Obsidian

149. Destructive plate boundary is also known as :

- (A) Conservative plate boundary
- (B) Diverging plate boundary

(C) Converging plate boundary

(D) Transform plate boundary

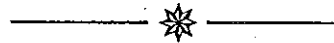
150. Major part of Odisha state comes under which seismic zone ?

(A) I

(B) III

(C) II

(D) IV



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