

Code No.

**R – 2116**

**Entrance Examination for Admission to the P.G. Courses in the  
Teaching Departments, 2023**

**CSS  
GEOLOGY**

**General Instructions**

1. The Question Paper is having 100 Objective Questions, each carrying one mark.
2. The answers are to be (✓) 'tick marked' **only** in the "**Response Sheet**" provided.
3. **Negative marking** : **0.25 marks** will be deducted for each wrong answer .

**Time : 2 Hours****Max. Marks : 100**

To be filled in by the Candidate									
Register Number	in Figures								
	in words								

Choose appropriate answer from the options in the questions.

**(100 × 1 = 100 marks)**

1. Andesite is expected to occur in which of the following tectonic settings?
  - a) Mid oceanic ridge
  - b) Rift valley
  - c) Subduction zone
  - d) Transform boundaries

DO NOT WRITE HERE

- 
2. Volcanic equivalent of diorite is
- |             |             |
|-------------|-------------|
| a) Rhyolite | b) Basalt   |
| c) Andesite | d) Trachyte |
3. The greatest principal axis of \_\_\_\_\_ fault is vertical.
- |                  |                 |
|------------------|-----------------|
| a) Reverse fault | b) Normal fault |
| c) Oblique fault | d) Thrust fault |
4. Gangamopteris is a
- |           |          |
|-----------|----------|
| a) Phylum | b) Class |
| c) Order  | d) Genus |

5. A sharp, steep sided ridge formed by the erosion of a tilting strata is
  - a) Cuesta
  - b) Hogback
  - c) Pediment
  - d) Buttes
6. Guanos are
  - a) Calcareous deposits
  - b) Ferruginous deposits
  - c) Phosphatic Deposits
  - d) Siliceous Deposits
7. Pahoehe structures are associated with which type of lava?
  - a) Blocky lava
  - b) Ropy lava
  - c) Pillow lava
  - d) Lava drain structure
8. Which of the following belongs to tetragonal system?
  - a)  $4/m\bar{3}2/m$
  - b) 422
  - c) 43m
  - d)  $32/m$
9. Unit for transmissivity is
  - a)  $m^2/day$
  - b) m/day
  - c)  $M^2$
  - d)  $m^3/day$
10. The manganese bearing formation of Sausor group, Baster craton is
  - a) Lohangi formation
  - b) Utekata formation
  - c) Dalbhum formation
  - d) Rohtas formation
11. Ophitic texture is commonly shown by
  - a) Trachyte
  - b) Andesite
  - c) Dolerite
  - d) Lamprophyre
12. Which of the following law states "*The ratio between the intercepts on axis for different faces on a crystal is expressed by rational numbers*"?
  - a) Law of constancy of Intercepts
  - b) Law of Rational indices
  - c) Law of edge Dislocation
  - d) Law of Interfacial angle

13. What is a JOIDES Resolution?
- a) Research Vessel
  - b) Remote Sensing Satellite
  - c) Orbital Camera
  - d) Petrographic microscope
14. Which crystallographic system does sphalerite belong to?
- a) Isometric
  - b) Hexagonal
  - c) Tetragonal
  - d) Orthorhombic
15. Which of the following landforms are associated with unconfined ice flow?
- a) Alpine troughs
  - b) Fjords
  - c) Flyggberg
  - d) Rock bar
16. When younger rocks are surrounded by the older rock formation in an outcrop, the structural feature is called as
- a) Dome
  - b) Inlier
  - c) Basin
  - d) Outlier
17. The term “tenor” indicates
- a) Metal content of an ore
  - b) Gangue content of an ore
  - c) Method of formation of mineral deposits
  - d) Ore percentage in an ore deposit
18. Calcite is characterized by rhombohedral cleavage, but fluorite is characterized by
- a) Prismatic cleavage
  - b) Unidirectional cleavage
  - c) Cubic cleavage
  - d) Octahedral cleavage
19. Horizontal entrance built in an underground mine with only one opening is
- a) Shaft
  - b) Tunnel
  - c) Adit
  - d) Portal

20. Which of the following pairs of minerals does not occur in equilibrium in igneous rocks?
- a) Quartz-tourmaline
  - b) Plagioclase - amphibole
  - c) Quartz -olivine
  - d) Quartz-Ca plagioclase
21. Which of the following is not correctly matched?
- a) Abrasion: Wind carrying fine-grained sand in suspension, collides against exposed rock masses and causes erosion
  - b) Deflation: The particles that travel with wind collide against one another
  - c) Loess: a blanket of silt formed by settling of suspended load, transported by wind
  - d) Saltation: loose material, removed from the bed and carried by fluid, before being transported back to the surface, like jump and skip
22. Supergene Sulphide enrichment zone is found
- a) Above the water table
  - b) In oxidizing zone
  - c) Near the ground surface
  - d) Below the water table
23. Body of strata in which maximum abundance of a species is found is
- a) Acme Zone
  - b) Interval Zone
  - c) Assemblage zone
  - d) Range Zone
24. What is an anticlinal structure which plunges in all directions called?
- a) Basin
  - b) Geosyncline
  - c) Dome
  - d) Plunging fold
25. The top of the Singhbhum group is interbedded with lava flow and tuff, which are called
- a) Dhanjori Trap
  - b) Dalma Trap
  - c) kolhan
  - d) Rajmahal Traps

26. The grooves and striations formed on the walls of the bed/rock because of the fault movements is known as
- a) Drags
  - b) Foliations
  - c) Slickensides
  - d) Mullions
27. Test conducted in Rock Mechanics to determine tensile strength of rock is
- a) Schmidt Hammer test
  - b) Brazilian Test
  - c) Point load test
  - d) Falling head method
28. Which group of Cuddappah supergroup has the whole succession folded and contains ores of lead and copper?
- a) Nallamalai
  - b) Kistna
  - c) Cheyair
  - d) Papaghani
29. Suture line with rounded saddles and angular lobes are found in
- a) Orthoceras
  - b) Ceratites
  - c) Phylloceras
  - d) Goniatites
30. Age of Productus limestone of Salt range?
- a) Upper Carboniferous
  - b) Permian
  - c) Lower Carboniferous
  - d) Devonian
31. Who proposed the theory of Seafloor spreading?
- a) Harry Hess
  - b) Alfred Wegener
  - c) Immanuel Kant
  - d) John Dalton
32. Name the processes by which chromite ore is formed in mafic-ultramafic rocks.
- a) Early magmatic dissemination
  - b) Late magmatic segregation
  - c) Late magmatic injection
  - d) Early magmatic segregation
33. Age of Muth quartzite is
- a) Cambrian
  - b) Ordovician
  - c) Devonian
  - d) Silurian

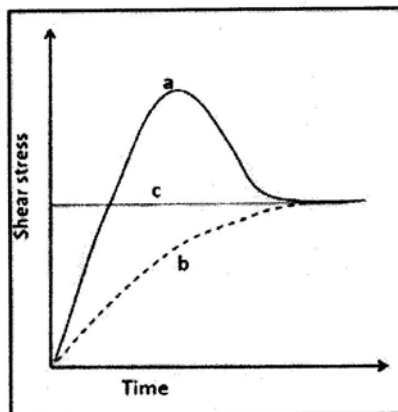
34. Sensor that collect the dispersed radiation in bands rather than discrete individual wavelengths is
- a) Photometer
  - b) Radiometer
  - c) Spectrometer
  - d) Spectroradiometer
35. Name the fold with an almost horizontal axial plane.
- a) Recumbent fold
  - b) Reverse fold
  - c) Overthrust
  - d) Overturned fold
36. Tunneling is favorable in which of the following conditions.
- a) Tunnel alignment parallel to axis of fold
  - b) Tunnel alignment perpendicular to the axis of fold
  - c) Both (a) and (b)
  - d) Neither (a) nor (b)
37. What is the most important/major component of smog?
- a) Carbon dioxide
  - b) Nitrogen oxide
  - c) Oxygen
  - d) Water vapour
38. \_\_\_\_\_ is the vertical component of the displacement of the fractured rock block of the fault.
- a) Hade
  - b) Dip
  - c) Throw
  - d) Heave
39. \_\_\_\_\_ type of scattering occurs when the size of spherical particles is equal to the wavelength of the incident energy.
- a) Raman Scattering
  - b) Rayleigh Scattering
  - c) Mie scattering
  - d) Non-selective scattering
40. Which of the following Gastropods has sinistral coiling?
- a) Murex
  - b) Conus
  - c) Cerithium
  - d) Planorbis

41. The curved fault with a nearly circular or arc outcrop on the level surface is called
- a) Peripheral Fault
  - b) En Echelon Fault
  - c) Radial Fault
  - d) Pivotal Fault
42. Which year did Kerala experience catastrophic flooding that affected over 1 million people?
- a) 2017
  - b) 2018
  - c) 2016
  - d) 2019
43. Horizontal angle between the true meridian and the magnetic meridian is called
- a) Magnetic declination
  - b) Magnetic Inclination
  - c) Strike
  - d) Plunge
44. Which of the following Trilobites lacks eyes?
- a) Olenus
  - b) Paradoxide
  - c) Agnostus
  - d) Phacops
45. The product of area and average slip across the fault break is called
- a) Moment magnitude
  - b) Epicenter
  - c) Richter magnitude
  - d) Moment
46. Average salinity of seawater is
- a) 35 ppt
  - b) 65 ppt
  - c) 3.6 ppm
  - d) 6.5 ppm
47. Which mineral has the highest concentration in Polymetallic Nodules?
- a) Nickel
  - b) Copper
  - c) Manganese
  - d) Zinc
48. Which one of the following groups contain Sirbu shale formation?
- a) Semri group
  - b) Kaimur group
  - c) Rewa Group
  - d) Bhandar Group



49. Name the app launched by the Kerala government to aid disaster management.
- a) Kerala Alert
  - b) Kerala Emergency Response
  - c) Kerala Rescue
  - d) Kerala Disaster Response
50. Name the satellite which is used to monitor changes in groundwater storage?
- a) IRS LISS III
  - b) GRACE
  - c) IRS LISS I
  - d) GWSM
51. Which of the following statements is incorrect?
- a) Tensional joint systems generated in response to pressure release can induce a degree of slope convexity
  - b) Alternating beds of varying resistance can give rise to compound slopes comprising a series of free faces separated by talus slopes
  - c) Rock slopes generally lie towards the weathering limited end of the continuum of detachability
  - d) Convex slope segments most frequently occur on slope toe
52. Flat-topped underwater volcanoes on the ocean floor are known as
- a) Island Arc
  - b) Guyots
  - c) Archipelago
  - d) Atoll
53. Which of the following is a Non-rigid Dam?
- a) Cupola Dam
  - b) Buttress Dam
  - c) Arch Dam
  - d) Rock Fill Dam
54. Which type of seismic wave is responsible for causing the most damage during an earthquake?
- a) P-waves
  - b) S-waves
  - c) Surface waves
  - d) Love waves
55. Which animal's fossil provides evidence for continental drifting?
- a) Archaeopteryx
  - b) Stereosternum
  - c) Mesosaurus
  - d) Conodonts

56. Low velocity zone (LVZ) is shallowest below
- Pacific plate
  - Atlantic Plate
  - Indian plate
  - North American Plate
57. Which among the following is the spatial resolution of LIS III camera of IRS 1C?
- 2.5 m
  - 23.5 m
  - 2.35 m
  - 2 m
58. Which geomorphological model relates to the following statement: 'Uniform rate of river incision would give rise to straight slopes that would retreat at a constant angle.'
- King's Model
  - Budel Model
  - Penck Model
  - Davisian Model
59. The following graph shows the change in shear strength with time for different soil packing degrees. Mark the correct option for the given curves.
- a-Residual strength, b-Densely packed soil, c- Loosely packed soil
  - a-Densely packed soil, b- Residual strength, c- loosely packed soil
  - a-Densely packed soil, b- Loosely packed soil, c- Residual strength
  - a-Densely packed soil, b- unconsolidated soil, c- loosely packed soil



60. Solution type dolines may be so numerous that they merge into each other to form \_\_\_\_\_ feature.
- Mogotes
  - Kegel
  - Uvalas
  - Poljes

61. Chemical formulae of andalusite is

- a)  $\text{SiO}_2$
- b)  $\text{Al}_2\text{SiO}_5$
- c)  $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$
- d)  $\text{Al}_2\text{O}_3$

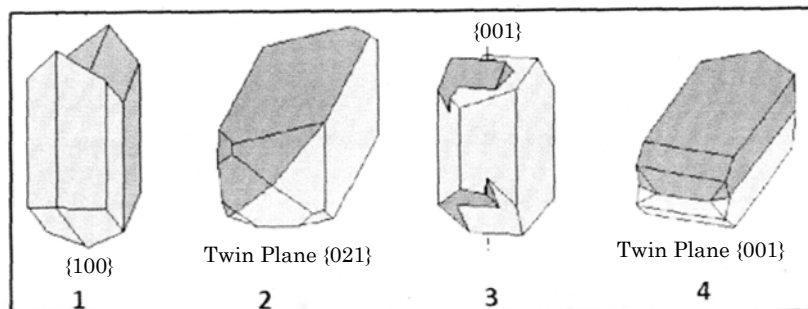
62. Which of the following rocks contains Pb-Zn mineralization in the Zawar belt?

- a) Schist rocks
- b) Quartzite rocks
- c) Slate rocks
- d) Dolomite rocks

63. Which of the following facies has the mineral assemblage omphacite + garnet  $\pm$  kyanite  $\pm$  rutile  $\pm$  diamond?

- a) Blueschist facies
- b) Eclogite facies
- c) Granulite facies
- d) Amphibolite facies

64. Mark the correct options for the type of twins

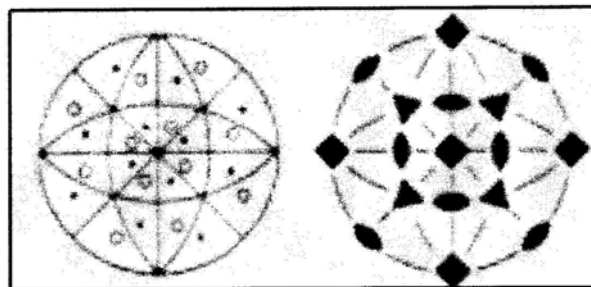


- a) 1-Manebach, 2-Carlsbad, 3- Baveno, 4-Swallow Tail
- b) 1-Carlsbad, 2-Swallow Tail, 3- Manebach, 4- Baveno
- c) 1-Swallow Tail, 2- Baveno, 3-Carlsbad, 4- Manebach
- d) 1-Baveno, 2- Manebach, 3-Swallow Tail, 4-Carlsbad

65. Gossan is a

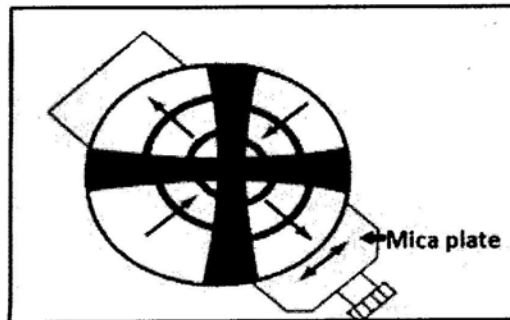
- a) Ferruginous residue
- b) Siliceous residue
- c) Calcareous residue
- d) Organic residue

66. Poor sediment sorting is usually the result of
- Rapid deposition and more reworking
  - Slow deposition and more reworking
  - Slow deposition and less reworking
  - Rapid deposition and less reworking
67. Myrmekitic texture is produced by the intergrowth of
- Quartz and Olivine
  - Quartz and Plagioclase
  - Quartz and pyroxene
  - Albite and Anorthite
68. Triboluminescence is due to
- Bending
  - Breaking
  - Crushing
  - All the above
69. Which crystal classes do the following motif units and compatible symmetry elements belong to?



- 422
  - 4/m 2/m 2/m
  - 432
  - 4/m 3 2/m
70. Gem variety of olivine is
- Morganite
  - Goshenite
  - Heliodor
  - Peridot
71. Lysimeter is used for measuring
- Consumptive use
  - Infiltration
  - Percolation
  - Conjunctive use

72. The following figure corresponds to



- |                      |                      |
|----------------------|----------------------|
| a) Uniaxial positive | b) Uniaxial negative |
| c) Biaxial positive  | d) Biaxial negative  |

73. Which of the following statements is incorrect?

- a) Labradorescence: Light scattered by extremely thin exsolution lamellae
- b) Silky appearance: Reflected light upon closely packed parallel fibres
- c) Cat's eye: Quartz containing minute fibres of amphibole
- d) Asterism: Inclusions arranged in three directions at 120° to each other

74. Which of the following does not belong to the four C's when it comes to diamond value?

- |          |                |
|----------|----------------|
| a) Carat | b) Clarity     |
| c) Cut   | d) Composition |

75. Anorthosite is dominantly composed of

- |               |                 |
|---------------|-----------------|
| a) Oligoclase | b) Labradorite  |
| c) Andesine   | d) Anorthoclase |

76. Darcy's law is applicable only for

- |                 |                                     |
|-----------------|-------------------------------------|
| a) Tabular Flow | b) Turbulent Flow                   |
| c) Laminar Flow | d) Irrespective of the type of flow |

77. Batholiths are generally found associated with

- |                     |                      |
|---------------------|----------------------|
| a) Island arc       | b) Folded structures |
| c) Plate boundaries | d) Orogenic belts    |

78. Porosity is unaffected by

- |            |             |
|------------|-------------|
| a) Sorting | b) Diameter |
| c) Packing | d) Shape    |

79. Half-life period of radioactive Rubidium 87 is approximately
- 28 billion years
  - 480 billion years
  - 4.8 billion years
  - 48 billion years
80. To examine flow velocity, which of the following equations incorporates the roughness coefficient?
- Chezy's equation
  - Darcy's equation
  - Manning equation
  - Froude's equation
81. Which zone in the soil horizon is known as the zone of eluviation?
- A horizon
  - B horizon
  - O horizon
  - E horizon
82. Where linear zones of weakness, such as joints or faults, cause streams to erode along the weak areas of the rock, rectangular drainage patterns develop.
- Radial
  - Rectangular
  - Trellis
  - Parallel
83. Identify the type of fold in which the limbs are parallel to each other and have the same limb angle value and direction.
- Plunging fold
  - Isoclinal fold
  - Symmetrical fold
  - Asymmetrical fold
84. What is the height of the water table from the mean sea level if the depth (below MSL) at which seawater has been found in the aquifer is 252m?
- 6.3m
  - 5.6m
  - 4.3m
  - 7.6m
85. Biotite has an extinction angle of
- $<3^\circ$
  - $33-40^\circ$
  - $45^\circ$
  - $0^\circ$
86. The mean distance between channels upward the maximum valley-side slope and the drainage divide is referred to as
- Elongation ratio
  - Length of overland flow
  - Bifurcation ratio
  - Relief ratio

87. Which of the following mass movements has no well-defined shear plane?
- a) Fall
  - b) Slide
  - c) Flow
  - d) Bank calving
88. Which of the following statements is incorrect?
- a) At a pH of below 4 silica becomes more mobile than aluminium
  - b) Changes in pH appear to be of particular importance in the case of silcrete
  - c) Silica in solution will precipitate when it moves from high pH (>9) to low pH (<9) conditions
  - d) Silica will not retain in weathering profiles to form silcrete unless the drainage is very poor
89. The maximum Reynolds number at which laminar flow may be sustained in stream channels is about
- a) 2000
  - b) 200
  - c) 500
  - d) 1000
90. Which among the following minerals exhibit an unusual variable hardness?
- a) Pyrite
  - b) Kyanite
  - c) Garnet
  - d) Tourmaline
91. The scale of half-degree toposheets is
- a) 1:100,000
  - b) 1:50,000
  - c) 1:250,000
  - d) 1:10,000
92. \_\_\_\_\_ is a radioactive element mainly obtained from the monazite in the beach sands along the Kerala coast.
- a) Rubidium
  - b) Uranium
  - c) Strontium
  - d) Thorium
93. Which among the following is a phosphate mineral?
- a) Cerussite
  - b) Topaz
  - c) Apatite
  - d) Fluorite

- R - 2116**



# ANSWER SHEET

1	A	B	C	D	E	26	A	B	C	D	E	51	A	B	C	D	E	76	A	B	C	D	E
2	A	B	C	D	E	27	A	B	C	D	E	52	A	B	C	D	E	77	A	B	C	D	E
3	A	B	C	D	E	28	A	B	C	D	E	53	A	B	C	D	E	78	A	B	C	D	E
4	A	B	C	D	E	29	A	B	C	D	E	54	A	B	C	D	E	79	A	B	C	D	E
5	A	B	C	D	E	30	A	B	C	D	E	55	A	B	C	D	E	80	A	B	C	D	E
6	A	B	C	D	E	31	A	B	C	D	E	56	A	B	C	D	E	81	A	B	C	D	E
7	A	B	C	D	E	32	A	B	C	D	E	57	A	B	C	D	E	82	A	B	C	D	E
8	A	B	C	D	E	33	A	B	C	D	E	58	A	B	C	D	E	83	A	B	C	D	E
9	A	B	C	D	E	34	A	B	C	D	E	59	A	B	C	D	E	84	A	B	C	D	E
10	A	B	C	D	E	35	A	B	C	D	E	60	A	B	C	D	E	85	A	B	C	D	E
11	A	B	C	D	E	36	A	B	C	D	E	61	A	B	C	D	E	86	A	B	C	D	E
12	A	B	C	D	E	37	A	B	C	D	E	62	A	B	C	D	E	87	A	B	C	D	E
13	A	B	C	D	E	38	A	B	C	D	E	63	A	B	C	D	E	88	A	B	C	D	E
14	A	B	C	D	E	39	A	B	C	D	E	64	A	B	C	D	E	89	A	B	C	D	E
15	A	B	C	D	E	40	A	B	C	D	E	65	A	B	C	D	E	90	A	B	C	D	E
16	A	B	C	D	E	41	A	B	C	D	E	66	A	B	C	D	E	91	A	B	C	D	E
17	A	B	C	D	E	42	A	B	C	D	E	67	A	B	C	D	E	92	A	B	C	D	E
18	A	B	C	D	E	43	A	B	C	D	E	68	A	B	C	D	E	93	A	B	C	D	E
19	A	B	C	D	E	44	A	B	C	D	E	69	A	B	C	D	E	94	A	B	C	D	E
20	A	B	C	D	E	45	A	B	C	D	E	70	A	B	C	D	E	95	A	B	C	D	E
21	A	B	C	D	E	46	A	B	C	D	E	71	A	B	C	D	E	96	A	B	C	D	E
22	A	B	C	D	E	47	A	B	C	D	E	72	A	B	C	D	E	97	A	B	C	D	E
23	A	B	C	D	E	48	A	B	C	D	E	73	A	B	C	D	E	98	A	B	C	D	E
24	A	B	C	D	E	49	A	B	C	D	E	74	A	B	C	D	E	99	A	B	C	D	E
25	A	B	C	D	E	50	A	B	C	D	E	75	A	B	C	D	E	100	A	B	C	D	E

## **ROUGH WORK**

## **ROUGH WORK**

## **ROUGH WORK**