

MIZORAM PUBLIC SERVICE COMMISSION
COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF
GEOLOGIST JUNIOR UNDER COMMERCE & INDUSTRIES DEPARTMENT,
GOVERNMENT OF MIZORAM, NOVEMBER, 2022

GEOLOGY PAPER - III

Time Allowed : 2 hours

Full Marks : 200

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

1. An evaluation of a proposed mining project to determine whether the mineral resource can be mined economically is
 - (a) Mining report
 - (b) Feasibility Study
 - (c) Reconnaissance
 - (d) Prospecting
2. Which is the largest Coal mine in India?
 - (a) Gevra OC Mine
 - (b) Kusmunda OC Mine
 - (c) Dipka OCP Mine
 - (d) Lakhanpur OCP Mine
3. Which state is the largest producer of gold in india?
 - (a) Andhra Pradesh
 - (b) Karnataka
 - (c) Kerela
 - (d) Jharkhand
4. Which state is the largest producer of Iron ore in India?
 - (a) Karnataka
 - (b) Madhya Pradesh
 - (c) Odhisa
 - (d) Chhattisgarh
5. Minor minerals are come under the purview of
 - (a) Central Government
 - (b) State Government
 - (c) Both Central and State Government
 - (d) Autonomous council
6. Ore to separate and concentrate valuable minerals by the processed of milling and
 - (a) tailing
 - (b) flotation
 - (c) smelting
 - (d) crushtability
7. Which of the following states is largest producer of Bauxite?
 - (a) Odisha
 - (b) Rajasthan
 - (c) Jharkhand
 - (d) Karnataka
8. Which of the following state is the leading producer of Limestone?
 - (a) Andhra Pradesh
 - (b) Madhya Pradesh
 - (c) Rajasthan
 - (d) Gujarat
9. Which state is the largest producer of mica in India?
 - (a) Andhra Pradesh
 - (b) Jharkhand
 - (c) Rajasthan
 - (d) Odisha
10. UNFC is a system classifying the estimates based on three digit codes representing as
 - (a) EFG
 - (b) EFD
 - (c) RRR
 - (d) RRF

11. Ore deposits which have formed at the same time as the rock in which they occur is called
 - (a) Syngenetic deposits
 - (b) Epigenetic deposits
 - (c) Epithermal deposits
 - (d) Sedimentary deposits
12. The substance added to convert infusible mass into some fusible mass is called
 - (a) Metalurgy
 - (b) Slag
 - (c) Matrix
 - (d) Flux
13. The hydrothermal deposits are formed within a temperature range of
 - (a) 20 to 300°C
 - (b) 50 to 500°C
 - (c) 70 to 700°C
 - (d) 90 to 900°C
14. Which Metallogenic epochs is known in India by the rich coal deposits of Lower Gondwana?
 - (a) Late Mesozoic epoch
 - (b) Tertiary epoch
 - (c) Precambrian epoch
 - (d) Late Palaeozoic epoch
15. In mineral deposit, a final class of hydrothermal deposit is called
 - (a) Metallogenic Epoch
 - (b) Metallogenic Province
 - (c) Stratiform deposits
 - (d) Stratibound deposits
16. During Geophysical Data Processing, the geophysicist's task is to separate and interpret the 'signal' from the
 - (a) wave
 - (b) noise
 - (c) frequency
 - (d) time
17. At depths of a few tens of kilometers under continents and less than ten kilometers beneath the oceans seismic velocities increase sharply
 - (a) Decrease sharply
 - (b) Increase sharply
 - (c) Constant
 - (d) None of the above
18. If the principal stresses are all of equal magnitude within a body the condition of stress is said to be
 - (a) hydrostatic
 - (b) lithostatic
 - (c) stress tensor
 - (d) hydropressure
19. The goal of gravity surveying is to locate and describe subsurface structures from the gravity effects caused by their anomalous
 - (a) densities
 - (b) magnetic field
 - (c) electric charges
 - (d) elevations
20. In profile of the Geophysical anomalies, the Wavelengths and half-widths are important because they are related to the sources
 - (a) gravity
 - (b) magnetic
 - (c) size
 - (d) depths
21. During Geophysical survey a Points where regular measurements of background are made whilst field readings are taken elsewhere is called
 - (a) Diurnal bases
 - (b) Reference bases
 - (c) Drift bases
 - (d) Zero bases
22. The temperature above which ferromagnetic materials lose their permanent magnetic field is called
 - (a) Neel Temperature
 - (b) Curie Temperature
 - (c) Absolute temperature
 - (d) Magnetic temperature
23. The measurement of resistance and penetration is done by
 - (a) dynamic and static loading
 - (b) dynamic loading
 - (c) static loading
 - (d) no loads9.

24. When the velocity is higher in the underlying layer there is a particular angle of incidence, known as
(a) seismic angle (b) higher angle
(c) critical angle (d) adverse angle
25. Geophysical Methods are divided into Natural field methods and Artificial sources methods, Natural field methods is called
(a) Active Methods (b) Passive Methods
(c) Ground Methods (d) Surface Methods
26. Devices used on land to detect seismic ground motions are known as
(a) hydrophones (b) geophones
(c) chirps (d) pingers
27. Vertical electrical sounding (VES), also known as 'electrical drilling' or 'expanding probe', is used mainly in the study of
(a) Horizontal interface (b) Vertical interface
(c) Inclined interface (d) Deep interface
28. The sun and moon create time-dependent tidal forces that affect the measured value of gravity by about
(a) 0.1 mgal (b) 0.3 mgal
(c) 10 mgal (d) 30 mgal
29. Two main types of correction need to be applied to seismic traces in order that the resultant seismic sections give a true representation of geological structure are
(a) Active and passive (b) Passive Methods
(c) Static and dynamic (d) Surface Methods
30. The magnetic anomaly of a body of regular shape is calculated by determining
(a) Magnetic moment/Area (b) Magnetization/Area
(c) Depth/Area (d) Pole strength/Area
31. Under which section Minor minerals are prescribed by Mines and Minerals Development and Regulation (MMDR) Act, 1957 _____.
(a) section 2(e) (b) section 3(e)
(c) section 4(e) (d) section 5(e)
32. Which plateau is called as mineral heart land of India?
(a) Malwa Plateau (b) Marwar Plateau
(c) Chota Nagpur plateau (d) Deccan Plateau
33. Material that has been identified and can be extracted at a profit at the time of determination is called
(a) Resources (b) Reserves
(c) Deposits (d) None of the above
34. In mining exploration programmes where there are no pre-existing mines or prospects is called
(a) Brownfield exploration (b) Greenfield exploration
(c) Redfield exploration (d) Yellowfield exploration
35. The exploration for any mineral deposit involves four stages such as reconnaissance survey (G4), preliminary exploration (G3), general exploration (G2) and
(a) detailed exploration (G1) (b) detailed survey (G1)
(c) deposit exploration (G1) (d) deposit survey (G1)

36. The Ideal Scale for the Detailed maps of established prospects is
(a) 1:50–1:1,000 (b) 1:100–1:1,000
(c) 1:500–1:2,500 (d) 1:5,000–1:25,000
37. The valueless mineral particles within an ore deposit that must be discarded is called
(a) Smelting (b) Waste
(c) Ore (d) Gangue
38. Deposits that formed after consolidation of their host rocks is
(a) Stockwork deposits (b) Disseminated deposits
(c) Syngenetic deposits (d) Epigenetic deposits
39. When re-filling the trench the spoil should be replaced in reverse order so that the topsoil is preserved on
(a) Top (b) Bottom
(c) mixing (d) middle
40. Open-cut strip mining requires removing a series of horizontal slices is called
(a) berm (b) batter
(c) flipped over (d) flitches
41. _____ is usually employed to test shallow, extensive, flat-lying bodies of mineralization.
(a) Trenching (b) Pitting
(c) Strip (d) Sluicing
42. The acute angle between the planar surface (ellipse axis) and the drill core axis is known as
(a) angle alpha (b) angle beta
(c) angle gamma (d) angle Sluicing
43. Which Reserve Estimation methods employed for ore reserve estimation utilize three-dimensional spatial statistics to improve the quality of the estimate?
(a) Inverse distance method (b) Triangle method
(c) Polygon method (d) Geostatistical methods
44. The block model had good geological control, but the structural control was lacking. The ore calculation resulted in
(a) overestimation of reserves (b) underestimation of reserves
(c) disparity of reserves (d) discrete of reserves
45. The generic geostatistical method of spatial interpolation is termed
(a) Kriging (b) Cholesky
(c) Markov (d) Gaussian
46. It is generally accepted that coal originated from plant debris which accumulated and settled in
(a) Estuarine (b) Beach
(c) Lagoon (d) Swamps
47. The carbon content of Lignite is around
(a) 35% (b) 45%
(c) 55% (d) 65%.
48. The most favorable conditions for the formation of coal occurred in the world during
(a) Silurian Period (b) Carboniferous Period.
(c) Permian Period (d) Tertiary Period

49. Macerals of coal originally formed by spores, pollen, dinoflagellate cysts, leaf cuticles, and plant resins and waxes is called
- (a) vitrinite (b) liptinite
(c) inertinite (d) exinite
50. Coalification temperatures of bituminous coal are approximately
- (a) 45–90 degree C (b) 70–120 degree C
(c) 100–170 degree C (d) 140–210 degree C
51. In India, the gradation of coking coal is based on
- (a) calorific value (b) moisture content
(c) ash content (d) grade
52. Coal appearance with Black to dark grey, non banded coal with dull to greasy lustre, often breaks with conchoidal fracture lithotype is called
- (a) Vitrain (b) Clarain
(c) Boghead (d) Cannel
53. In India, Tertiary coal is formed from the rock of the
- (a) Oligocene period (b) Paleocene period
(c) Miocene period (d) Pliocene period
54. What is intermediate product formed during diagenesis and is the principal source of hydrocarbon generation is
- (a) organic matter (b) phosphatic
(c) bitumen (d) kerogen
55. Source rock quality of Good in Total Organic Carbon (TOC) Weight percent is
- (a) 0.5 -1.0 (b) 1.0 - 2.0
(c) 2.0 - 4.0 (d) more than 4
56. The oil window ranges from 60-150 degrees C with peak oil generation at about
- (a) 80 degrees C (b) 100 degrees C
(c) 120 degrees C (d) 140 degrees C
57. The process in which hydrocarbons move along a porous and permeable layer to its final accumulation is called
- (a) primary migration (b) secondary migration
(c) oil phase migration (d) migration in solution
58. The most harmful (external hazard) radiation emit by Radioactive materials is
- (a) Alpha (b) Beta
(c) Gamma (d) Proton
59. Among sedimentary rocks, which (usually) has emit more Gamma rays
- (a) Sandstone (b) Limestone
(c) Conglomerate (d) Shale
60. An Instruments used for measuring beta particles is
- (a) scintillation counter (b) spectromet
(c) geiger counter (d) radon emanometer
61. Engineering classification of rocks (UCS) High strength is
- (a) 280-560 kg/sqcm (b) 560-1120 kg/sqcm
(c) 1120-2240 kg/sqcm (d) None of the above

62. Young's Modulus quantifies the relationship between stress and strain occurring in the
(a) same direction (b) opposite direction
(c) perpendicular direction (d) crossing
63. In total volume of Reinforced concrete, the aggregate (fine and coarse) fill up percent is
(a) 50-65% (b) 60-75%
(c) 70-85% (d) 80-95%
64. A cantilever or strap footing normally comprises two footings connected by a beam called a
(a) strip footing (b) strap footing
(c) spread footing (d) stepped footing
65. In Rock Quality Designation (RQD) sound core having a minimum length of
(a) 50mm (b) 750mm
(c) 100mm (d) 125mm.
66. Earthquake-Resistant Buildings Design method is called the strong-column and
(a) weak-beam (b) strong-beam
(c) resistivity-beam (d) moderate-beam
67. The Plasticity Index (PI) of soil is the difference between the plastic limit and
(a) shrinkage (b) attenberg limit
(c) liquid limit (d) flow limit
68. The use of mat foundation is for columns and walls foundations, where the loads from the structure on columns and walls are
(a) very low (b) low
(c) moderate (d) very high
69. In a Dam, structure built to support or reinforce the height of a masonry wall is called
(a) diversion (b) buttress
(c) embankment (d) coffer
70. A coastal structure constructed perpendicular to the coastline from the shore into the sea to trap longshore sediment transport or control longshore currents is called
(a) seawall (b) breakwater
(c) headland (d) groyne
71. The point on the earth's surface directly above the focus of an earthquake is called
(a) Epicenter (b) Hypocenter
(c) Focal point (d) Originate
72. Classification of Earthquake, a magnitude between 7.0 - 7.9 is called
(a) slight (b) moderate
(c) high (d) very high
73. Non-displaced ground adjacent to the highest portion of the main scarp of a landslide is called
(a) Head (b) Main scarp
(c) Crown (d) Toe
74. Slope movement with velocity less than 13m/month is called
(a) very slow (b) slow
(c) fast (d) rapid

75. Which seismic zone does India's north eastern region belong to?
(a) Zone - II (b) Zone - III
(c) Zone - IV (d) Zone - V
76. Find the sum of the cubes of the first 10 natural numbers
(a) 3010 (b) 3040
(c) 3025 (d) 3020
77. How many numbers upto 700 are divisible by both 3 and 5?
(a) 42 (b) 46
(c) 39 (d) 52
78. Which is the smallest prime number?
(a) 0 (b) 1
(c) 2 (d) 3
79. Square root of 104976
(a) 322 (b) 324
(c) 326 (d) 328
80. Which is the smallest?
(a) $\frac{3}{4}$ (b) $\frac{1}{3}$
(c) $\frac{2}{7}$ (d) $\frac{3}{5}$

Directions (Questions no. 81 - 83) Find the missing number from the series:

81. 0, 2, 6, 12, 20,?....., 42
(a) 25 (b) 30
(c) 32 (d) 40
82. 2, 4, 8, 16, 32, 64,?.....
(a) 81 (b) 100
(c) 106 (d) 128

83.

7	14	21
9	18	27
13	?	39

- (a) 20 (b) 21
(c) 25 (d) 37

Directions (Question No. 84 - 90) : Read the passage carefully and answer the following as directed:

Theodore Roosevelt was born with asthma and poor eyesight, yet this sickly child later won fame as a political leader, a Rough Rider, and a hero of the common people. To conquer his handicaps, Teddy trained in a gym and became a lightweight boxer at Harvard. Out west, he hunted buffalo and ran a cattle ranch. Back east, he became a civil service reformer and police commissioner. He became President McKinley's assistant Navy secretary during the Spanish-American War. Also, he led a charge of cavalry Rough Riders up San Juan Hill in Cuba. After achieving fame, he became governor of New York and went on to become the vice president.

When McKinley was assassinated, Theodore Roosevelt became the youngest president at age 42. He is famous for his motto, "Speak softly and carry a big stick." Roosevelt battled for meat inspection and pure-food laws. Also, he wanted to save the forests and break the grip that big business had on steel and oil. Roosevelt persuaded the diplomats of warring Russia and Japan to make peace.

- 84.** Which of the following states the main idea of the passage?
- (a) Theodore Roosevelt was a man of many accomplishments
 - (b) Presidents should speak softly and carry big sticks
 - (c) Presidents can help countries make peace
 - (d) A governor can become a president
- 85.** What achievement illustrates Roosevelt's ability to overcome personal obstacles?
- (a) He led a charge of cavalry Rough Riders in Cuba
 - (b) He is famous for his motto, "Speak softly and carry a big stick"
 - (c) He overcame his asthma by training in a gym, and he became a boxer
 - (d) He became governor of New York
- 86.** According to the passage, how did Roosevelt first become president?
- (a) He won the support of his party in a political campaign
 - (b) As vice president, he took over the presidency when McKinley was assassinated
 - (c) He won the nation's popular vote
 - (d) He won the necessary Electoral College votes
- 87.** He first worked under President McKinley in what capacity?
- (a) Assistant Navy secretary during the Spanish-American War
 - (b) Police commissioner
 - (c) Governor of New York
 - (d) Civil service reformer

Directions (Question No. 88 - 90) : Choose the word which is most nearly similar in meaning to the word printed in capital letters.

88. REFORMER

- (a) Politician
- (b) Republican
- (c) Crusader
- (d) Democrat

89. CAVALRY

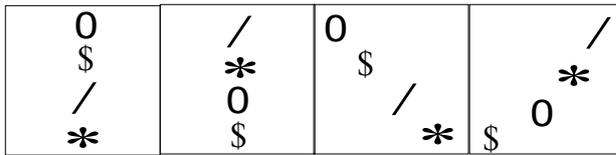
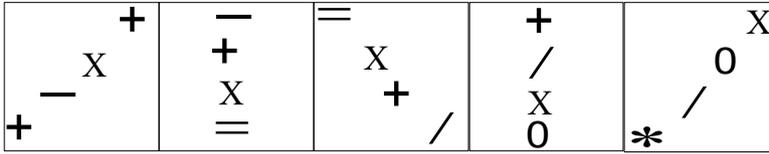
- (a) Army
- (b) Civilians
- (c) Cow-boys
- (d) Mounted troops

90. DIPLOMATS

- (a) Envoys
- (b) Politicians
- (c) Aristocrats
- (d) Leaders

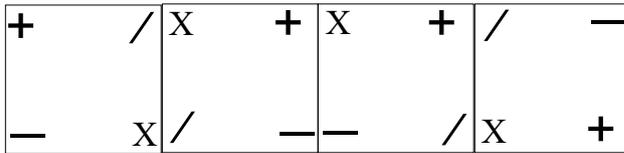
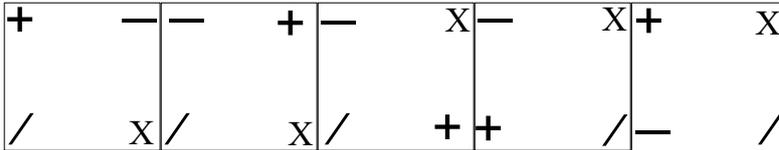
Directions (Question No. 91 - 95) : What comes next in the series out of the four answer figures given below:

91.



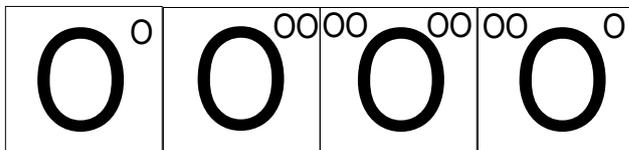
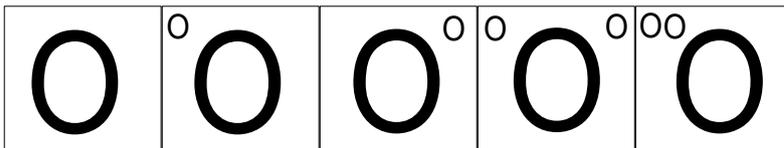
- (a)
- (b)
- (c)
- (d)

92.



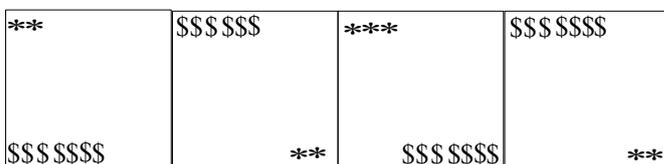
- (a)
- (b)
- (c)
- (d)

93.



- (a)
- (b)
- (c)
- (d)

94.



- (a)
- (b)
- (c)
- (d)

95.

O	+ O	O B +	+ O * B	B + O *
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O B + *	* O B +	* B + O	O * B +
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(a) (b) (c) (d)

Directions (Question No. 96 - 98) : Choose the odd one out:

96.

- (a) August
- (b) July
- (c) May
- (d) June

97.

- (a) Cater
- (b) Provide
- (c) Canter
- (d) Supply

98.

- (a) Tin
- (b) Gold
- (c) Brass
- (d) Copper

Directions (Question No. 99 - 100) : The following questions involve letter coding, number coding and mixed letter coding. Each letter in a word is replaced by certain other alphabet/number according to a specific rule. You are required to decode the given words.

99. CREAM → AMECR :: PERFUME → ?

- (a) REPFEMU
- (b) UMEFPER
- (c) UPMEFER
- (d) UMEFREP

100. Fruits are sweet → 436

Lets have fruits → 214

Fruits have vitamin → 415

Now, Vitamin = ?

- (a) 4
- (b) 1
- (c) 5
- (d) 2

* * * * *