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ROLL No.

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TEST BOOKLET No.

81

TEST FOR POST GRADUATE PROGRAMMES

GEOLOGY

Time: 2 Hours

Maximum Marks: 450

INSTRUCTIONS TO CANDIDATES

1. You are provided with a Test Booklet and an Optical Mark Reader (OMR) Answer Sheet to mark your responses. Do not soil the Answer Sheet. Read carefully all the instructions given on the Answer Sheet.
 2. Write your Roll Number in the space provided on the top of this page.
 3. Also write your Roll Number, Test Code, and Test Subject in the columns provided for the same on the Answer Sheet. Darken the appropriate bubbles with a Ball Point Pen.
 4. The paper consists of 150 objective type questions. All questions carry equal marks.
 5. Each question has four alternative responses marked A, B, C and D and you have to darken the bubble fully by a Ball Point Pen corresponding to the correct response as indicated in the example shown on the Answer Sheet.
 6. Each correct answer carries 3 marks and each wrong answer carries 1 minus mark.
 7. Space for rough work is provided at the end of this Test Booklet.
 8. You should return the Answer Sheet to the Invigilator before you leave the examination hall. However, you can retain the Test Booklet.
 9. Every precaution has been taken to avoid errors in the Test Booklet. In the event of any such unforeseen happenings, the same may be brought to the notice of the Observer/Chief Superintendent in writing. Suitable remedial measures will be taken at the time of evaluation, if necessary.
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GEOLOGY

1. The Planetesimal hypothesis was postulated by
 - (A) Kant
 - (B) Laplace
 - (C) Jean's and Jeffrey's
 - (D) Chamberlain and Moulton

2. Which among the following Planets has the least density?
 - (A) Jupiter
 - (B) Saturn
 - (C) Venus
 - (D) Earth

3. Depth at which Mohorovicic discontinuity occurs in oceanic areas is
 - (A) 5-6 km
 - (B) 30-35 km
 - (C) 12-15 km
 - (D) 18-25 km

4. Stratosphere extends from the Troposphere to a height of
 - (A) 11 km
 - (B) 50 km
 - (C) 115 km
 - (D) 150 km

5. Mushroom shaped structures having slender columns and wide tops resulting from the abrasive action of wind are described as
 - (A) Ventifacts
 - (B) Barchans
 - (C) Pedestal rocks
 - (D) Driekenters

6. Galena crystallises in the form of
 - (A) Cubes and Octahedra
 - (B) Cubes and Rhombohedra
 - (C) Cubes and Trapezohedra
 - (D) Cubes and Dodecahedra

7. Olivine crystallises in the crystal system of
 - (A) Cubic
 - (B) Monoclinic
 - (C) Triclinic
 - (D) Orthorhombic



8. Which one of the following formations is devoid of fossils?
- (A) Blaini (B) Infra Krol
(C) Krol (D) Tal
9. Columnar joints are common in
- (A) Basalt (B) Shale
(C) Gabbro (D) Granite
10. The vertical component of the dip slip in a fault is
- (A) Hade (B) Slip
(C) Throw (D) Heave
11. Which fold has sharp and angular hinges?
- (A) Chevron fold (B) Drag fold
(C) Fan fold (D) Anticline fold
12. In which unconformity, the underlying older rock formation is of plutonic origin and the overlying younger rock formation is of sedimentary origin?
- (A) Disconformity (B) Local unconformity
(C) Nonconformity (D) Angular unconformity
13. Three sets of mutually perpendicular joints found in Granites is
- (A) Mural Joint (B) Stress Joint
(C) Columnar Joint (D) Shear Joint
14. Older rocks surrounded on all sides by younger rocks is called
- (A) overlap (B) offlap
(C) inlier (D) outlier



15. Polyclinal folds have
- (A) multiple hinge (B) single hinge
(C) inclined hinge (D) acute hinge
16. The term continuous cleavage includes
- (A) slaty cleavage and schistosity
(B) fracture cleavage
(C) bedding cleavage
(D) crenulation cleavage
17. When sausage shaped bodies of one rock layer are sandwiched between layers of different rock types, the structure is described as
- (A) Crenulation (B) Slickenside
(C) Mullion (D) Boudinage
18. Globotruncana is a
- (A) Planktonic foraminifera (B) Benthonic foraminifera
(C) Ostracoda (D) Bryozoa
19. Thread like prolongations in Graptolites are called
- (A) Sricula (B) Stipe
(C) Virgula (D) Polypary
20. The most primitive suture line in Trilobites is described as
- (A) Hypoparian (B) Opisthoparian
(C) Proparian (D) Gonatoparian
21. Gastropods having spines and exhibiting dextral type of coiling is
- (A) Turritella (B) Physa
(C) Voluta (D) Murex



22. The first land plant appeared in
- (A) Silurian (B) Ordovician
(C) Devonian (D) Carboniferous
23. Taxodont dentition is observed in
- (A) Arca (B) Mytilus
(C) Pecten (D) Unio
24. The first Dinosaurs appeared in
- (A) early Triassic (B) late Triassic
(C) early Jurassic (D) late Jurassic
25. Water trapped in the sedimentary rocks during their sedimentation process is called
- (A) Juvenile water (B) Connate water
(C) Meteoric water (D) Vadose water
26. Which one of the following is not a good Aquifer?
- (A) Gravel (B) Sandstone
(C) Limestone (D) Clay
27. Artesian condition is associated with
- (A) Aquifuge (B) Aquiclude
(C) Confined aquifer (D) Aquitard
28. The average porosity of sandstone is
- (A) 5-10 % (B) 10-20%
(C) 25-35% (D) 40-50%



29. Where does confined water occur?
- (A) Above the water table
 - (B) Between Aquiclude and Aquifer
 - (C) Below the water table
 - (D) Between Aquifuge and Aquifer
30. Gaseous tidal hypothesis theory was proposed by
- (A) Jean and Jeffrey
 - (B) Chamberlain and Moulton
 - (C) Kant and Laplace
 - (D) Joly and Clarke
31. Gutenberg discontinuity layer occurs at a depth of
- (A) 2000 km
 - (B) 970 km
 - (C) 2730 km
 - (D) 2900km
32. Which one of the following minerals crystallises in the cubic system?
- (A) Pyrite
 - (B) Zircon
 - (C) Magnesite
 - (D) Quartz
33. In an Orthorhombic crystal, 'a' axis is known as
- (A) Macro axis
 - (B) Brachy axis
 - (C) Clino axis
 - (D) Ortho axis
34. Dome faces occurring in crystals belong to the
- (A) Monoclinic system
 - (B) Cubic system
 - (C) Tetragonal system
 - (D) Hexagonal system
35. The fracture which involves the development of more or less smooth curved surfaces is known as
- (A) uneven fracture
 - (B) even fracture
 - (C) conchoidal fracture
 - (D) hackly fracture



36. The Refractive index of Canada Balsam is
- (A) 1.58 (B) 1.54
(C) 1.52 (D) 1.56
37. Minerals belonging to Orthorhombic system shows
- (A) parallel extinction (B) oblique extinction
(C) symmetrical extinction (D) wavy extinction
38. Which mineral cannot exhibit interference colour and birefringence?
- (A) Isotropic mineral (B) Anisotropic mineral
(C) Metallic mineral (D) Non – metallic mineral
39. Plagioclase feldspar series crystallises in
- (A) monoclinic system (B) triclinic system
(C) orthorhombic system (D) hexagonal system
40. The Chemical composition of Forsterite is
- (A) Mg_2SiO_4 (B) Fe_2SiO_4
(C) $2Mg_2SiO_8$ (D) $2Fe_2SiO_8$
41. An igneous body of more or less tabular shape and exhibiting a cross cutting relationship with the country rock is called
- (A) Sill (B) Dyke
(C) Lopolith (D) Laccolith
42. Singhbhum and Bundelkhand granites are examples of
- (A) Lopolith (B) Laccolith
(C) Batholith (D) Phacolith
43. Texture characteristic of Lamprophyres is
- (A) Ophitic texture (B) Panidiomorphic texture
(C) Porphyritic texture (D) Poikilitic texture



44. A Monomineralic rock is
- (A) Peridotite (B) Dunite
(C) Dolerite (D) Diorite
45. Intermediate rock with no free Quartz is
- (A) Dacite (B) Basalt
(C) Andesite (D) Dunite
46. In sedimentary rocks, undulations produced on the surface of loose sediments due to action of wind or waves in shallow water body, are known as
- (A) Mud cracks (B) Rain prints
(C) Ripple marks (D) Tracks and Trails
47. An arenaceous rock is
- (A) Siltstone (B) Sandstone
(C) Mudstone (D) Marl
48. Which one of the following is a stress mineral?
- (A) Andalusite (B) Sillimanite
(C) Kyanite (D) Cordierite
49. Which one of the following rocks is unfoliated?
- (A) Slate (B) Schist
(C) Phyllite (D) Hornfels
50. The metamorphism involving the combined effect of uniform pressure and heat is known as
- (A) Contact metamorphism
(B) Dynamothermal metamorphism
(C) Dynamic metamorphism
(D) Cataclastic metamorphism



51. The rock characteristic of contact metamorphism is
- (A) Schist (B) Gneiss
(C) Granulite (D) Hornfels
52. An example for origin of iron ore deposits due to oxidation is
- (A) Limonite (B) Hematite
(C) Magnetite (D) Pyrite
53. Copper deposits of Singhbhum belong to
- (A) Vein deposits (B) Disseminated deposits
(C) Cavity filling deposits (D) Replacement deposits
54. The chief source of manganese ore mineral is
- (A) Oxide minerals (B) Carbonate minerals
(C) Silicate minerals (D) Sulphide minerals
55. The age of Neyveli Lignite is
- (A) Oligocene (B) Pliocene
(C) Mio-Pliocene (D) Eocene
56. Phlogopite is referred as
- (A) White mica (B) Black mica
(C) Lithium mica (D) Magnesium mica
57. Gypsum having silky lustre and fibrous variety is known as
- (A) Selenite (B) Alabaster
(C) Satin-spar (D) Gypsite
58. Raniganj Coal belongs to
- (A) Lower Permian (B) Upper Permian
(C) Lower Carboniferous (D) Upper Carboniferous



59. The reservoir rock of Bombay High Oilfield is
- (A) Sandstone (B) Shale
(C) Limestone (D) Silt
60. An example of fertiliser mineral is
- (A) Malachite (B) Molybdenite
(C) Magnesite (D) Apatite
61. Amazon stone is a variety of feldspar known as
- (A) Labradorite (B) Bytownite
(C) Andesine (D) Microcline
62. Barite powder is used in
- (A) Refractories (B) Fertilisers
(C) Drilling (D) Abrasives
63. Plastic clay with high alumina content is
- (A) Kaolin clay (B) Refractory clay
(C) Ball clay (D) Tile clay
64. Celestite consists of
- (A) Sulphide of Strontium (B) Sulphate of Strontium
(C) Sulphide of Barium (D) Sulphate of Barium
65. Which one of the following minerals is known as Peacock ore?
- (A) Bornite (B) Chalcopyrite
(C) Pyrrhotite (D) Pentlandite
66. Volcanic associated massive sulphide deposits are common in
- (A) Archean (B) Early Proterozoic
(C) Late Proterozoic (D) Middle Proterozoic



67. Geochemical soil anomalies are mostly due to
- (A) hydrothermal accumulation
 - (B) heavy mineral accumulation
 - (C) residual accumulation
 - (D) selective concentration
68. Halophytes are plants that are indicative of
- (A) saline deposits
 - (B) fresh water deposits
 - (C) hydrocarbons
 - (D) non metallic ores
69. A natural gamma ray log exhibits a high response from
- (A) Shale
 - (B) Limestone
 - (C) Dolomite
 - (D) Coal
70. Which one of the following has the least electrical resistivity?
- (A) Diamond
 - (B) Sulphur
 - (C) Clay
 - (D) Anthracite
71. Which one of the following minerals is an orthorhombic Amphibole?
- (A) Augite
 - (B) Acinolite
 - (C) Enstatite
 - (D) Anthophyllite
72. A common rock forming mineral containing SiO_2 , CaO and Al_2O_3 in different proportions is
- (A) Anorthite
 - (B) Albite
 - (C) Orthoclase
 - (D) Celsian
73. Variable hardness is exhibited by
- (A) Sillimanite
 - (B) Kyanite
 - (C) Quartz
 - (D) Olivine



74. Geiger counter is used to identify
- (A) Willemite (B) Pitchblende
(C) Tourmaline (D) Rutile
75. Type mineral of Rhombohedral Hemimorphic class is
- (A) Orthoclase (B) Topaz
(C) Olivine (D) Tourmaline
76. Biaxial crystals are characterised by
- (A) one principal refractive index
(B) two principal refractive indices
(C) three principal refractive indices
(D) four principal refractive indices
77. In optical mineralogy, '2V' refers to
- (A) extinction angle (B) optic axial angle
(C) half of Optic axial angle (D) critical angle
78. If the wavelength of light is increased, the Refractive index of Garnet
- (A) increases slightly (B) increases appreciably
(C) decreases slightly (D) shows no change
79. In a Recumbent fold, the axial plane is essentially
- (A) vertical (B) horizontal
(C) inclined (D) oriented at 100°
80. The term 'hanging wall' is associated with
- (A) fault (B) joint
(C) cleavage (D) unconformity



81. Size of sand ranges from
- (A) 1/256 mm to 1/16 mm (B) 1/16 mm to 2 mm
(C) 2 mm to 4 mm (D) 4 mm to 64 mm
82. The average sandstone is composed of
- (A) about one-third Quartz (B) about three-fourth Quartz
(C) about two-third Quartz (D) about 20% Quartz
83. Arkose contains about
- (A) 10% feldspar (B) 25% feldspar
(C) 40% feldspar (D) 60% feldspar
84. Ripple marks are
- (A) chemical structures (B) mechanical structures
(C) biogenic structures (D) organic structures
85. Carbonate sediments are formed by
- (A) Physical processes
(B) chemical processes
(C) biological and biochemical processes
(D) Physico-chemical processes
86. The associated sedimentary sequence of Neyveli lignite are
- (A) limestone and dolomite
(B) carbonate mud and red ooze
(C) shale and sandstone
(D) glauconitic sandstone
87. Best example of early magmatic segregation is
- (A) Copper deposit (B) Bauxite deposit
(C) Chromite deposit (D) Manganese deposit



88. Which one of the following is not found to occur with ultrabasic and basic intrusive rocks?
- (A) Chromite (B) Cassiterite
(C) Platinum (D) Nickel
89. The most common example of disseminated type of deposit in alkali peridotitic rock is
- (A) Copper (B) Diamond
(C) Platinum (D) Chromite
90. In Singhbhum copper belt, copper sulphide minerals are associated with
- (A) Phyllite and Schist (B) Quartzite and dolomite
(C) Soda granite (D) Dolerite
91. Minerals that are formed later than the rock that enclose them are referred to as
- (A) Syngenetic (B) Polygenetic
(C) Epigenetic (D) Metallogenetic
92. Hydrothermal solutions are
- (A) early products of magmatic fluids
(B) end products of magmatic fluids
(C) not products of magmatic fluids
(D) sublimates
93. In the formation of all mineral deposits of magmatic affiliation, the individual minerals are formed in orderly sequence, and this sequential arrangement is termed as
- (A) reaction rims (B) diagenesis
(C) paragenesis (D) orthogenesis



94. In the cavity filled deposits, the ore built in successive layers is called
- (A) Vugs (B) Druse
(C) Geode (D) Crustified
95. The richest Iron ore deposits occur in
- (A) Kiribum in Orissa
(B) Bailadila in Madhya Pradesh
(C) Novamundi in Bihar
(D) Kudremukh in Karnataka
96. The texture in which plates of Pyroxenes enclose laths of Plagioclase is called
- (A) Ophitic texture (B) Trachytic texture
(C) Orbicular texture (D) Panidiomorphic texture
97. The Volcanic equivalent of Granodiorite is
- (A) Phonolite (B) Dacite
(C) Latite (D) Trachyte
98. The rock which is formed by sinking of early formed minerals in basaltic magma is
- (A) Dunite (B) Gabbro
(C) Dolerite (D) Anorthosite
99. Alkali feldspar is the essential mineral in
- (A) Syenite (B) Tonalite
(C) Gabbro (D) Diorite
100. Lamprophyre essentially composed of biotite and potash feldspar is
- (A) Kersantite (B) Minette
(C) Vogesite (D) Spessartite



101. Metamorphism around an intrusion is
- (A) contact metamorphism
 - (B) regional metamorphism
 - (C) cataclastic metamorphism
 - (D) metasomatism
102. The typical texture of Migmatites is
- (A) Mylonitic
 - (B) Gneissic
 - (C) Hornfelsic
 - (D) Porphyroblastic
103. Garnet is a characteristic mineral in
- (A) Granulites
 - (B) Eclogites
 - (C) Amphibolites
 - (D) Phyllites
104. Graptolites are included under the Phylum
- (A) Brachiopoda
 - (B) Mollusca
 - (C) Hemichordata
 - (D) Protozoa
105. Cidaris is placed under
- (A) Irregularia
 - (B) Blastoidea
 - (C) Crinoidea
 - (D) Regularia
106. In the centre of a coral where the larger septa meet, there is a vertical rod extending from the base of the bottom of the calyx known as
- (A) Septal thickening
 - (B) Exsert septa
 - (C) Theca
 - (D) Columella
107. The lower and mouth region in Echinoderms is known as
- (A) Peristome
 - (B) Periproct
 - (C) Corona
 - (D) Ambulacral plate



108. Arca has
- (A) straight hinge line (B) curved hinge line
(C) partial hinge line (D) no hinge line
109. In Brachiopods, the pedicle is attached by muscles to the
- (A) inner surface of the smaller valve
(B) outer surface of the smaller valve
(C) inner surface of the larger valve
(D) outer surface of the larger valve
110. The geological age of the Productus Limestone series is
- (A) Cambrian (B) Silurian
(C) Permo-Carbonifereous (D) Devonian
111. Surma and Tipam Groups form the succession in Assam.
- (A) Eocene (B) Oligocene
(C) Miocene (D) Pliocene
112. Alternate beds of red shales and sandstones occur in
- (A) Senri Group (B) Kaimur Group
(C) Rewa Group (D) Bhandar Group
113. Needle Shales are found in
- (A) Talchur group (B) Barakar group
(C) Raniganj group (D) Panchet group
114. The Triassic strata as exposed in Spiti region is mainly
- (A) calcareous and arenaceous
(B) calcareous and argillaceous
(C) argillaceous and arenaceous
(D) calcareous and carbonaceous



115. The first ice advancement in Kashmir took place during _____ period.
- (A) Dhok pathan (B) Tatrot
(C) Pinjor (D) Boulder conglomerate
116. The Siwalik Supergroup is characteristic of deposits of
- (A) shallow fresh water
(B) purely marine origin
(C) mostly marine and partly fresh water
(D) lacustrine nature
117. The age of the *Cardita beaumonti* beds, from the affinities of their contained fossils, is regarded as
- (A) Upper Cretaceous (B) Middle Cretaceous
(C) Lower Cretaceous (D) Upper Jurassic
118. Small depressions formed by the melting of caught up ice is called
- (A) Kettle hole (B) Pot hole
(C) Blow hole (D) Sink hole
119. A wind beveled stone is known as
- (A) Ventifact (B) Drumlin
(C) Arch (D) Barchan
120. Mohorovicic discontinuity lies between
- (A) core and mantle (B) outer and inner cores
(C) upper and lower crusts (D) crust and mantle
121. A raised river bank formed by deposition of fine sediments during periods of overbank flooding is known as
- (A) Delta (B) Levee
(C) Outwash Plain (D) Flood Plain



122. Fjords are characterised by
- (A) an irregular glaciated coast
 - (B) a glaciated submerged coast
 - (C) an emergent coastline
 - (D) a smooth deltaic coast
123. Flat topped sea mountain is known as
- (A) Mesa
 - (B) Guyot
 - (C) Inselberg
 - (D) Monadnock
124. Absolute age of the Earth is
- (A) 2500 my
 - (B) 3500 my
 - (C) 3900 my
 - (D) 4500 my
125. Neobolus beds is of
- (A) Lower Cambrian age
 - (B) Middle Cambrian age
 - (C) Upper Cambrian age
 - (D) Lower Ordovician age
126. Low lying ring shaped islands enclosing a lagoon formed by corals are known as
- (A) Barrier reefs
 - (B) Atolls
 - (C) Guyots
 - (D) Fringing reefs
127. Dunes, which are more or less crescent shaped, are commonly described as
- (A) Shadow dunes
 - (B) Fore dunes
 - (C) Barchans
 - (D) Transverse dunes
128. Which one of the following is the largest desert in the world?
- (A) Australian desert
 - (B) Gobi desert
 - (C) Sahara desert
 - (D) Arabian desert



129. Hardness of fluorite is
- (A) 2 (B) 3
(C) 4 (D) 5
130. Which one of the following is an amorphous variety of Silica with variable water content?
- (A) Chalcedony (B) Opal
(C) Cristobalite (D) Coesite
131. Find the odd one out.
- (A) Hypersthene (B) Augite
(C) Hornblende (D) Diopside
132. Fibrous and cryptocrystalline variety of Quartz is called
- (A) Flint (B) Chalcedony
(C) Chert (D) Amethyst
133. Pyrope is a variety of
- (A) Pyroxene (B) Garnet
(C) Feldspar (D) Amphibole
134. Which one of the following is referred as mineral wool?
- (A) Scapolite (B) Andalusite
(C) Asbestos (D) Kyanite
135. Biotite belongs to the Subclass
- (A) Nesosilicate (B) Cyclosilicate
(C) Sorosilicate (D) Phyllosilicate
136. Microcline is a variety of
- (A) Sodium feldspar (B) Barium feldspar
(C) Calcium feldspar (D) Potassium feldspar



137. Which one of the following minerals has a green streak?
- (A) Zincite (B) Malachite
(C) Serpentine (D) Hematite
138. Which one of the following is not a Lithostratigraphic unit?
- (A) Member (B) Formation
(C) Series (D) Group
139. Bijaigarh Shales belong to
- (A) Bhandar Group (B) Semri Group
(C) Kaimur Group (D) Rewa Group
140. Choose the odd one out
- (A) Talchir Group (B) Cheyair Group
(C) Panchet Group (D) Rajmahal Group
141. Fossil wood is an example for
- (A) Mould (B) Carbonisation
(C) Petrification (D) Cast
142. Two or more sets of vertical joints are there in
- (A) Strike joints (B) Dip joints
(C) Columnar joints (D) Tension joints
143. An igneous rock made up of crystalline mineral grains only is said to be
- (A) Holohyaline (B) Phanerocrystalline
(C) Holocrystalline (D) Cryptocrystalline

144. The line joining the points wherein the rocks have the same grade of metamorphism is called
- (A) Isogyre (B) Isograd
(C) Isopoch (D) Isochore
145. Gneiss formed from igneous rock due to metamorphism is called
- (A) Orthogneiss (B) Paragneiss
(C) Metagneiss (D) Subgneiss
146. During metamorphism, the maculose structure generally develops in
- (A) Arenaceous rock (B) Calcareous rock
(C) Argillaceous rock (D) Rudaceous rock
147. Crystals of Corundum in Nepheline Syenite are good examples of
- (A) segregated deposit (B) disseminated deposit
(C) injected deposit (D) late magmatic deposit
148. Which one of the following minerals is known as Heavy Spar?
- (A) Barite (B) Calcite
(C) Fluorite (D) Apatite
149. Find the odd one out
- (A) Hematite (B) Chalcocite
(C) Chalcopyrite (D) Malachite
150. Deposits of Lead and Zinc ore occur in
- (A) Kerala (B) Sikkim
(C) Rajasthan (D) Andhra Pradesh