

MIZORAM PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF
GEOLOGIST JUNIOR UNDER COMMERCE & INDUSTRIES DEPARTMENT,
GOVERNMENT OF MIZORAM, AUGUST, 2023

GEOLOGY PAPER - I

Time Allowed : 2 hours

Full Marks : 200

All questions carry equal mark of 2 each.
Attempt all questions.

1. Fjords are characterized by
 - (a) An irregular glaciated coast
 - (b) A glaciated submerged coast
 - (c) An emergent coastline
 - (d) A smooth deltaic coast
2. Hanging valleys are formed by the action of
 - (a) River
 - (b) Glacier
 - (c) Ocean
 - (d) Wind
3. Caldera is associated with
 - (a) River
 - (b) Volcano
 - (c) Glacier
 - (d) Wind
4. Which of the following river does not form delta?
 - (a) Narmada
 - (b) Mahanadi
 - (c) Krishna
 - (d) Godavari
5. Which mineral is least susceptible to weathering?
 - (a) Biotite
 - (b) Olivine
 - (c) Pyroxene
 - (d) Quartz
6. Which of the following pair is not correct?
 - (a) Fluvial landform - Riffle
 - (b) Aeolian landform - Yardang
 - (c) Glacial landform - Cirque
 - (d) Tectonic landform - Oasis
7. Pick the odd one out
 - (a) Zeugen
 - (b) Yardang
 - (c) Mushroom rock
 - (d) Moraine
8. 'Col' feature is related to
 - (a) Wind erosion
 - (b) River erosion
 - (c) Glacial erosion
 - (d) Glacial deposition
9. Mesas are common in the
 - (a) Eastern Ghats granulite belt
 - (b) Himalayan mountain range
 - (c) Deccan Traps
 - (d) Dharwar greenstone belt
10. Most rivers in the Himalayan system are
 - (a) Antecedent
 - (b) Consequent
 - (c) Obsequent
 - (d) Subsequent

11. Generally aerial photographs are taken
 - (a) Vertically
 - (b) Horizontally
 - (c) At more than 45° angle
 - (d) Any angle
12. Most imaging sensor used for remote sensing are
 - (a) AVNIR
 - (b) LIDAR
 - (c) SLAR
 - (d) EOS
13. Which one has the longest wavelengths?
 - (a) Infra red rays
 - (b) X-rays
 - (c) Gamma rays
 - (d) Ultra violet rays
14. Digital terrain models are
 - (a) Vector models
 - (b) Elevation models
 - (c) False colour composites
 - (d) Raster models
15. A raster data representation is based on the
 - (a) Grid
 - (b) Lines
 - (c) Dots
 - (d) Numbers
16. The first Indian satellite is
 - (a) Rohini
 - (b) Bhaskar
 - (c) INSAT-I
 - (d) Aryabhata
17. In remote sensing, the Parallax Bar is a
 - (a) Viewing instrument
 - (b) Measuring instrument
 - (c) Plotting instrument
 - (d) Marking instrument
18. Horizontal offsets in streams courses are indicative of
 - (a) Folds
 - (b) Faults
 - (c) Joints
 - (d) Foliations
19. Kalpana I satellite is basically
 - (a) IRS
 - (b) GSLV
 - (c) METSAT
 - (d) INSAT
20. The tone variation for well drained, coarse, dry soil materials is
 - (a) White
 - (b) Light gray
 - (c) Dark gray
 - (d) Black
21. A bed is overturned if the dip of axial plane cleavage and dip of the bed are in
 - (a) The same direction and the bed is steeper
 - (b) The same direction and the cleavage is steeper
 - (c) Opposite direction and the bed is steeper
 - (d) Opposite direction and the cleavage is steeper
22. Fabric formed in metamorphic rocks by two or more stress directions causing the formation of the superimposed foliations is
 - (a) Bedding fissility
 - (b) Crenulation cleavage
 - (c) Lineation
 - (d) Foliation
23. A major anticline that is composed of many smaller folds is called
 - (a) Anticlinorium
 - (b) Synclinorium
 - (c) Antiformal syncline
 - (d) Synformal anticline

24. Brittle deformation leads to
- (a) Folds and joints
 - (b) Faults and dykes
 - (c) Shear zones and folds
 - (d) Faults and joints
25. If in a fault, the rake of net-slip is 90° , it will be a
- (a) Strike slip fault
 - (b) Strike fault
 - (c) Diagonal slip fault
 - (d) Dip-slip fault
26. A plane is dipping at 45° (True dip) towards NE, the apparent dip can be
- (a) $>90^\circ$
 - (b) Only 0°
 - (c) 45° to 0°
 - (d) 90° to 45°
27. The coulomb theory of failure is related to
- (a) Shear stress
 - (b) Shear stress and shear strength
 - (c) Tensile strength
 - (d) Compressive strength
28. The horizontal component of a dip slip fault is termed as
- (a) Hade
 - (b) Heave
 - (c) Plunge
 - (d) Throw
29. If the plunge of a fold reverses its direction within a given limit, the fold is described as
- (a) Doubly plunging fold
 - (b) Non-plunging fold
 - (c) Reclined fold
 - (d) Linear fold
30. If force is further applied, it converts recumbent fold into a
- (a) Under thrust fold
 - (b) Drag fold
 - (c) Graben
 - (d) Overthrust fold
31. Strength and elasticity of a rock increase with
- (a) Increase in temperature
 - (b) Decrease in strain rate
 - (c) Increase in confining rate
 - (d) Increase in pore fluid pressure
32. Rodding structures are generally represented by
- (a) Rods of quartz
 - (b) Rods of hornblende
 - (c) Rods of feldspar
 - (d) Rods of calcite
33. Pure shear is
- (a) Rotational, non-coaxial
 - (b) Partially rotational
 - (c) Non-rotational coaxial
 - (d) Partially non-rotational
34. Fault with no vertical movement is called
- (a) Thrust fault
 - (b) Transform fault
 - (c) Reverse fault
 - (d) Normal fault
35. Rocks under tensional forces are
- (a) Compressed
 - (b) Pulled apart
 - (c) Pushed towards each other
 - (d) Expanded
36. A fold with thinner limbs and thicker hinge is called
- (a) Parallel fold
 - (b) Fan fold
 - (c) Isoclinal fold
 - (d) Similar fold

37. Shortening in the earth's crust is accommodated by
(a) Folds and joints (b) Normal and reverse faults
(c) Folds and reverse faults (d) Folds and normal faults
38. When the direction and amount of pitch of the drag fold is same as that of the major fold, it is known as
(a) Rahael's rule (b) Pumpelly's rule
(c) Rittman's rule (d) Eskola's rule
39. The ration of axial stress to corresponding axial strain for elastic material is known as
(a) Bulk modulus (b) Poisson ratio
(c) Shear modulus (d) Young's modulus
40. Hade of a fault is
(a) $90^\circ + \text{dip}$ (b) $190^\circ - \text{dip}$
(c) Plunge + rake (d) Plunge + dip
41. What is the source of earth's internal heat engine?
(a) Radioactive decay (b) Magnetic decay
(c) Hotspots (d) Heat from core
42. The northward drift of the Indian plate was most rapid during
(a) Palaeocene (b) Eocene
(c) Middle Miocene (d) Pliocene
43. Iceland is in the middle of
(a) The mid-Pacific ridge (b) The mid-convergent ridge
(c) The mid-Caribbean ridge (d) The mid-Atlantic ridge
44. Where would deep-focus earthquakes occur?
(a) Under spreading centres (b) At subduction zone
(c) Along transform faults (d) At mid-oceanic ridge
45. The velocity of P-wave is minimum in the
(a) Crust (b) Asthenosphere
(c) Outer core (d) Inner core
46. Crustal shortening takes place due to
(a) Normal faulting (b) Folding and thrusting
(c) Strike-slip faulting (d) Oblique faulting
47. The closure of Tethys Ocean is linked to
(a) Variscan orogeny (b) Alpine orogeny
(c) Hercynian orogeny (d) Hellenic orogeny
48. Subduction of the Indian plate under Eurasian plate began
(a) 65 ma ago (b) 80 ma ago
(c) 100 ma ago (d) 110 ma ago
49. Which amongst the following is the fastest moving plate?
(a) Nazca (b) Eurasian
(c) African (d) North American
50. The Indo-Gangetic alluvial plains took shape during
(a) Siwalik orogeny (b) Simurian orogeny
(c) Kirthar orogeny (d) Karakoram orogeny

51. Conrad discontinuity lies between
(a) Crust and mantle (b) Sial and sima
(c) Sima and mantle (d) Mantle and core
52. Airy's hypothesis explains mechanism of compensation of mountain areas by assuming crustal blocks of
(a) Equal density (b) Unequal density
(c) Equal thickness (d) Equal depth
53. A typical active margin has
(a) A trench and island arc along its oceanic side
(b) A trench and island arc along its landward side
(c) A trench along its oceanic side and an island arc along its landward side
(d) An island arc along its oceanic side and a trench along its landward side
54. In the case of earthquakes, iso-seismal maps are prepared for their
(a) Magnitude (b) Energy
(c) Intensity (d) Frequency
55. Isolated fragments of continental crust occurring as shallow rise within the ocean basins are known as
(a) Marginal basins (b) Guyots
(c) Micro continents (d) Atolls
56. _____ is formed when African and Eurasian plates collide
(a) Andes mountains (b) Himalayas
(c) Alps (d) Zargos
57. The earth's core is believed to be composed of
(a) Solid Fe & Ni alloys (b) Liquid Fe & Ni alloys
(c) Partially liquid and partially solid Fe & Ni alloys (d) Solid Fe & Co alloys
58. The rate of movement of Indian plate is
(a) 3 cm/year (b) 5 cm/year
(c) 7 cm/year (d) 8 cm/year
59. New sea floor is created at
(a) Deep sea trench (b) Mid oceanic ridge
(c) Subduction zone (d) Hotspots
60. The boundary between Indian and Eurasian plates is the
(a) Main central thrust (b) Main boundary thrust
(c) South Tibetan detachment Zone (d) Indus-Tsangpo Suture Zone
61. Find out the wrong pair
(a) Talchir Group – Rikba Formation (b) Damuda Group – Karharbari Formation
(c) Mahadeva Group – Maleri Formation (d) Rajmahal Group – Chaugan Formation
62. Which of the following belongs to Upper Gondwana?
(a) Glossopteris (b) Gangamopteris
(c) Vertebraria (d) Ptilophyllum
63. The smallest unit of geological time scale is
(a) Eon (b) Era
(c) Peroid (d) Epoch

64. The age of Barail Group is
(a) Oligocene (b) Miocene
(c) Pliocene (d) Pleistocene
65. Which of the following eras represents the longest time interval?
(a) Precambrian (b) Palaeozoic
(c) Mesozoic (d) Cenozoic
66. Which era is called 'Age of Reptiles'?
(a) Palaeozoic (b) Mesozoic
(c) Cenozoic (d) Proterozoic
67. Which of the following is a marine deposit?
(a) Barakar Series (b) Umia Bed
(c) Rajmahal Series (d) Raniganj Series
68. The Lameta beds of Jabalpur represent
(a) Marine facies (b) Marine transgressed facies
(c) Volcanic facies (d) Fluvio-Lacustrine facies
69. A stratum is a
(a) Smallest layered unit of sedimentary rocks (b) Two layered unit of sedimentary rocks
(c) Total sedimentary units of a basin (d) Sedimentary rock of any dimension
70. When did supercontinent Pangea begin to break up?
(a) Cenozoic (b) Mesozoic
(c) Palaeozoic (d) Proterozoic
71. Eparchean unconformity separates geological units of
(a) Early Archean to Late Archean (b) Archean from Proterozoic
(c) Proterozoic from Palaeozoic (d) Archean from Phanerozoic
72. Rajmahal Traps is principally made up of
(a) Coal seams (b) Sandstones and shales
(c) Lava flows (d) Limestones
73. The Mesozoic era ranges between
(a) 400 – 600 ma (b) 375 – 395 ma
(c) 65 – 255 ma (d) 30 – 200 ma
74. Precambrian rocks of Karnataka is known as
(a) Aravalli Supergroup (b) Gondwana Supergroup
(c) Dharwar Supergroup (d) Mawar Supegroup
75. The age of Tipam sandstone is
(a) Eocene (b) Oligocene
(c) Lower Miocene (d) Pliocene
76. Which one is not a time unit?
(a) Period (b) Zone
(c) Age (d) Epoch

77. Bagh Beds are
(a) Deccan traps (b) Intertrappean beds
(c) Infratrappean beds (d) Super-trappean beds
78. K/T boundary occurs in between
(a) Miocene and Oligocene (b) Silurian and Devonian
(c) Cambrian and Precambrian (d) Cretaceous and Tertiary
79. Pachmari and maleri Formations belong to
(a) Damuda Group (b) Rajmahal Group
(c) Jabalpur Group (d) Mahadeva Group
80. When did Trilobite disappeared from the earth?
(a) Silurian (b) Early Miocene
(c) Devonian (d) Upper Permian
81. The most favourable environment for the preservation of fossils is
(a) Terrestrial (b) Lacustrine
(c) Fluvial (d) Marine
82. Sinistral coiling is found in
(a) Pupilla (b) Natica
(c) Physa (d) Trochus
83. Which is the earliest horse fossil in equine evolution?
(a) Orohippus (b) Epihippus
(c) Mohippus (d) Mesohippus
84. Which fossil plant support continental drift theory?
(a) Glossopteris (b) Lycophyta
(c) Ginkgo (d) Equisetum
85. Gastropods having conical shape and long acute spire are described as
(a) Globular (b) Turreted
(c) Turbinate (d) Convolute
86. The study of organic walled microfossil is called as
(a) Micropalaeontology (b) Palynology
(c) Ichinology (d) Palaeontology
87. Fossils are abundantly found in
(a) Igneous rocks (b) Sedimentary rocks
(c) Metamorphic rocks (d) Evaporites
88. Which one is not a bivalve?
(a) Nautilus (b) Lima
(c) Nucula (d) Trigonia
89. Trilobites got extinct towards the close of
(a) Devonian (b) Permian
(c) Cambrian (d) Silurian

90. Petrified wood is an example of
(a) Encrustation (b) Substitution
(c) Alteration (d) Desiccation
91. Ammonoids became extinct during
(a) Upper Carboniferous (b) Late Cretaceous
(c) Upper Cretaceous (d) Eocene
92. Taxodont dentition is present in
(a) Arca (b) Venus
(c) Mya (d) Trigonina
93. Which one is a plant fossil?
(a) Schizoneura (b) Favosites
(c) Productus (d) Syringothyris
94. Antarctic ice sheet was formed permanently after
(a) Pliocene (b) Middle Miocene
(c) Cretaceous (d) Holocene
95. In echinoids, Aristotle's Lantern is found in
(a) Periproct (b) Peristome
(c) Apical disc (d) Lateral margins
96. Which one of these is a planktonic microfossil?
(a) Lagenella (b) Nummulite
(c) Globigerina (d) Rotalia
97. The age of Spirifer is
(a) Ordovician to Devonian (b) Triassic to present
(c) Jurassic (d) Silurian to Permian
98. Ostracoda belongs to phylum
(a) Mollusca (b) Arthropoda
(c) Bryozoa (d) Protozoa
99. Which fossil is known as Java man
(a) Ramapithecus (b) Pithecanthropus
(c) Australopithecus (d) Sinanthropus
100. Derived fossils
(a) Cannot be used as index fossil (b) Can be used as index fossil
(c) Are marker fossil (d) Are trace fossil