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TEST BOOKLET

Sl. No. **00045**

Subject Code : 11

Subject : Geology

LECTURERS FOR NON-GOVT. AIDED COLLEGES OF ODISHA

Time Allowed : 3 Hours

Maximum Marks : 165

: INSTRUCTIONS TO CANDIDATES :

1. **IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET CONTAINS 23 PAGES AND DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.**
2. 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.

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3. The Test Booklet contains **165** questions. Each question comprises four answers. You have to select the correct answer which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct answer, you should mark (darken) the answer which you consider the best. In any case choose **ONLY ONE** answer for each question. If more than one answer is darkened it will be considered as wrong.
4. You have to mark (darken) all your answers **ONLY** on the **separate OMR Answer Sheet** provided, by **using BLACK BALL POINT PEN**. You have to do rough work on the space provided in the Test Booklet only. See instruction in the Answer Sheet.
5. All questions carry equal marks, i.e. of one mark for each correct answer and each wrong answer will result in negative marking of **0.25** mark.
6. Before you proceed to mark (darken) in the Answer Sheet the answers to various questions in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions in your Admit Card.
7. After you have completed filling in all your answers on the Answer Sheet and after completion of the examination, you should hand over to the Invigilator the **Original Answer Sheet (OMR 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.

SEAL

Candidate's full signature

Invigilator's signature

RS – 23/21

(Turn over)

2018

1. Which one of the following drives the Earth's internal heat engine ?
 - (A) Solar energy
 - (B) Volcanoes
 - (C) Radioactivity
 - (D) Ocean tides
2. The characteristic mineral of lower mantle is :
 - (A) Rutile
 - (B) Anatase
 - (C) Perovskite
 - (D) Spinel
3. The asthenosphere is :
 - (A) Hot and weak
 - (B) Hot and strong
 - (C) Cool and strong
 - (D) Cool and weak
4. With how many large rigid plates the Earth's lithosphere is broken into :
 - (A) 50
 - (B) 5
 - (C) 12
 - (D) 75
5. New seafloor is created at a :
 - (A) Transform fault
 - (B) Subduction zone
 - (C) Mid-oceanic ridge
 - (D) Deep sea trench
6. The process by which the oceanic lithosphere descends into the mantle is called :
 - (A) Subduction
 - (B) Contraction
 - (C) Divergence
 - (D) Convergence
7. Which one will be produced by mechanical weathering ?
 - (A) Calcium carbonate
 - (B) Quartz
 - (C) Smaller particles
 - (D) Large particles
8. Which mineral is least susceptible to chemical weathering at the Earth's surface ?
 - (A) Quartz
 - (B) Calcite
 - (C) Plagioclase
 - (D) Olivine
9. When a rock breaks into smaller pieces, the surface area to volume ratio :
 - (A) Decreases
 - (B) Increases
 - (C) Remains the same
 - (D) Increase or decrease

10. Which one of the following minerals is most stable at the Earth's surface ?
- (A) Mica
 - (B) Olivine
 - (C) Hematite
 - (D) Feldspar
11. An oblique-slip fault suggests ?
- (A) Tensional forces only
 - (B) Shear forces combined with compressive or tensional forces
 - (C) Shear forces only
 - (D) Compressive forces only
12. Exfoliation domes form :
- (A) Pressure release
 - (B) Hydrolysis
 - (C) Root wedging
 - (D) Frost wedging
13. Which one of the following forces dominate at divergent plate margins ?
- (A) Shearing forces
 - (B) Tensional forces
 - (C) Compressive forces
 - (D) Longitudinal forces
14. At convergent plate boundaries one would expect to find :
- (A) Only faults
 - (B) Only folds
 - (C) Both faults and folds
 - (D) Neither folds nor faults
15. In an overturned fold :
- (A) Two limbs dip in the same direction with one of them tilted beyond vertical
 - (B) Two limbs dipping in opposite direction
 - (C) Two limbs not parallel to each other
 - (D) Two limbs at right angles to one another
16. What types of faults are expected to associated with shearing forces ?
- (A) Normal faults
 - (B) Reverse faults
 - (C) Strike-slip faults
 - (D) Oblique faults
17. Which conditions would favor folding rather than faulting ?
- (A) High temperatures and high confining pressures
 - (B) Low temperatures and high confining pressures
 - (C) High temperatures and low confining pressures
 - (D) Low temperatures and low confining pressures

18. In listric fault morphologies, fault planes are always :
- (A) Convex upwards
 - (B) Concave upwards
 - (C) Planar
 - (D) Horizontal
19. Dip-slip faults are associated with :
- (A) Shearing
 - (B) Tensional
 - (C) Compressive
 - (D) Tensional and Compressive
20. Valley glaciers are also known as :
- (A) Lowland glaciers
 - (B) Alpine glaciers
 - (C) Gorge glaciers
 - (D) Upland glaciers
21. At what altitude does the snow line lie at the equator :
- (A) About 5000 meters
 - (B) About 2000 meters
 - (C) About 15000 meters
 - (D) About 7500 meters
22. Amphitheater-like hollow that forms at the head of a glacier is called :
- (A) Horn
 - (B) Cirque
 - (C) Moraine
 - (D) Kettle
23. During which Epoch the recent ice ages occurred :
- (A) Pleistocene
 - (B) Pliocene
 - (C) Permian
 - (D) Paleozoic
24. Which of the following are not related to wind erosion ?
- (A) Ventifact
 - (B) Deflation
 - (C) Loess
 - (D) Blowout
25. On which fundamental principle photogrammetry is based upon ?
- (A) Interference
 - (B) Triangulation
 - (C) Resection
 - (D) Intersection
26. Coherence of two electromagnetic waves takes place if their phase difference is :
- (A) Constant in time
 - (B) Constant in space
 - (C) Constant in space and time
 - (D) Infinite
27. The mantle consists mainly of :
- (A) Granitic rocks
 - (B) Basaltic rocks
 - (C) Gabbroic rocks
 - (D) Ultramafic rocks

28. Which of the following regions consists primarily of olivine and pyroxene ?
- (A) Continental crust
 - (B) Upper mantle
 - (C) Oceanic crust
 - (D) Core
29. The coherence length over which there is a strong relationship between amplitudes is :
- (A) Directly proportional to the bandwidth
 - (B) The square of the bandwidth
 - (C) Inversely proportional to the bandwidth
 - (D) The cube of the bandwidth
30. Why do magmas rise towards Earth's surface ?
- (A) Magmas are more viscous than solid rocks in the crust and upper mantle
 - (B) Most magmas are richer in silica than most crustal and upper mantle rocks
 - (C) Magmas, being melts and having gases, are less dense than the adjacent solid rock
 - (D) Magmas have higher content of pyroxenes than the surrounding rocks
31. A thrust fault is a :
- (A) Normal fault
 - (B) Low angle reverse fault
 - (C) Decollement
 - (D) Wrench fault
32. At transform plate boundaries :
- (A) Two plates slip horizontally past each other
 - (B) Two plates move in opposite directions towards each other
 - (C) Two plates move in opposite directions away from each other
 - (D) Two plates are subducted beneath each other
33. India separated from Seychelles during :
- (A) 65 Ma
 - (B) 83 Ma
 - (C) 123 Ma
 - (D) 140 Ma
34. Stishovite is a polymorph of :
- (A) Olivine
 - (B) Garnet
 - (C) Zeolite
 - (D) Quartz

35. Pyrope garnet and chrome diopside characteristic minerals of :
- (A) Kimberlite
 - (B) Lamprophyre
 - (C) Lamproite
 - (D) Carbonitite
36. Coesite is a high pressure polymorph of :
- (A) Diopside
 - (B) Hypersthene
 - (C) Olivine
 - (D) Quartz
37. The mineral assemblage quartz-sapphirine is characteristic of :
- (A) Granulite facies
 - (B) Eclogite facies
 - (C) Ultra high temperature metamorphism
 - (D) Blue schist facies
38. The characteristic assemblage of eclogite facies :
- (A) Lawsonite – glaucophane-chloritoid
 - (B) Garnet – diopside-ilmanite
 - (C) Garnet – pigeonite-epidote
 - (D) Garnet – omphacite-rutile
39. Positive Ce anomalies in sediments indicate :
- (A) Reducing environments
 - (B) Oxidizing environments
 - (C) Low pH-conditions
 - (D) High pH environments
40. The atomic mass number of an element is defined as the :
- (A) Number of neutrons
 - (B) Number of protons
 - (C) Number of electrons
 - (D) Number of protons and neutrons
41. Which of the following mineral crystallizes in tetragonal system ?
- (A) Garnet
 - (B) Orthoclase
 - (C) Rutile
 - (D) Olivine
42. Spinifex texture is the characteristic of texture of :
- (A) Gabbro
 - (B) Dolerite
 - (C) Komatite
 - (D) Basalt

43. When molar $\text{Al}_2\text{O}_3 / (\text{K}_2\text{O} + \text{Na}_2\text{O} + \text{CaO}) > 1.0$ then according to Shand's classification of Alumina saturation, the rock is classified as :
- (A) Mataluminous
(B) Peraluminous
(C) Peralkaline
(D) Alkaline
44. Which of the following magmas will be more viscous ?
- (A) Magma rich in SiO_2
(B) Magma containing high concentration of alkalis and magnesium
(C) Magma deficient in SiO_2
(D) Magma rich in Ca^{2+} , Mg^{2+} and Fe^{2+} ions
45. Depleted mantle is characterized by :
- (A) High $^{143}\text{Nd}/^{144}\text{Nd}$, Low $^{87}\text{Sr}/^{86}\text{Sr}$ and low $^{206}\text{Pb}/^{204}\text{Pb}$
(B) Low $^{143}\text{Nd}/^{144}\text{Nd}$, Low $^{87}\text{Sr}/^{86}\text{Sr}$ and low $^{206}\text{Pb}/^{204}\text{Pb}$
(C) High $^{143}\text{Nd}/^{144}\text{Nd}$, high $^{87}\text{Sr}/^{86}\text{Sr}$ and high $^{206}\text{Pb}/^{204}\text{Pb}$
(D) High $^{143}\text{Nd}/^{144}\text{Nd}$, high $^{87}\text{Sr}/^{86}\text{Sr}$ and low $^{206}\text{Pb}/^{204}\text{Pb}$
46. Which of the following rock characterise deep water environment ?
- (A) Marl
(B) Sand stone
(C) Loess
(D) Carbonaceous shale
47. Peridotites containing olivine and orthopyroxene (enstatite, bronzite, hypersthene) as essential minerals, is known as :
- (A) Wherlite
(B) Harzburgite
(C) Lherzolite
(D) Limburgite
48. In gabbro cumulate the positive Eu-anomaly is mainly due to :
- (A) Plagioclase accumulation
(B) Pyroxene accumulation
(C) Magnetite and Ilmenite
(D) Olivine
49. Excess alumina in an igneous rock will form the normative mineral :
- (A) Quartz
(B) Feldspars
(C) Aluminosilicates
(D) Corundum

50. The lithophile elements generally concentrate in :
- Rock-forming minerals
 - Earths' core
 - Sulphides
 - Atmosphere
51. In Khetri and Singhbhum, copper mainly occurs as :
- Cuprite
 - Chalcopyrite
 - Chalcocite
 - Covellite
52. Syngenitic deposits are crystallized :
- Before the host rocks
 - After the host rocks
 - Simultaneously with host rocks
 - Any of these
53. The most common structural element of the silicate mineral group is :
- A silicon-oxygen octahedron
 - A silicon-oxygen tetrahedron
 - A silicon-aluminum tetrahedron
 - A silicon-nitrogen tetrahedron
54. The bonding of diamond is :
- Covalent
 - Ionic
 - Metallic
 - Bail
55. Pyroxene is an example of which silicate ?
- Single chain
 - Sheet
 - Ring
 - Framework
56. Where the largest crystals in a lava flow be expected ?
- In the centre of the flow
 - Near the top surface of the flow
 - Near the bottom of the flow
 - Uniform through out
57. According to Bowen's reaction series, which of the following pairs of phases are likely to be incompatible ?
- Na-plagioclase and Amphibole
 - Ca-Plagioclase and Olivine
 - Quartz and alkali Feldspar
 - Quartz and Olivine
58. In plate tectonic settings where the basaltic rocks will be expected :
- Transform boundary
 - Spreading center
 - Continent-continent collision
 - Subduction zones

59. At what temperature ($^{\circ}\text{C}$) do olivine and Ca-rich plagioclase crystallize from a magma ?
- (A) 1500
(B) 2500
(C) 1000
(D) 500
60. A porphyritic igneous rock contains phenocrysts of olivine and calcium-rich plagioclase in anaphaneric groundmass. This is known as :
- (A) Andesite porphyry
(B) Basalt porphyry
(C) Gabbro porphyry
(D) Rhyolite porphyry
61. Of the following which mineral is not part of the discontinuous reaction series ?
- (A) Plagioclase
(B) Olivine
(C) Pyroxene
(D) Amphibole
62. In which environments oscillation ripples will be found ?
- (A) Alluvial
(B) Beach
(C) Deep-sea
(D) Desert
63. Which of the following sandstone types is most likely to form by the mechanical weathering of a granite ?
- (A) Arkose
(B) Quartz arenite
(C) Shale
(D) Litharenite
64. Which type of pressure will result in the alignment of metamorphic minerals ?
- (A) Confining pressure
(B) Chemical pressure
(C) Directed pressure
(D) Contact pressure
65. Which of the following index minerals forms at the highest metamorphic grade ?
- (A) Chlorite
(B) Biotite
(C) Garnet
(D) Sillmanite
66. During metamorphism a quartz arenite will change into :
- (A) Slate
(B) Gneiss
(C) Schist
(D) Quartzite

67. Which of the following metamorphic rocks forms in the forearc of a subduction zone ?
- Blueschist
 - Amphibolite
 - Quartzite
 - Marble
68. Abestos of the amphibole group are :
- Amosite and Actinolite
 - Amosite, Actinolite and Chrysolite
 - Anthophyllite, Crocidolite, Tremolite and Chrysolite
 - Amosite, Actinolite, Anthophyllite, Crocidolite and Tremolite
69. Mn-ore of chemical grade should have :
- 90-95% of Mn
 - 82-87% of Mn
 - 74-78% of Mn
 - 60-63% of Mn
70. If the radius of the Earth were increased by a factor of 3 and its mass remained the same, then the acceleration due to gravity on the Earth would :
- Reduce by a factor of 9
 - Increase by a factor of 9
 - Increase by a factor of 3
 - Reduce by a factor of 3
71. Which of the following geophysical method is best suited to explore disseminated sulphides ?
- Gravity
 - Magnetic
 - Seismic
 - Induced polarization
72. The major elements in Mn-nodules are :
- Fe and Mn
 - Fe, Mn and Ni
 - Fe, Mn, Ni and Cu
 - Fe, Mn, Ni, Cu and Co
73. The temperature within the earth increases with depth at a rate of approximately :
- 10°/km
 - 15°/km
 - 30°/km
 - 100°/km
74. Average density of the earth is :
- 2.4 gm/cc
 - 10.5 gm/cc
 - 5.51 gm/cc
 - 1.1 gm/cc

75. Chrysolite asbestos result from the :
- Magmatic liquid
 - Alteration of serpentine
 - Alteration of olivine to serpentine
 - Hydrothermal solutions
76. Acoustic impedance is defined as :
- Velocity * density
 - Velocity/density
 - Velocity + density
 - Density / velocity
77. If RM and IM represents remnant and induced magnetizations, Koenigsberger ratio is defined as :
- IM/RM
 - RM/IM
 - $IM*RM$
 - $IM-RM$
78. The non-metallic minerals associated with ore minerals are called :
- Non-metallic minerals
 - Metallic minerals
 - Gangue minerals
 - Flux minerals
79. A satellite is moving around the Earth in a circular orbit with a velocity V . If the gravitational force of the Earth were to suddenly disappear, then the satellite would :
- Move with a velocity V , tangentially to its circular orbit
 - Fall towards the surface of the Earth
 - Move radially outwards with a velocity V
 - Spirally move away from the Earth
80. Sedimentary basins containing thick-sectioned sediments are mostly associated with :
- Positive gravity anomalies
 - Negative gravity anomalies
 - Zero gravity anomalies
 - Only zero and positive gravity anomalies
81. The deposits occurring close to the roofs of magmatic masses :
- Magmatic deposits
 - Pegmatite deposits
 - Hydrothermal deposits
 - Metasomatic

82. In resistivity prospecting sounding data is collected along the profiles :
- (A) In any direction
 - (B) Perpendicular to the strike of the formations
 - (C) Inclined to the strike of the formations
 - (D) Parallel to the strike of the formations
83. When gravity is the agent of placing of deposit, the deposit is called :
- (A) Deluvial deposit
 - (B) Aeolian deposit
 - (C) Alluvial deposit
 - (D) Beach placers
84. In resistivity prospecting, survey in the profiling mode is conducted :
- (A) Perpendicular to the expected strike of formations
 - (B) At 45° angle to the expected strike of formations
 - (C) In any direction
 - (D) Parallel to the expected strike of the formations
85. Which of the following is not an essential condition for hydrothermal deposits ?
- (A) Highly active fluids
 - (B) Highly enriched fluids
 - (C) Highly inactive fluids
 - (D) Suitable pathways
86. Step like gravity anomalies are mostly associated with :
- (A) Folds
 - (B) Dip slip faults
 - (C) Antiforms
 - (D) Batholiths
87. Zero length spring is the one :
- (A) Which has no length
 - (B) Which follows Hooke's law
 - (C) Which does not follow Hooke's law
 - (D) Which does not exist
88. Which geophysical method is popular for the exploration of hydrocarbons ?
- (A) Resistivity
 - (B) Seismic
 - (C) Magnetic
 - (D) Telluric
89. The type of vein commonly found in igneous rocks is :
- (A) Fissure-veins
 - (B) Ladder-veins
 - (C) Gash-veins
 - (D) Stock works

90. Electric field is defined as :
- (A) Force/unit charge
 - (B) Unit charge/force
 - (C) Force * unit charge
 - (D) Force + unit charge
91. Poisson's equation relates :
- (A) Gravity and magnetic potentials
 - (B) Electrical and magnetic potentials
 - (C) Gravity and electrical potentials
 - (D) Magnetic and self-potentials
92. Deposits that were formed subsequent to the formation of the host rocks are called :
- (A) Syngenetic
 - (B) Epigenetic
 - (C) Syncgenetic
 - (D) Sinclongenetic
93. Which mineral has a high dielectric capacity ?
- (A) Feldspar
 - (B) Calcite
 - (C) Quartz
 - (D) Mica
94. Self-potential method is the most suitable method for prospecting of :
- (A) Carbonates
 - (B) Sulphide ores
 - (C) Ferruginous ores
 - (D) Maganese ores
95. The hard coal is :
- (A) Lignite
 - (B) Anthracite
 - (C) Coal tar
 - (D) Bituminous
96. Deep depth of oxidation zone indicates :
- (A) Absence of ground water
 - (B) Presence of more sulphides
 - (C) Deep fracture zones
 - (D) Non-availability of metals at shallow depth
97. Carbon can form many different compounds because it can :
- (A) Make a molecule in the shape of a cube, tetrahedron, or cylinder
 - (B) Combine with more metals than other elements
 - (C) Combine with other carbon atoms in addition to other elements
 - (D) Combine with more non-metals than other elements

98. Platinum occurs only with :
- (A) Mafic rocks
 - (B) Ultramafic rocks
 - (C) Felsic rocks
 - (D) Mafic to ultrabasic rocks
99. Ore shoots are most characteristic of:
- (A) Fissure veins only
 - (B) Fissure veins and replacement loads
 - (C) Replacement loads only
 - (D) Breccia-filling deposits
100. An exceptionally rich shoot or bunch of ore is called :
- (A) Bonanza
 - (B) Chimneys
 - (C) Flake
 - (D) Pitch
101. Which of the following represents the longest time period ?
- (A) Paleozoic
 - (B) Precambrian
 - (C) Mesozoic
 - (D) Cenozoic
102. The most common fossils in rocks of the last 500 million years are :
- (A) Vertebrate bones
 - (B) Vertebrate teeth
 - (C) Invertebrate shells
 - (D) Leaves
103. The first primitive mammals have appeared during :
- (A) Triassic
 - (B) Paleocene
 - (C) Carboniferous
 - (D) Permian
104. The great mass extinction event occurred during :
- (A) Permian
 - (B) Jurassic
 - (C) Cambrian
 - (D) Eocene
105. The Makarana marble is equivalent to :
- (A) Lower Dharwar
 - (B) Middle Dharwar
 - (C) Upper Dharwar
 - (D) Peninsular Gneiss
106. Saucer series is equivalent to :
- (A) Peninsular Gneiss
 - (B) Upper Dharwar
 - (C) Middle Dharwar
 - (D) Lower Dharwar

107. The rocks of the Dharwar super group falling within the range of :

- (A) 2900-2600 m.y.
- (B) 3200-2600 m.y.
- (C) 2900-2200 m.y.
- (D) 2500-2000 m.y.

108. The end of Archaean is marked by :

- (A) Sedimentation
- (B) Burst of granitic activity
- (C) Folding
- (D) None of these

109. Form rocks of which geologic period have the oldest primate fossils been found ?

- (A) Cretaceous
- (B) Jurassic
- (C) Permian
- (D) Tertiary

110. The earliest fossil of prehistoric man is :

- (A) Dryopithecus
- (B) Ramapithecus
- (C) Sivapithecus
- (D) Australopithecus

111. During which geologic period did mosasaurs swim the oceans ?

- (A) Cretaceous
- (B) Jurassic

(C) Triassic

(D) Permian

112. The first organisms were :

- (A) Chemoautotrophs
- (B) Chemoheterotrophs
- (C) Autotrophs
- (D) Eucaryotes

113. The earliest fossil form, in the phylogeny of horse, is :

- (A) Equitas
- (B) Meshippus
- (C) Eohippus
- (D) Merychippus

114. Which period is dubbed as the age of prokaryotic microbes ?

- (A) Precambrian
- (B) Phanerozoic
- (C) Archean
- (D) Proterozoic

115. Main Central thrust in Himalayan orogen separates :

- (A) Siwalik hills and lesser Himalayan sequences
- (B) Subathu Formation and lesser Himalayan sequences
- (C) Lesser Himalayan sequences and high Himalayan crystallines
- (D) Higher Himalayan sequences with Tibet

116. To which group corals are most closely related ?
- (A) Jellies
(B) Sea anemones
(C) Sponges
(D) Barnacles
117. 'Prosobranchia' is subclass of class :
- (A) Bivalvia
(B) Gastropoda
(C) Cephalopoda
(D) Annelida
118. Primitive 'gastropods' have :
- (A) Lungs
(B) One lung
(C) Two gills
(D) One gill
119. In cephalopods 'gonads' are present in the :
- (A) Shell
(B) Dorsal portion of the visceral mass
(C) Ventral portion of the visceral mass
(D) Posterior to shell
120. An important index fossil for the Paleozoic Era are :
- (A) Trilobites
(B) Fish
(C) Plants
(D) Sponge
121. A tree buried in a mineral hot spring would probably form a :
- (A) Mold fossil
(B) Petrified fossil
(C) Trace fossil
(D) Index fossil
122. Members of 'echinoids' have a large :
- (A) Arm
(B) Disk
(C) Coelom
(D) Foot
123. Macedon in an echinoid is associated with :
- (A) Tubercle
(B) Apical
(C) Corona
(D) Periscope
124. The earliest fossils of foraminifera are found in :
- (A) Permian rocks
(B) Carboniferous rocks
(C) Silurian rocks
(D) Upper Cambrian rocks

125. The whole skeleton of a simple colony of graptolites is known as :
- Rhomboid
 - Rhabdosome
 - Phenotype
 - Hierarchy
126. Iron ore deposits of Goa are mainly of :
- Magnetite type
 - Hematite type
 - Blue dust
 - Both magnetite and hematite types
127. The Jurassic stratigraphic succession of Kutch is characterized by which one of the following ?
- Cephalopods
 - Brachiopods
 - Trilobites
 - Graptolites
128. From older to younger the correct chronological order of the following volcanic events is :
- Rajmahal, Deccan, Panjal, Malani
 - Malani, Panjal, Rajmahal, Deccan
 - Malani, Panjal, Deccan, Rajmahal
 - Malani, Deccan, Panjal, Rajmahal
129. Younger beds will always be found in the :
- Opposite direction of dip
 - Direction of dip
 - Direction of strike line
 - Inclined direction of dip and strike
130. The name 'purana' groups corresponding to :
- Middle Proterozoic only
 - Palaeozoic
 - Middle and Late Proterozoic
 - Late Proterozoic only
131. The Bailadia group is equivalent to :
- Lower Dharwar
 - Upper Dharwar
 - Delhi Super Group
 - Middle Dharwar
132. A dendritic stream pattern will tend to develop in regions :
- Underlain by regularly spaced joints or faults
 - Of folded strata
 - Along the flanks of isolated volcanoes
 - Of flat-lying sedimentary rocks

133. The water entrapped in sediments are :
- (A) Juvenile water
 - (B) Connate water
 - (C) Plutonic water
 - (D) Meteoric water
134. Karst topography is developed in :
- (A) Sandstones
 - (B) Shales
 - (C) Granites
 - (D) Limestones
135. One Darcy is equal to :
- (A) $0.1 * 10^{-10} \text{ m}^2$
 - (B) $0.015 * 10^{-12} \text{ m}^2$
 - (C) $9.87 * 10^{-13} \text{ m}^2$
 - (D) $0.987 * 10^{-13} \text{ m}^2$
136. The most important water quality parameter for domestic use of water is :
- (A) Carbonate hardness
 - (B) Non-carbonate hardness
 - (C) Coliform group of organisms
 - (D) Chlorides
137. Human population growth is often considered the foremost environmental problem because :
- (A) Increasing population strains resources and creates additional wastes.
 - (B) There is no way to provide food for additional people
 - (C) Insufficient oxygen production on Earth for more than 10 billion people
 - (D) The Earth will run out of open land space within the next 50 years
138. When do the faulted and shear zones become potential areas of further slip and slides ?
- (A) Dry
 - (B) Lubricated
 - (C) Weathered
 - (D) Heavy winds
139. Contraction or shrinkage is the cause of which joints ?
- (A) Radial joints
 - (B) Vertical joints
 - (C) Sheet joints
 - (D) Mural joints
140. Sheet joints in sedimentary rocks are attributed to :
- (A) Erosional loading
 - (B) Weathering loading
 - (C) Weathering unloading
 - (D) Erosional unloading

141. Storage capacity of a reservoir depends on :
- (A) Porosity of rocks
 - (B) Inter-connections
 - (C) Porosity and inter-connections
 - (D) Quality of solidity of rocks
142. What is the quantity of water that a unit volume of aquifer drains by gravity called ?
- (A) Porous volume
 - (B) Specific yield
 - (C) Water yield
 - (D) Unit yield
143. The causes which tend to reduce the shearing strength of the soil are
- (A) Internal factors
 - (B) External factors
 - (C) Extensive factors
 - (D) Weather factors
144. What is the character of the surface of shear in loose, inherently weak rocks ?
- (A) Planar
 - (B) Circular
 - (C) Undulated
 - (D) Curved
145. Type of landslide where surface of failure is planar is :
- (A) Translational
 - (B) Rotational
 - (C) Rock toppling
 - (D) Longitudinal
146. Which type of trees and plants are more effective in reducing infiltration ?
- (A) Tropical
 - (B) Deciduous
 - (C) Temperate
 - (D) Plantation
147. Geologically, how many classes of tunnels are recognized ?
- (A) 5
 - (B) 4
 - (C) 6
 - (D) 2
148. Depending on the purpose of storage, reservoirs are classified into how many types ?
- (A) 2
 - (B) 4
 - (C) 3
 - (D) 5

149. Rocks are inherently which type of materials?
- Isotropic
 - Anisotropic
 - Homogeneous
 - Non-homogeneous
150. In synclinal bends, dams placed on which part would run risk of leaking ?
- Upstream limb
 - Downstream limb
 - Core
 - Sloping side
151. What aspect of joint has be thoroughly studied before construction of a dam ?
- Geometry of the joint
 - The depth of the joint
 - Nature of the joint
 - The texture of the rocks
152. Groundwater is pumped from a confined aquifer. The aquifer's intergranular pressure :
- Increases and the aquifer's pore water pressure decreases
 - decreases and the aquifer's pore water pressure increases
 - Increases and the aquifer's pore water pressure increases
 - Decreases and the aquifer's pore water pressure decreases
153. If K , D , S represent the saturated hydraulic conductivity, saturated depth of an aquifer and storage coefficient respectively, the transmissivity of a homogeneous, confined aquifer equals :
- K/D
 - $K/(D*S)$
 - $(K*D)/S$
 - $K*D$
154. The maximum permissible limit of iron in ppm, in drinking water is :
- 0.5
 - 0.8
 - 0.1
 - 1.5
155. Darcy's law states that :
- The discharge is directly proportional to head loss and area of flow and inversely proportional to the length of path
 - The discharge is directly proportional to head loss and inversely proportional to area of flow and to the length of the path
 - The discharge is inversely proportional to head loss and directly proportional to the length
 - The discharge is inversely proportional to head loss

156. Approximate average permeability of clay is :
- (A) 0.004m/day
 - (B) 0.041m/day
 - (C) 0.0004m/day
 - (D) 4.10m/day
157. The slope starting from the farthest end of the continental shelf and continuing up to sea floor is :
- (A) Continental slope
 - (B) Continental bench
 - (C) Mid-oceanic ridge
 - (D) Trench
158. Calcareous oozes and siliceous oozes are biological sediments that occur in :
- (A) Braided river channels
 - (B) Deep sea environments
 - (C) Low oxygen and bog conditions
 - (D) Rain forests
159. Which one of the following cause global warming ?
- (A) Radiative forcing
 - (B) Earth gravitation force
 - (C) Oxygen
 - (D) Centripetal force
160. Which one of the following land use causes global warming ?
- (A) Increase in the fertility of soil
 - (B) Surface reflectance
 - (C) Forestation
 - (D) Adopting organic farming
161. Sensitive High Resolution Ion Probe (SHRIP) is a :
- (A) Type of mineral exploration method
 - (B) Type of film used for remote sensing survey
 - (C) Type of remote sensing survey
 - (D) Age ending method by Zircon crystal
162. Which method is used for dating relatively recent geological event ?
- (A) Carbon - 14 methods
 - (B) Rb - Sr method
 - (C) K - Ar method
 - (D) U - Pb method
163. Age ending method by Zircon crystal :
- (A) Periodic changes
 - (B) Permanent changes
 - (C) Secular changes
 - (D) Perennial changes

164. Deuteron is a :

- (A) Nucleus containing two neutrons
- (B) Nucleus containing two protons
- (C) Nucleus containing a neutron and a proton
- (D) Nucleus containing two protons and two neutrons

165. Geochemical data on the Dhanjori volcanic of the Singhbhum carton indicate the :

- (A) Basaltic in nature
- (B) Rhyolite in nature
- (C) Ranging from Rhyolite to Rachitic
- (D) Ranging from Basalt to Andesite



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