

Code No.

**V – 2349**

**Entrance Examination for Admission to the P.G. Courses in the  
Teaching Departments, 2025**

**CSS  
GEOLOGY**

For office use only

**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								

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Choose appropriate answer from the options in the questions.

**(100 × 1 = 100 marks)**

1. What scientific theory explains how continents have shifted positions throughout Earth's geological history?
  - A. Rock cycle
  - B. Continental drift
  - C. Elastic rebound
  - D. Isostasy

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- 
2. Which landforms typically forms where tectonic plates moving apart?
- A. Trenches
  - B. Island arcs
  - C. Rift valleys
  - D. Transform faults
3. What causes earthquakes according to the elastic rebound theory?
- A. Volcanic eruptions
  - B. Sudden release of accumulated stress in rocks
  - C. Magma moving beneath the surface
  - D. Changes in Earth's gravity

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11. Which of the following is a landform created by wind processes?
- A. Sand dunes
  - B. Fjords
  - C. Moraines
  - D. Ox-bow lakes
12. What is the principle behind the Law of Constancy of Interfacial Angles?
- A. Crystal faces grow at constant rates
  - B. The angles between corresponding faces are constant for all crystals of the same mineral
  - C. Crystal angles always form at  $90^\circ$
  - D. Interfacial angles change with temperature
13. Which of the following is NOT an external symmetry element in crystals?
- A. Rotation axis
  - B. Centre of symmetry
  - C. Mirror plane
  - D. Cleavage plane
14. In Miller indices notation, what does a unit face represent?
- A. A face parallel to a crystallographic axis
  - B. A face that intercepts all three crystallographic axes at unit distances
  - C. A face that cuts only one axis
  - D. A face with a refractive index of 1
15. In twinning, what does the composition plane refers to :
- A. The symmetry plane of the twin
  - B. The plane perpendicular to the twin axis
  - C. The plane where the twin components meet
  - D. The plane that indicates the overall crystal composition
16. What is the purpose of a goniometer in crystallography?
- A. Measuring the hardness of crystal faces
  - B. Measuring the angles between crystal faces
  - C. Measuring the density of crystals
  - D. Measuring the refractive index of crystals



24. Which group of mineral features framework of silicon-oxygen tetrahedra containing large cavities capable of holding water molecules?
  - A. Feldspars
  - B. Zeolites
  - C. Pyroxenes
  - D. Garnets
25. In silicate mineral classification, minerals containing isolated silicon-oxygen tetrahedra are known as \_\_\_\_\_
  - A. Inosilicates
  - B. Phyllosilicates
  - C. Nesosilicates
  - D. Tectosilicates
26. Which of the following binary systems exhibits an incongruent melting relationship?
  - A. Diopside-Anorthite
  - B. Forsterite-Silica
  - C. Albite-Anorthite
  - D. Diopside-Albite
27. Which type of intrusive igneous body is concordant with the surrounding rock layers?
  - A. Dyke
  - B. Ring dyke
  - C. Laccolith
  - D. Volcanic neck
28. Which process of magmatic differentiation involves the removal of early-formed crystals from the molten rock?
  - A. Liquid immiscibility
  - B. Fractional crystallization
  - C. Assimilation
  - D. Contamination
29. What texture describes a mutual relationship between minerals in which all crystals are euhedral?
  - A. Panidiomorphic
  - B. Hypidiomorphic
  - C. Allotriomorphic
  - D. Poikilitic
30. Identify the structure associated with rapidly cooled lava flows in subaqueous environments.
  - A. Columnar jointing
  - B. Ropy lava
  - C. Vesicular structure
  - D. Pillow structure

31. Which tectonic setting creates magma at mid-oceanic ridges?
- A. Continental collision
  - B. Subduction zones
  - C. Divergent plate boundaries
  - D. Transform boundaries
32. Perthite texture is
- A. an intergrowth of quartz and feldspar
  - B. an intergrowth of potassium feldspar and plagioclase
  - C. a reaction texture showing coronas
  - D. a texture showing crystal orientation
33. Identify the pyroclastic deposit from the given options
- A. Columnar basalt
  - B. Lapilli
  - C. Pillow lava
  - D. Sill
34. The term "devitrification" refers to?
- A. The transformation of glass to crystalline material
  - B. The breaking of glass along curved fractures
  - C. The formation of glass from magma
  - D. The dissolution of crystals in magma
35. The silica saturation refers to
- A. The total amount of  $\text{SiO}_2$  in a rock
  - B. The presence or absence of normative quartz or feldspathoids
  - C. The colour index of a rock
  - D. The crystallinity of a rock
36. What is the feature of a poikilitic texture?
- A. Equal-sized crystals
  - B. Large crystals containing smaller inclusions of other minerals
  - C. Oriented arrangement of crystals
  - D. Intergrowth of two feldspars

37. Which type of rock contains high concentrations of carbonate minerals of magmatic origin?
- A. Anorthosite
  - B. Lamprophyre
  - C. Carbonatite
  - D. Kimberlite
38. Diagenesis in sedimentary rocks are defined as:
- A. the process of rock melting
  - B. compaction, cementation, authigenesis, recrystallization and replacement
  - C. classification of rocks based on origin
  - D. the process of metamorphic change.
39. Which of the following is NOT a type of mechanical rock category?
- A. Argillaceous
  - B. Arenaceous
  - C. Rudaceous
  - D. Calcareous
40. The Folk and Dunham scheme is used for the classification of
- A. Sandstone
  - B. Shale
  - C. Limestone
  - D. Breccias
41. What is anatexis in the context of metamorphism?
- A. Partial melting of rocks
  - B. Recrystallization of minerals
  - C. Formation of new minerals
  - D. Change in rock texture
42. Regional metamorphism is associated with
- A. Volcanic intrusions
  - B. Orogenic and ocean floor processes
  - C. Shallow burial of sediments
  - D. Meteor impacts
43. Choose the metamorphic texture preserves features from the original rock.
- A. Crystalloblastic texture
  - B. Cataclastic texture
  - C. Relict texture
  - D. Foliation texture



44. Foliations and lineations are examples of
- A. Metamorphic structures
  - B. Metamorphic textures
  - C. Sedimentary structures
  - D. Igneous structures
45. The process of metasomatism is a
- A. melting and recrystallization of rocks
  - B. chemical change in rocks due to introduction or removal of materials
  - C. physical breaking of rocks due to stress
  - D. change in rock texture without chemical change
46. The primary characteristic of Mylonite forms from
- A. contact metamorphism
  - B. high content of mafic minerals
  - C. intense shearing and grinding
  - D. high content of quartz and feldspar
47. What is the primary naming system used for fossils?
- A. Polynomial nomenclature
  - B. Binomial nomenclature
  - C. Trinomial nomenclature
  - D. Numerical classification
48. The characteristics of Brachiopods are
- A. Umbilicus
  - B. Peristome
  - C. Free cheek
  - D. Pedicle opening
49. Which phylum includes organisms that have an apical system containing ocular and genital plates?
- A. Echinodermata
  - B. Mollusca
  - C. Arthropoda
  - D. Protozoa
50. The plant fossil is known for its tongue-shaped leaves and is an index fossil for Gondwana rocks are
- A. Ptilophyllum
  - B. Glossopteris
  - C. Calamites
  - D. Sigillaria

51. A specimen that serves as the basis for the original description of a species is refers as
- A. Genotype
  - B. Paratype
  - C. Holotype
  - D. Prototype
52. The term "dextral" in gastropod morphology refers to the\_\_\_\_\_
- A. shell thickness
  - B. direction of coiling
  - C. number of whorls
  - D. aperture shape
53. Which class belongs to the phylum Hemichordata?
- A. Anthozoa
  - B. Echinoidea
  - C. Graptolithina
  - D. Pelecypoda
54. What is the key concept that balances resource utilization with environmental preservation for future generations?
- A. Environmental planning
  - B. Sustainable development
  - C. Conservation management
  - D. Ecological equilibrium
55. What is the systematic process used to identify, predict and evaluate the environmental effects of proposed projects?
- A. Environmental Management System
  - B. Environmental Auditing
  - C. Environmental Impact Assessment
  - D. Environmental Monitoring Plan
56. What is the primary classification of mineral deposits according to Bateman?
- A. Based on internal and external processes
  - B. Based on mineral composition
  - C. Based on economic value
  - D. Based on geographical location
57. What non-ore minerals are commonly occurred with ore minerals in a deposit?
- A. Tenor minerals
  - B. Grade minerals
  - C. Gangue minerals
  - D. Secondary minerals

58. "Tenor" in the context of mineral deposits is
- A. the age of the deposit
  - B. the metal content of an ore
  - C. the depth of the deposit
  - D. the hardness of the ore
59. What serves as a barrier preventing the upward migration of oil and gas?
- A. Source rocks
  - B. Reservoir rocks
  - C. Cap rocks
  - D. Traps rocks
60. The break in a stratigraphic succession that represents a significant gap in the geologic record is called
- A. Unconformity
  - B. Non-sequence
  - C. Diastems
  - D. Hiatus
61. The V-shaped pattern of outcrops on a topographic map is explained by:
- A. Rule of V's
  - B. Width of outcrops
  - C. Overlap principle
  - D. Offlap principle
62. An isolated area of older rocks completely surrounded by younger rocks is called
- A. Outlier
  - B. Inlier
  - C. Overlap
  - D. Offlap
63. The relationship between stress and strain in rock deformation represents
- A. Plunge and pitch
  - B. Primary and secondary structures
  - C. Foliation and lineation
  - D. The cause and effect of deformation
64. Which of the following is associated with Cretaceous age deposits?
- A. Palghat region
  - B. Dharwar craton
  - C. Trichinopoly region
  - D. Karewas of Kashmir

65. Which supergroup is associated with Rajasthan in the Early Precambrian?
- |                        |                        |
|------------------------|------------------------|
| A. Vindhyan Supergroup | B. Aravalli Supergroup |
| C. Dharwar Supergroup  | D. Cuddapah Supergroup |
66. The Paleozoic and Triassic successions are primarily found in
- |                 |                   |
|-----------------|-------------------|
| A. Spiti        | B. Kutch          |
| B. Trichinopoly | D. Narmada valley |
67. What is Bowen's reaction series related to?
- The weathering of sedimentary rocks
  - The cooling history of igneous rocks
  - The metamorphic grade of rocks
  - The depositional environments of sediments
68. What is the IUGS classification of igneous rocks primarily based on?
- Quartz, Alkali Feldspar, Plagioclase
  - Silica content only
  - Colour index
  - Texture
69. An isograds in metamorphic rocks represents
- A line connecting points of equal pressure
  - A line connecting points where a specific mineral appears or disappears
  - A measure of rock density
  - The boundary between igneous and metamorphic rocks
70. Which of the following is NOT a metamorphic rock derived from a pelitic parent rock?
- |           |             |
|-----------|-------------|
| A. Slate  | B. Phyllite |
| C. Marble | D. Schist   |
71. The pallial line and pallial sinus are morphological features of the class
- |               |               |
|---------------|---------------|
| A. Gastropoda | B. Pelecypoda |
| C. Trilobita  | D. Anthozoa   |

72. Which environmental issue is primarily associated with the release of carbon dioxide and methane into the atmosphere?
- A. Acid rain
  - B. Ozone depletion
  - C. Greenhouse effect
  - D. Nuclear contamination
73. Which type of natural resources cannot be replenished within a human lifetime?
- A. Solar energy
  - B. Wind power
  - C. Fossil fuels
  - D. Forest resources
74. Which of the following is a major environmental consequence of mining activities?
- A. Ozone layer depletion
  - B. Land degradation and habitat destruction
  - C. Urban heat island effect
  - D. Increased precipitation
75. Which water pollution parameter is particularly associated with toxic effects on aquatic life and human health through bioaccumulation?
- A. Dissolved oxygen content
  - B. Biochemical oxygen demand
  - C. Total dissolved solids
  - D. Heavy metal contamination
76. What type of deposits result from the precipitation of minerals from hot, mineral- rich fluids?
- A. Evaporite deposits
  - B. Hydrothermal deposits
  - C. Sedimentary deposits
  - D. Residual concentration deposits
77. Which process involves the interaction between magma and surrounding country rocks to form mineral deposits?
- A. Contact metasomatic deposition
  - B. Hydrothermal deposition
  - C. Metamorphic deposition
  - D. Volcanic exhalative deposition
78. A planar structure developed in metamorphic rocks due to the preferred orientation of minerals is called :
- A. Lineation
  - B. Jointing
  - C. Stratification
  - D. Foliation

79. Which of the following structures is typically formed as a result of compressional stress in the Earth's crust?
- |                 |                      |
|-----------------|----------------------|
| A. Normal fault | B. Strike slip fault |
| C. Anticline    | D. Graben            |
80. The Index fossils used for :
- |                              |                            |
|------------------------------|----------------------------|
| A. Stratigraphic correlation | B. Classification of rocks |
| C. Composition of sediments  | D. structure of fossils    |
81. A geological formation that contains water but does not transmit it readily refers as:
- |              |             |
|--------------|-------------|
| A. Aquiclude | B. Aquifer  |
| C. Aquitard  | D. Aquifuge |
82. Which law governs the exploitation of ocean resources?
- |                             |                        |
|-----------------------------|------------------------|
| A. Maritime Commerce Act    | B. Law of the Sea      |
| C. Oceanographic Regulation | D. Marine Resource Act |
83. Perched aquifer means
- An aquifer located at high altitude
  - An aquifer separated from the main water table by a layer of impermeable material
  - An aquifer that extends above sea level
  - An artificial aquifer created for water storage
84. EEZ stand for in the context of marine regulation is
- Environmental Exclusion Zone
  - Enhanced Ecological Zone
  - Exclusive Economic Zone
  - Environmental Evaluation Zone
85. Guyots refers to the
- |                         |                                   |
|-------------------------|-----------------------------------|
| A. underwater volcanoes | B. continental shelves            |
| C. deep sea trenches    | D. fat-topped submarine mountains |

86. What is Darcy's law related to?
- A. Ocean currents
  - B. Groundwater flow
  - C. Tidal currents
  - D. Marine resource exploration
87. Which of the following is classified as a deep marine mineral resource?
- A. Poly-metallic nodules
  - B. Concretions
  - C. Conglomerates
  - D. Kimberlite
88. The "Mud banks" associated with
- A. River deltas
  - B. Coastal geomorphology
  - C. Wind dunes
  - D. Exfoliation
89. "Atterberg" limit refers to the
- A. Compressive strength of rocks
  - B. properties of soil in different states
  - C. shear strength of rocks
  - D. slope stability threshold
90. Gas hydrate is a
- A. Terrigenous deposit
  - B. Biogenous deposit
  - C. Hydrogenous deposit
  - D. Authigenic deposit
91. What are turbidites?
- A. Ocean floor features formed by tides
  - B. Sedimentary deposits formed by turbidity currents
  - C. Volcanic features in deep ocean
  - D. Types of marine pollution
92. Which of the following is a key engineering property of rocks?
- A. Colour
  - B. Age
  - C. Hardness
  - D. Fossil content
93. What is the purpose of a pumping test in hydrogeology?
- A. To determine safe yield
  - B. To remove contaminated water
  - C. To measure depth of well
  - D. To determine the TDS

94. What is a common method for artificial recharging of groundwater?
- |                    |                 |
|--------------------|-----------------|
| A. Cloud seeding   | B. Check dams   |
| C. River diversion | D. Desalination |
95. Which geological factor is crucial to take into account when constructing a tunnel?
- |                         |                         |
|-------------------------|-------------------------|
| A. Rock discontinuities | B. Soil colour          |
| C. Mineral composition  | D. Slope of the profile |
96. The term "void ratio" refers in soil mechanics
- |   |
|---|
| A. The ratio of soil particles to water                     |
| B. The ratio of the volume of voids to the volume of solids |
| C. The ratio of clay to sand in soil                        |
| D. The ratio of soil density to rock density                |
97. Which mineral is mainly found in the mineral-rich beach sands of Kerala, especially in the Kollam and Alappuzha areas?
- |             |             |
|-------------|-------------|
| A. Feldspar | B. Bauxite  |
| C. Quartz   | D. Ilmenite |
98. Which of the following best describes the geomorphological divisions of Kerala?
- |  |
|--|
| A. Coastal plains, Desert regions and Plateaus |
| B. Highlands, Midlands and Lowlands            |
| C. Mountains, Valleys and Glaciers             |
| D. Plains, Hills and Sand dunes                |
99. Which of the following rock types is commonly found in the Western Ghats region of Kerala?
- |                   |              |
|-------------------|--------------|
| A. Sandstone      | B. Basalt    |
| C. Granite Gneiss | D. Limestone |
100. What geological process is responsible for formation of laterite soil in Kerala?
- |  |
|--|
| A. Intense weathering of parent rock in tropical climate |
| B. Marine transgression                                  |
| C. Glacial deposition                                    |
| D. Sediment accumulation from rivers                     |



# RESPONSE SHEET

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

## **ROUGH WORK**

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