

**MIZORAM PUBLIC SERVICE COMMISSION**  
**COMPETITIVE EXAMINATION FOR RECRUITMENT TO THE POST OF**  
**GEOLOGIST UNDER COMMERCE & INDUSTRIES DEPARTMENT,**  
**GOVERNMENT OF MIZORAM, OCTOBER-2024**

**GEOLOGY PAPER - I**

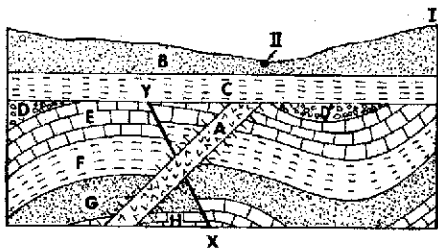
Time Allowed : 2 hours

FM : 200

*All questions carry equal marks of 2 each.*  
*Attempt all questions.*

1. The science of quantitative land surface analysis is known as-  
(a) Geomorphology (b) Geomorphometry  
(c) Geodynamics (d) Geostatistics
2. Point out a feature of glacial erosion-  
(a) Gully (b) Sheet  
(c) Rill (d) Arete
3. An isolated table-land area with steep sides is called -  
(a) Mesa (b) Knick point  
(c) Escarpment (d) Peneplain
4. Which one of the following is the most affected elements in terms of Eh-pH relationship?  
(a) Silicon (b) Potassium  
(c) Aluminium (d) Iron
5. The ultimate residuum of a maturely weathered rocks consists of -  
(a) quartz, kaolinite, bauxite and limonite (b) smectite, chlorite, kaolinite and illite  
(c) bauxite, kaolinite, illite and limonite (d) illite, smectite, chlorite and bauxite
6. Which one of the following is the landform produced by endogenic processes?  
(a) Scoria (b) Tephra  
(c) Maars (d) Ignimbrites
7. A diastrophic process that upheaves or depresses large areas of continental crust without causing significant deformation is known as -  
(a) Orogeny (b) Isostasy  
(c) Cymatogeny (d) Oduction
8. Less fertile and old alluvial soil is termed as -  
(a) Khadar soil (b) Kankar soil  
(c) Khadir soil (d) Bhangar soil
9. The idea "Present is the key to the past" was taught by -  
(a) Charles Lyell (b) John Playfair  
(c) James Hutton (d) WM Davis
10. Which of the following is the geomorphological indicator of good groundwater potential in remote sensing survey?  
(a) Alluvial fans. (b) High relief.  
(c) Fine textured drainage. (d) Both (b) & (c)

11. Valleys developed by the rise of sea level is known as -
  - (a) Rejuvenated valleys
  - (b) Transverse valleys
  - (c) Drowned valleys
  - (d) Antecedent valleys
12. Drainage patterns of local extent which are found at or near the headwater portions of the drainage system are called -
  - (a) Angulated pattern.
  - (b) Barbed drainage pattern.
  - (c) Dendritic pattern.
  - (d) Annular pattern.
13. In stream channel deposition, a large bed-load materials which underlie the alluvial floor of a valley is called
  - (a) Lag deposits.
  - (b) Channel fills deposits.
  - (c) Vertical accretion deposit.
  - (d) Crevasse splays.
14. What is the range of EM spectrum which is designated as microwave?
  - (a)  $1 \mu\text{m}$  to  $10 \text{im}$
  - (b)  $10 \mu\text{m}$  to  $100 \mu\text{m}$
  - (c)  $100 \mu\text{m}$  to  $1 \text{mm}$
  - (d)  $1 \text{mm}$  to  $1.0 \text{m}$
15. Coloured photographic images are generated by assigning -
  - (a) Blue, red and yellow colours
  - (b) Blue, red and violet colours
  - (c) Green and red colours
  - (d) Blue, green and red colours
16. The repetivity cycle of IRSS in polar sun-synchronous orbit is -
  - (a) 18
  - (b) 20
  - (c) 22
  - (d) 24
17. Polygon in GIS represents -
  - (a) Large areas
  - (b) Small areas
  - (c) Irregular areas
  - (d) Lines
18. Which ISRO mission discovered water ice on the moon?
  - (a) Aditya-L1
  - (b) Gaganyaan
  - (c) Mangalyaan
  - (d) Chandrayaan-1
19. Which is the First Satellite exclusively used for the Educational Sector?
  - (a) GSAT- 2
  - (b) GSAT- 3
  - (c) GSAT- 5
  - (d) GSAT- 6
20. Which of the following program is renamed as Landsat by NASA?
  - (a) ERTS
  - (b) SPOT
  - (c) LISS
  - (d) MSS
21. Mohr's circle diagram tries to represent -
  - (a) the state of normal stress only.
  - (b) the state of stress at a point on an oblique plane.
  - (c) the state of shear stress only.
  - (d) the state of stress at a point on a horizontal plane.
22. Which is the correct sequence of events for the given figure?

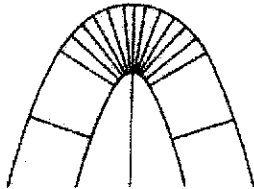


- (a) H – G – F – D – Folding – A – Fault (X–Y) – Erosion – C – B – Erosion.
- (b) H – G – F – E – Fault (X–Y) – Folding – D – A – C – B – Erosion.
- (c) H – G – F – E – D – Folding – Fault (X–Y) – A – Erosion – C – B – Erosion.
- (d) A – H – G – F – E – Folding – Fault (X–Y) – D – Erosion – B.

23. The direction of slip in fault can be recognised with the help of -

- (a) length of displacement.
- (b) slickenside lineation.
- (c) distance of foot wall and hanging wall of the faulted bed.
- (d) angle of fault plane.

24. Using Ramsay's morphological classification of fold, identify the class of fold given in the diagram.



- (a) Class 3 fold
- (b) Class 2 fold
- (c) Class 1A fold
- (d) Class 1B fold

25. Overthrust can be described as -

- (a) Low angle reverse fault
- (b) High angle reverse fault
- (c) High angle reverse fault with large net slip
- (d) Low angle reverse fault with large net slip

26. Schuppen structures are associated with -

- (a) Normal faulting
- (b) Thrust faulting
- (c) Strike-slip faulting
- (d) Shear zone

27. The Navier-Coulomb criterion for brittle failure satisfies in -

- (a) rocks with planer relationship between shear stress at failure.
- (b) rocks with perpendicular relationship between deviatoric stress at failure.
- (c) rocks with planer relationship between principal stress at failure.
- (d) data of rocks with linear relationship between principal stress at failure.

28. In structural analysis of cleavage, the range of spacing of cleavage domain for crenulation cleavage is -

- (a) 0.1 mm to 1 cm.
- (b) 1 cm to >10 cm.
- (c) 5 mm to 10 cm.
- (d) 0.8 mm to <0.01 mm.

29. Which of the following is non-penetrative lineation?

- (a) Lineation marked by stretched grains.
- (b) Axes of crenulations.
- (c) Striations on slickensides.
- (d) Mineral lineation.

30. Joint is a kind of -

- (a) Boudinage
- (b) Brittle fracture
- (c) Ductile deformation
- (d) Lineament

31. If the dip of the fault plane is  $30^\circ$ , the hade will be -

- (a)  $30^\circ$
- (b)  $45^\circ$
- (c)  $50^\circ$
- (d)  $60^\circ$

32. Slickenside lineation on a fault surface indicates -

- (a) Direction of net slip of the fault
- (b) Direction of throw of the fault
- (c) Direction of heave of the fault
- (d) Direction of dip of the fault

33. The interlimb angle of an open fold is -

- (a)  $0^\circ - 10^\circ$
- (b)  $10^\circ - 30^\circ$
- (c)  $30^\circ - 70^\circ$
- (d)  $70^\circ - 120^\circ$

34. According to Anderson's theory of faulting, if the compressive stress  $\sigma_3$ , is vertical and the fault at an angle of less than  $45^\circ$  with respect to the vertical, the resultant fault will be -  
(a) Reverse fault (b) Dextral strike slip fault  
(c) Sinistral strike slip fault (d) Normal fault
35. For a reverse fault to be called as thrust fault, the dip of fault should be -  
(a) more than  $45^\circ$  (b) less than  $45^\circ$   
(c) vertical (d) equal to  $60^\circ$
36. In fold morphology, a point which separates a convex and concave segment of the wavy line is called-  
(a) Inflection point (b) Trough point  
(c) Crest point (d) Hinge point
37. A fold that closes sidewise is known as -  
(a) Reclined fold (b) Antiform  
(c) Neutral fold (d) Plunging fold
38. Which of the following is a dark glassy rock found in shear zones which formed due to frictional melting?  
(a) Fault gouge (b) Pseudotachylite  
(c) Ultramylonite (d) Cataclasites
39. The smaller folds found subsidiary on the back of a larger fold are known as -  
(a) buckle folds (b) passive folds  
(c) parasitic folds (d) flexure folds
40. Point out a conjugate fold.  
(a) Fan fold (b) Box fold  
(c) Chevron fold (d) Concentric fold
41. Time vs distance curve of seismic reflection from horizontal boundary is -  
(a) Parabola (b) Elliptical  
(c) Straight line (d) Hyperbola
42. Discontinuity at continental crust is -  
(a) Moho discontinuity (b) Guttenberg discontinuity  
(c) Lehman discontinuity (d) Conrad discontinuity
43. The average thickness of the earth from surface to centre of the core is -  
(a) 7360 km. (b) 6073 km.  
(c) 6370 km. (d) 7063 km.
44. The earth's crust is believed to be thinnest at the point of -  
(a) Himalaya (b) Andes  
(c) Indo-Gangetic plain (d) Mariana trench
45. The crust and the upper mantle collectively make up the -  
(a) Asthenosphere. (b) Lithosphere  
(c) Zone of rigid tectonic forces (d) Both (a) & (b)
46. Which of the following is related to Divergent Plate Boundary?  
(a) Rift Valley (b) Volcanic Island  
(c) Island Arc (d) Back-arc Basin
47. Which of the following plate boundaries is related to subduction zones?  
(a) Continent-Continent Convergence (b) Oceanic-Oceanic Convergence.  
(c) Oceanic-Continent Convergence. (d) Transform Boundaries

48. The vertical adjustment of the earth's crust to achieve balance is known as -  
(a) Geothermal equilibrium (b) Isostasy  
(c) Orogeny (d) Plate tectonics
49. The failed arm of a triple junction is known as -  
(a) Horst (b) Aulacogen  
(c) Hot spot (d) Decollement
50. Sedimentation rate is minimum at -  
(a) Continental shelf (b) Continental slope  
(c) Continental rise (d) Deep ocean floor
51. What tectonic activity produce continental sutures?  
(a) Collision of oceanic plates (b) Sliding of oceanic plates  
(c) Sliding of continental plates (d) Collision of continental plates
52. Point out the process not related to plate tectonics.  
(a) Subduction (b) Mountain building  
(c) Rise of mantle plume (d) Sea floor spreading
53. The typical rate of plate motion is -  
(a) 1 – 24 cm per year (b) 3 – 5 cm per year  
(c) 10 m per year (d) 100 m per year
54. The upheaval or depression of land having long wavelength without much folding in the rocks is known as -  
(a) Love wave (b) Seismic Belt  
(c) Orogeny (d) Epeirogeny
55. The seismic belt of the earth are less observed in -  
(a) Indonesian Belt (b) West coast of South America  
(c) West coast of Africa (d) Circum-Pacific Belt
56. Richter scale measures \_\_\_\_\_ of an earthquake.  
(a) Number of casualties (b) damage and destruction  
(c) magnitude (d) intensity
57. Global Positioning System finds its application in -  
(a) rate of crustal motion (b) the orientation of earth's magnetic field  
(c) magnitude of force that drive crustal motion (d) mechanism of crustal deformation
58. The study of ancient magnetic field is called -  
(a) Rock magnetism (b) Magnetic reversal  
(c) Remanent magnetism (d) Palaeomagnetism
59. The Curie point of magnetite is -  
(a) 580°C (b) 680°C  
(c) 780°C (d) 880°C
60. The upliftment of the Himalaya is inferred to began during -  
(a) Pleistocene (b) Oligocene-Miocene  
(c) Lower Cretaceous (d) Upper Jurassic
61. The Eparchian unconformity separates the -  
(a) Gondwana and Tertiary (b) Kurnool and Gondwana  
(c) Archean and Cuddapah (d) Cuddapah and Kurnool

62. Major physiographic features of India was shaped during -  
(a) Tertiary period (b) Jurassic period  
(c) Permian period (d) Devonian period
63. The Last Glacial Maximum (LGM) occurred about \_\_\_\_\_ years ago.  
(a) 10,000 (b) 20,000  
(c) 30,000 (d) 40,000
64. Which formation in India is notable for dinosaur fossils?  
(a) Rajmahal Trap (b) Kaimur Formation  
(c) Lameta Formation (d) Kheinjua Shale Formation
65. The oldest stratigraphic succession of Mizoram is -  
(a) Barail. (b) Bhuban.  
(c) Bokabil. (d) Tipam.
66. The Father of Stratigraphy who postulated the *Principle of Original Horizontality* is -  
(a) Robert Hooke (b) Nicholas Steno.  
(c) Charles Lyell. (d) Harry Hess.
67. Which of the following is surface procedure of stratigraphy?  
(a) Litho logs. (b) Pulse neutron logs.  
(c) Density logs. (d) Resistivity logs.
68. Which of the following *Taxa* is used to define biozones in Biostratigraphic Correlation of the Ordovician and Silurian?  
(a) Radiolaria. (b) Graptolites.  
(c) Trilobites. (d) Brachiopods.
69. Radiometric age is also known as \_\_\_\_\_ age.  
(a) Total (b) Absolute  
(c) Historic (d) Relative
70. Plant fossils are abundant in \_\_\_\_\_ rocks.  
(a) Precambrian (b) Vindhyan  
(c) Gondwana (d) Cuddapah
71. Which of the following have the widest application as zone fossils in Biostratigraphy?  
(a) Organisms which are tolerant of different conditions.  
(b) Organisms which have restricted geographical distribution.  
(c) Organisms whose distribution was controlled by variation in depth of water.  
(d) Organisms whose appearance was largely controlled by rate of sedimentation.
72. In magnetostratigraphy, the minimum number of cores required to be taken from a single bed to provide statistically significant analysis of remanent magnetism at a single site is -  
(a) 15 cores. (b) 10 cores.  
(c) 6 cores. (d) 3 cores.
73. A stratigraphic unit bounded at its top and base by unconformities or their relative conformities is known as -  
(a) sequence boundary (b) accommodation space  
(c) depositional sequence (d) basin fill succession
74. In the International Chronostratigraphic Chart (2023), which of the following indicate the correct ascending order of sequence?  
(a) Era-Eon-Epoch-Period (b) Age-Epoch-Period-Era  
(c) Eonothem-Erathem-Stage-Series (d) Erathem-System-Series-Stage

75. In sequence stratigraphy, forced regression results when -  
(a) there is balance between rate of sediment supply and the rise of sea level.  
(b) the rate of sediment supply exceeds the rate of sea level rise.  
(c) there is a relative fall in sea level causes a shift of facies basinwards.  
(d) the rate of creation of accommodation space exceeds sediment supply
76. \_\_\_\_\_ is also called 'Age of fishes'.  
(a) Cambrian (b) Ordovician  
(c) Silurian (d) Devonian
77. Which radio-isotope has the longest half-life?  
(a) Curium-247 (b) Potassium-40  
(c) Carbon-14 (d) Uranium-238
78. Semri Group belongs to -  
(a) Upper Vindhyan (b) Lower Vindhyan  
(c) Upper Gondwana (d) Lower Gondwana
79. Which of the following records the oldest event in Indian stratigraphy?  
(a) Baster craton (b) Dharwar craton  
(c) Singhbhum craton (d) Eastern Ghats Mobile Belt
80. Siwalik belongs to -  
(a) Lesser Himalayas (b) Greater Himalays  
(c) Outer Himalayas (d) Central Himalayas
81. The region along which the valves articulate and the line on which teeth and sockets occur is known as -  
(a) Hinge area (b) Cardinal line  
(c) Adductor area (d) Lunule
82. The geological age range of Arca is -  
(a) Miocene to Recent. (b) Jurassic to Recent.  
(c) Permian to Pleistocene. (d) Ordovician to Miocene.
83. Which of the following Bivalvia indicates the youngest geological age range?  
(a) *Ostrea* (b) *Pecten*  
(c) *Cardita* (d) *Cardium*
84. Acme zone is body of strata containing -  
(a) Maximum number of individual of a particular species  
(b) Minimum number of individual of a particular species  
(c) Maximum number of species  
(d) Minimum number of species
85. During which Era did mammals and birds appear on Earth?  
(a) Cenozoic (b) Mesozoic  
(c) Paleozoic (d) Proterozoic
86. Which of the following has convolute shell with oval or elongate shape having aperture equal to a length of the shell?  
(a) *Murex* (b) *Cypraea*  
(c) *Cerithium* (d) *Nerita*
87. A Gastropoda having sinistral coiling with a left handed aperture is -  
(a) *Helix* (b) *Physa*  
(c) *Voluta* (d) *Turbo*

88. In sutures of Cephalopoda, the suture in which the lobes and saddles are minutely folded and crenulated is known as -  
(a) Orthoceratite (b) Goniatitic suture  
(c) Ceratitic suture (d) Ammonitic suture
89. The geological age range of *Perisphinctes* is -  
(a) Jurassic to Cretaceous (b) Lower Jurassic  
(c) Cretaceous (d) Lower Carboniferous
90. First ancestral horse found during early Eocene is known as -  
(a) Eohippus (b) Meshippus  
(c) Miohippus (d) Mercychippus
91. Corals belong to Class -  
(a) Hydrozoa (b) Scyphozoa  
(c) Anthozoa (d) Protomedusae
92. Who is known as the father of palaeontology?  
(a) Nicholas Steno (b) William Smith  
(c) James Hutton (d) George Curvier
93. Which one is Planktonic micro-fossil?  
(a) Lagenella (b) Rotalia  
(c) Nummulite (d) Globigerina
94. Which of the following Echinoidea belongs to Order Regularia?  
(a) *Cidaris* (b) *Micraster*  
(c) *Hemiaster* (d) *Schizaster*
95. Which of the following vertebrate fossil characterized the Panchet Series of Lower Gondwana in India?  
(a) *Ceratodus sp* (b) *Hipparion*  
(c) *Archaeopteryx sp* (d) *Hemimeryx*
96. Which of the following is the application of Palynology in geology?  
(a) Analysis of plants' pathology. (b) Palaeofloriculture studies.  
(c) Species analysis of ancient plants. (d) Exploration of oil and gas.
97. The wall of pollen grain is called -  
(a) Sporoderm (b) Tapetum  
(c) Stomium (d) Sporopollenin
98. Which is the correct sequence of their appearance?  
(a) Fish-Dinosaurs-Flowering Plants-Whales (b) Flowering Plants-Whales-Dinosaurs-Fishes  
(c) Fishes-Flowering Plants-Whales-Dinosaurs (d) Dinosaurs-Fishes-Flowering Plants-Whales
99. Which one is not a plant fossil?  
(a) Vertebraria (b) Gangamopteris  
(c) Ptilophyllum (d) Glossograptus
100. Fossil wood is an example for -  
(a) Petrification (b) Wood faction  
(c) Calcification (d) Chitinisation