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**TEST BOOKLET**

Sl. No: **0268**

Subject Code: **09**

Subject: **GEOLOGY**

**WRITTEN TEST FOR RECRUITMENT OF POST GRADUATE TEACHERS FOR  
NON-GOVT. AIDED HIGHER SECONDARY SCHOOLS OF ODISHA**

Time Allowed : 2 Hours

Maximum Marks: 150

**: INSTRUCTIONS TO CANDIDATES:**

- 1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET CONTAINS 16 PAGES AND DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.**
- 2. You have to enter your Roll No. on the Test Booklet in the Box provided alongside. DO NOT write anything else on the Test Booklet.**  

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- 3. The Test Booklet contains 100 questions. Each question comprises four options. You have to select the correct answer which you want to mark (darken) on the OMR Answer Sheet. In any case, choose ONLY ONE answer for each question. If more than one answer is darkened, it will be considered wrong.**
- 4. You have to mark (darken) all your answers only on the OMR Answer Sheet using BLACK BALL POINT PEN provided by the State Selection Board. You have to do rough work only in the space provided at the end of the Test Booklet. See instructions in the OMR Answer Sheet.**
- 5. All questions carry equal marks. While 1.5 marks will be awarded for each correct answer, each wrong answer will result in negative marking of 0.50 mark.**
- 6. Before you proceed to mark (darken) the answers in the OMR Answer Sheet to the questions in the Test Booklet, you have to fill in some particulars in the OMR Answer Sheet as per the instructions in your Admit Card.**
- 7. On completion of the Examination, you should hand over the original copy of OMR Answer Sheet issued to you to the Invigilator before leaving the Examination Hall. You are allowed to take with you the candidate's copy (second copy) of the OMR Answer Sheet along with the Test Booklet for your reference.**

Candidate's full signature

Invigilator's signature

P.T.O.



1. What is the chemical composition of Kyanite?
 

(A) $\text{KAlSi}_3\text{O}_8$	(B) $\text{Al}_2\text{O}_3$
(C) $\text{Al}_2\text{SiO}_5$	(D) $\text{Al}(\text{OH})_3$
  
2. Which pyroxene is characteristic of Eclogite metamorphic facies?
 

(A) Omphacite	(B) Pigeonite
(C) Diopside	(D) Bronzite
  
3. What is the chemical composition of Hypersthene?
 

(A) $\text{KAlSi}_3\text{O}_8$	(B) $\text{MgFeSi}_2\text{O}_6$
(C) $\text{NaAlSi}_2\text{O}_6$	(D) $\text{NaFeSi}_2\text{O}_6$
  
4. Which of the following mineral groups constitutes an isomorphous series?
 

(A) Mica	(B) Silica
(C) Olivine	(D) Topaz
  
5. The hardness of Corundum is:
 

(A) 5	(B) 7
(C) 8	(D) 9
  
6. Tridymite is a polymorph of:
 

(A) Amphibole	(B) Quartz
(C) Pyroxene	(D) Feldspar
  
7. Polysynthetic twinning is exhibited by:
 

(A) Plagioclase	(B) Quartz
(C) Orthoclase	(D) Kyanite
  
8. Which one of the following  $\text{SiO}_2$  polymorph may form because of meteorite impact?
 

(A) Quartz	(B) Stishovite
(C) Opal	(D) Tridymite



9. Which of the following minerals shows variable hardness:
- (A) Kyanite (B) Andalusite  
(C) Sillimanite (D) Diamond
10. How many numbers of the silicate minerals are there in the Moh's scale of hardness?
- (A) 5 (B) 4  
(C) 3 (D) 2
11. If the rake of net slip of a fault is  $90^\circ$ , then the fault is:
- (A) Dip-slip fault (B) Strike-slip fault  
(C) Oblique-slip fault (D) Transcurrent fault
12. In which fold, limbs dip in same direction and at equal angles.
- (A) Recumbent (B) Reclined  
(C) Isoclinal (D) Similar
13. In vertical beds the plunge and pitch are:
- (A) Unequal (B) No fixed relation  
(C) Equal (D) Reciprocal to each other
14. Mullions are a type of:
- (A) Foliation (B) Lineation  
(C) Bedding (D) Fault plane
15. The fold in which the axial plane is horizontal is known as:
- (A) Isoclinal fold (B) Recumbent fold  
(C) Anticlinal fold (D) Synform
16. The unconformity below which the rocks are of plutonic origin is known as:
- (A) Nonconformity (B) Disconformity  
(C) Angular Unconformity (D) Blended Unconformity



17. In case of horizontal beds, the dip angle is:
- (A)  $90^\circ$  (B)  $45^\circ$   
(C)  $60^\circ$  (D)  $0^\circ$
18. In a field, the rocks which are encountered along the dip direction are:
- (A) Younger (B) Older  
(C) Of same age (D) Both B and C
19. When the hanging wall has gone down relative to the foot wall, the fault is called:
- (A) Reverse fault (B) Strike slip fault  
(C) Normal fault (D) Dip slip fault
20. The texture in which large crystals are enveloped in a groundmass is called:
- (A) Poikilitic (B) Ophitic  
(C) Directive (D) Porphyritic
21. The volcanic equivalent of the plutonic rock Granite is:
- (A) Andesite (B) Trachyte  
(C) Dacite (D) Rhyolite
22. The rock with essential mineral composition of Olivine and Pyroxene is:
- (A) Norite (B) Gabbro  
(C) Peridotite (D) Syenite
23. The rocks purely made up of glass are called:
- (A) Holocrystalline (B) Microcrystalline  
(C) Holohyaline (D) Crystalline
24. Which of the following is a form of igneous intrusion in folded region?
- (A) Phacolith (B) Sill  
(C) Laccolith (D) Lopolith



25. Intergrowth texture between Orthoclase and Albite where Albite remains as host is called:
- (A) Perthitic (B) Antiperthitic  
(C) Myrmekitic (D) Graphic
26. What is the ideal thickness of thin section of mineral for microscopic study?
- (A) 3 mm (B) 0.3 mm  
(C) 0.03 mm (D) 0.003 mm
27. The structure in argillaceous rocks due to development of spotted appearance as a result of incipient crystallization of porphyroblasts is known as:
- (A) Maculose (B) Schistose  
(C) Hornfelsic (D) Porphyroblastic
28. A rock containing hypersthene, quartz and feldspar as essential minerals is known as:
- (A) Khondalite (B) Granite gneiss  
(C) Charnockite (D) Amphibolite
29. The metamorphism resulted due to the combined effect of uniform pressure and temperature is described as:
- (A) Contact metamorphism (B) Cataclastic metamorphism  
(C) Dynamothermal metamorphism (D) Plutonic metamorphism
30. Which of the following minerals shows straight extinction?
- (A) Biotite (B) Hornblende  
(C) Augite (D) Diopside
31. 'Sand' has a size range of:
- (A) 2mm-4mm (B) 4mm-16mm  
(C) 1/16 mm - 2 mm (D) 1/16mm - 1/256 mm



32. Roundness value of more than 0.60 is regarded as:
- (A) Angular (B) Sub-angular  
(C) Well-rounded (D) Sub-rounded
33. The red beds are formed due to:
- (A) Oxidation (B) Iron-Oxide precipitation  
(C) Reduction (D) Organic action
34. Oligomictic conglomerates are made up of:
- (A) Pebbles of same composition (B) Pebbles of different composition  
(C) Quartz and Feldspar pebbles (D) Feldspar and Garnet pebbles
35. Orthoquartzites are sand stones with:
- (A) More than 95% Feldspar (B) More than 95% Quartz  
(C) More than 95% Rock fragment (D) Less than 95% Quartz
36. Gutenberg-Wiechert discontinuity separates:
- (A) Crust from the mantle (B) Mantle from the core  
(C) Lower mantle from upper mantle (D) Upper mantle from transition zone
37. Ripple marks and current bedding are features associated with which environment?
- (A) Abyssal plains (B) Continental slope  
(C) Littoral and Neritic (D) Continental
38. By volume, the continental crust has Oxygen of about:
- (A) 27% (B) 47%  
(C) 94% (D) 63%
39. A well rounded, rudaceous, siliceous rock is known as:
- (A) Breccia (B) Arkose  
(C) Shale (D) Conglomerate
40. The part of the crust composed of Silicon and Magnesium is known as:
- (A) Sima (B) Sial  
(C) Mantle (D) Core



41. Shear waves do not travel through which of the following:
- (A) Upper continental crust (B) Upper mantle  
(C) Lower mantle (D) Outer core
42. In which of the following environments, herringbone structure is generally formed?
- (A) Tidal (B) Fluvial  
(C) Lacustrine (D) Aeolian
43. In which of the following environments, chemical weathering is predominant?
- (A) Cold-Dry (B) Hot-Dry  
(C) Hot-Humid (D) Glacial
44. With which environment, are the land form cirques associated?
- (A) Lacustrine (B) Fluvial  
(C) Aeolian (D) Glacial
45. Ventifacts are the landforms produced by the action of:
- (A) River (B) Wind  
(C) Glacier (D) Coastal wave
46. At which stage of the river system are Peneplains formed?
- (A) Youth stage (B) Mature stage  
(C) Old stage (D) Initial stage
47. Drainage pattern formed due to sub-parallel streams aligned along the strike of the rock formation and controlled by structure is known as:
- (A) Dendritic (B) Trellis  
(C) Radial (D) Rectangular
48. The fundamental unit in lithostratigraphic classification is:
- (A) Formation (B) Group  
(C) Member (D) Bed



49. Which of the following does not lie within the Siwalik group?
- (A) Nagri Formation (B) Tatrot Formation  
(C) Narji Formation (D) Pinjor Formation
50. With which following formations are most of the coal deposits in India associated?
- (A) Triassic (B) Cretaceous  
(B) Vindhyan (D) Permo-carboniferous
51. What is the age of Muth Quartzite?
- (A) Silurian (B) Carboniferous  
(C) Devonian (D) Permian
52. The upper most group of the Cuddapah Super group in the type area is:
- (A) Papaghni group (B) Cheyair group  
(C) Kistna group (D) Nalamallai group
53. Into how many divisions is the Paleozoic era is divided?
- (A) 8 (B) 6  
(C) 4 (D) 5
54. To which group Athagarh Formation belong?
- (A) Lower Gondwana (B) Upper Gondwana  
(C) Barakars (D) Talchirs
55. Which one of the following is not used for unidirectional current indicator?
- (A) Flute mark (B) Sole marks  
(C) Groove marks (D) Imbricate structures
56. The Kaladgi Super group is unconformably overlain by:
- (A) Vindhyan Supergroup (B) Delhi Supergroup  
(C) Deccan Trap (D) Bijawar Group
57. The lower most Mesozoic Formation of Kutch is:
- (A) Katrol formation (B) Umia formation  
(C) Chari formation (D) Patcham formation
58. The upper Gondwanas are characterized by:
- (A) Ptilophyllum Flora (B) Glossopteris Flora  
(C) Dicroidium Flora (D) Gangamopteris Flora



59. The principle of "Law of faunal succession" is given by:
- (A) William Smith (B) Charles Lyell  
(C) Charles Darwin (D) Lamarckism
60. An orbit in which the satellite passes a location at the same time each day:
- (A) Sun-synchronous (B) Polar  
(C) Geo-stationary (D) Near Polar Orbit
61. The ability of a sensor to define fine wavelength intervals is called:
- (A) Spatial resolution (B) Temporal resolution  
(C) Spectral Resolution (D) Radiometric resolution
62. The process of fossilization where the original internal and external structures are well preserved is known as:
- (A) Carbonization (B) Petrification  
(C) Oxidation (D) Reduction
63. Which bed is not a part of Chari formation?
- (A) Dhosa Oolite (B) Trigonina Bed  
(C) Rehmani Bed (D) Macrocephalus Bed
64. Which of the following stratigraphic units contains dinosaur fossils?
- (A) Lameta Bed (B) Muth Quartzite  
(C) Siwalik Group (D) Raniganj
65. The earliest representative of horse is:
- (A) Orohippus (B) Epihippus  
(C) Plihippus (D) Eohippus
66. The median part of the Cephalon of a trilobite shell which is inflated is termed as:
- (A) Glabella (B) Pygidium  
(C) Thorax (D) Axial Lobe



67. Which is a phosphatic micro-fossil among the followings?
- (A) Foraminifera (B) Coccolithophore  
(C) Radiolaria (D) Conodont
68. The dentition which is straight with numerous small similar sized teeth and sockets is known as:
- (A) Heterodont (B) Isodont  
(C) Schizodont (D) Taxodont
69. The suture line with rounded saddles and angular lobes is known as:
- (A) Nautiloid Type (B) Goniatite Type  
(C) Ceratite Type (D) Ammonoid Type
70. Banded Gneissic complex is associated with rocks of:
- (A) Iron Ore Group (B) Dharwar Super group  
(C) Aravalli Group (D) Sausar Group
71. Unit of Hydraulic conductivity is:
- (A) m/sec (B) m  
(C)  $m^2$  (D)  $m/sec^2$
72. Which one of the following is an ore mineral of copper?
- (A) Turgite (B) Braunite  
(C) Patronite (D) Bornite
73. Which one of the following oil fields is found in Assam?
- (A) Lakwa oil field (B) Kalol oil field  
(C) Nawagam oil field (D) Ankleshwar oil field
74. Minerals in which a country has total inadequacy and the country has to depend upon foreign sources for its needs, they are described as:
- (A) Strategic minerals (B) Critical minerals  
(C) Essential minerals (D) Expensive minerals



75. If runoff dominates over infiltration, drainage density:
- (A) Decreases (B) Remains same  
(C) Increases (D) None of the above
76. Supergene sulphide enrichment zone is found:
- (A) Above the water table (B) Below the water table  
(C) In the oxidising zone (D) Near the ground surface
77. Cavities in the vein left unfilled are called:
- (A) Crusification. (B) Vugs  
(C) Comb structure (D) None of the above
78. Hematite forms in:
- (A) An alkaline oxidising environment (B) An acidic oxidising environment  
(C) An alkaline reducing environment (D) An acidic reducing environment
79. Rampur-Agucha deposits are associated with:
- (A) Iron ores (B) Manganese ores  
(C) Copper ores (D) Lead-zinc ores
80. Deposits that were formed subsequent to the formation of the host rocks are:
- (A) Syngenetic (B) Epigenetic  
(C) Syncgenetic (D) Sinclongenetic
81. Miocene limestone is the host for which of the following Petroliferous basins?
- (A) Bombay offshore Basin (B) Assam-Arakan Basin  
(C) Ankleswar Oil Field (D) Cambay Oil Field
82. The "Schlumberger configuration" is used in:
- (A) Electrical sounding (B) Magnetic profiling  
(C) Geomagnetic profiling (D) Seismic profiling



83. Which one of the following Geo-Physical Survey methods is best suitable for ground water exploration?
- (A) Gravity Method (B) Seismic Reflection Method  
(C) Magnetic Method (D) Electrical Resistivity Method
84. Brazilian test is used for the:
- (A) Determination of tensile strength of rocks  
(B) Determination of compressive strength of rocks  
(C) Determination of coefficient of permeability of soils  
(D) Determination of insitu stress
85. Dead storage is associated with:
- (A) Dyke (B) Reservoir  
(C) Tunnel (D) Bridge
86. A seismic gap refers to:
- (A) Time gap between two great earthquakes  
(B) Distance gap between the epicentres of two great earthquakes  
(C) Segment of an active seismic belt where a historical great earthquake has not occurred  
(D) Wide gap in the Earth created by a great earthquake
87. Water that is found in the sedimentary rocks at the time of their formation is called:
- (A) Connate water (B) Vadose water  
(C) Juvenile water (D) Hygroscopic water
88. In which of the following localities, coal deposit occurs?
- (A) Dariba (B) Kudremukh  
(C) Wardha (D) Rudrasagar



89. Leakage through rock fracture below a dam can be reduced significantly by:
- (A) Bolting (B) Grouting  
(C) Drilling (D) Blasting
90. Which one the following rocks has the highest compressive strength?
- (A) Coarse grained sandstone (B) Mica schist  
(C) Fossiliferous limestone (D) Massive basalt
91. Which of the following conditions is favourable for tunnel?
- (A) Tunnel in hanging wall (B) Tunnel in footwall  
(C) Tunnel axis parallel to fault plane (D) None of the above
92. The instrument which provides EMR of specified wavelength or a band of wavelength to illuminate the Earth surface is called:
- (A) Microwave sensor (B) Passive sensor  
(C) Active sensor (D) Optical sensor
93. The geological materials in the zone of saturation which are porous and impermeable are known as:
- (A) Aquifers (B) Aquiclude  
(C) Aquifuse (D) Aquitad
94. The maximum permissible iron content of water for drinking purpose is:
- (A) 0.3 mg/L (B) 1.5mg/L  
(C) 3.0mg/L (D) 1.8mg/L
95. The Graphite deposits of Odisha are associated with the rocks;
- (A) Gangpur group (B) Chhatisgarh group  
(C) Gandwana super group (D) Eastern Ghats



96. The host rock for diamond is:
- (A) Granite (B) Diorite  
(C) Kimberlite (D) Syenite
97. Lime stones of Odisha are associated with:
- (A) Gangpur Group (B) Gondwana Super group  
(C) Singhbhum Granite (D) Dhanjori Group
98. Bauxite deposits of Odisha are formed by which of the following processes?
- (A) Mechanical concentration (B) Residual concentration  
(C) Magmatic concentration (D) Evaporation
99. Cerussite is an ore mineral of:
- (A) Iron (B) Manganese  
(C) Lead (D) Copper
100. Manganese deposits of Madhya Pradesh-Maharashtra are associated with rocks of:
- (A) Dharwars (B) Aravallis  
(C) Sausars (D) Delhis



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