

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

TEST BOOKLET
MINING OFFICER-2015

Time Allowed : 2 Hours]

[Maximum Marks : 100

All questions carry equal marks.

INSTRUCTIONS

1. Immediately after the commencement of the examination, you should check that test booklet does not have any unprinted or torn or missing pages or items, etc. If so, get it replaced by a complete test booklet.
2. Write your Roll Number only in the box provided alongside.
Do not write anything else on the Test Booklet.
3. This Test Booklet contains 100 items (questions). Each item comprises four responses (answers). Choose only one response for each item which you consider the best.
4. After the candidate has read each item in the Test Booklet and decided which of the given responses is correct or the best, he has to mark the circle containing the letter of the selected response by blackening it completely with Black or Blue ball pen. In the following example, response "C" is so marked :

(A) (B) ● (D)
5. Do the encoding carefully as given in the illustrations. While encoding your particulars or marking the answers on answer sheet, you should blacken the circle corresponding to the choice in full and no part of the circle should be left unfilled.
6. You have to mark all your responses ONLY on the ANSWER SHEET separately given according to 'INSTRUCTIONS FOR CANDIDATES' already supplied to you. Responses marked on the Test Booklet or in any paper other than the answer sheet shall not be examined.
7. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of correct responses marked by you in the Answer Sheet. There will be no negative marking.
8. Before you proceed to mark responses in the Answer Sheet fill in the particulars in the front portion of the Answer Sheet as per the instructions sent to you.
9. After you have completed the test, hand over the Answer Sheet to the Invigilator.

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1. Which of the following statements is *not* true for plutonic igneous rocks ?
 - (A) They occur both as extrusive and intrusive bodies
 - (B) They are formed by crystallization of magma
 - (C) They usually have phaneritic texture
 - (D) They can be both mafic and felsic in composition

2. An igneous rock containing alkali feldspar and quartz as major minerals, sodic plagioclase, biotite — hornblende as minor minerals and zircon, apatite and monazite as accessory minerals, can best be named as :
 - (A) Diorite
 - (B) Gabbro
 - (C) Granite
 - (D) Syenite

3. A clastic sedimentary rock consisting mainly of quartz and significant K-feldspar can best be called as :
 - (A) Fossiliferous limestone
 - (B) Arkose
 - (C) Mudstone
 - (D) Graywacke

4. Which of the following is *not* a metamorphic rock ?
 - (A) Charnockite
 - (B) Andesite
 - (C) Migmatite
 - (D) Granulite

5. In the Moh's scale of hardness the mineral Topaz occurs at number :
- (A) Five (B) Six
(C) Seven (D) Eight
6. How many minerals in the Moh's scale of hardness have Al as a significant chemical constituent ?
- (A) 1 (B) 2
(C) 3 (D) 4
7. Majority of faults in the Himalayan region are :
- (A) Strike slip faults (B) Reverse faults
(C) Normal faults (D) None of these
8. Richter Scale measures the :
- (A) Magnitude of earthquake
(B) Intensity of earthquake
(C) Destructive effect of earthquake
(D) Distance between Focus and Epicenter of an earthquake
9. Which of the following is *not* a carbonate mineral ?
- (A) Siderite (B) Dolomite
(C) Aragonite (D) Albite

10. Which of the following minerals exhibits Double Refraction ?
- (A) Calcite (B) Quartz
(C) Diamond (D) Topaz
11. Which of the following represents average thickness of Earth's crust ?
- (A) 30-35 km (B) 3-10 km
(C) 10-15 km (D) 60-65 km
12. Which of the following statements is *true* for Crust ?
- (A) It has constant thickness
(B) It is the least voluminous layer of the Earth
(C) Its average density is 3.3 g/cm^3
(D) Its average composition is basaltic
13. Which of the following represents the boundary between mantle and core ?
- (A) Low Velocity Zone (B) Gutenberg Discontinuity
(C) Mohorovicic Discontinuity (D) Inversion Zone
14. Which of the following geological processes describes collision of an 'oceanic plate' with a 'continental plate' ?
- (A) Uplift (B) Subduction
(C) Extension (D) Transformation

15. The generally accepted age of the Earth is :
- (A) About 46 million years (B) About 460 million years
(C) About 4600 million years (D) About 46000 million years
16. The origin of the Precambrian iron ore deposits of India can be attributed to which of the following geological process ?
- (A) Residual concentration (B) Hydrothermal activity
(C) Magmatic concentration (D) Sedimentation
17. Which of the following statements is *true* for S-waves ?
- (A) They are slower than P-waves
(B) They can travel through both solid and liquid media
(C) Their velocity does not depend upon the density of medium through which they propagate
(D) Their vibration direction is same as the direction of propagation
18. Which of the following stratigraphic units represents the longest time span ?
- (A) Triassic (B) Silurian
(C) Cambrian (D) Carboniferous

19. A plane of erosion separating a lower inclined and an upper horizontal sedimentary sequences can be called as :
- (A) Non-conformity (B) Disconformity
(C) Angular Unconformity (D) None of these
20. Which of the following criteria can be used for stratigraphic correlation ?
- (A) Radiometric ages (B) Fossil record
(C) Lithological similarity (D) All of these
21. What would be the most suitable method for determining the crystallization age of a Precambrian granite that has undergone low to medium grade metamorphism ?
- (A) Whole rock Rb—Sr method (B) ^{14}C dating method
(C) Zircon U—Pb method (D) K—Ar method
22. Minerals with same chemical composition but different physical characteristics are called :
- (A) Isomorphs (B) Pseudomorphs
(C) Polymorphs (D) Paramorphs
23. The crystal system of beryl is :
- (A) Orthombic (B) Hexagonal
(C) Cubic (D) Monoclinic

24. Which of the following is a primary ore of Zinc ?
- (A) Sphalerite (B) Malachite
(C) Azurite (D) Galena
25. A sedimentary rock composed mainly of calcite can be called :
- (A) Marble (B) Sandstone
(C) Limestone (D) Arkose
26. Which of the following structures can be associated with sedimentation process ?
- (A) Vesicular structure (B) Ripple marks
(C) Intersection lineations (D) Mullions
27. Which of the following is different from the rest ?
- (A) Dyke (B) Lopolith
(C) Sill (D) Laccolith
28. Based on the seismic zonation map of India which one of the following cities is located within the highest seismic hazard zone ?
- (A) Kolkata (B) Hyderabad
(C) Delhi (D) Shillong

29. Which of the following represents the correct order of appearance of seismic waves at a recording station ?
- (A) P—S—L (B) L—P—S
(C) P—L—S (D) S—P—L
30. Which of the following gases is associated with volcanic eruptions ?
- (A) CO₂ (B) H₂O
(C) H₂S (D) All of these
31. Which of the following properties can be used in identifying a mineral ?
- (A) Streak* (B) Transparency
(C) Magnetic susceptibility (D) All of these
32. Light Year is a unit to measure :
- (A) Number of sunny days in a calender year
(B) Distance
(C) Time
(D) Intensity of solar radiations received in one year
33. Which of the following is a mis-match ?
- (A) Mars (B) Moon
(C) Earth (D) Venus

34. A mineral with high density, metallic lustre and cherry red streak can most likely be identified as :
- (A) Hematite (B) Magnetite
(C) Siderite (D) Ankerite
35. The phenomenon by which two atoms of hydrogen combine under extreme pressure and temperature is known as :
- (A) Nuclear fission (B) Nuclear fusion
(C) Nuclear activation (D) Nuclear assimilation
36. Which of the following rocks will change into quartzite by the process of metamorphism ?
- (A) Mudstone (B) Claystone
(C) Sandstone (D) Limestone
37. Which of the following features is useful in defining Plate Boundaries ?
- (A) Distribution of volcanoes
(B) Distribution of earthquake belts
(C) Distribution of mountain ranges
(D) All of the above

38. Which of the following is one of the inner planets ?
- (A) Jupiter (B) Mars
(C) Neptune (D) Saturn
39. Which of the following geological settings is associated with generation of new crust ?
- (A) Continental volcanism (B) Subduction zone
(C) Mid oceanic ridges (D) Transform fault zone
40. X-ray diffraction method is used in determining :
- (A) internal structure of minerals
(B) chemical composition of minerals
(C) refractive index of minerals
(D) variation in surface reflectance of mineral
41. Horst in an uplifted wedge shaped structure bound by :
- (A) Reverse faults on either side
(B) Reverse fault on one side and normal fault on other side
(C) Normal faults on either side
(D) None of the above

42. ✓ Grouting is suggested for a dam site when :

- (A) The foundation shows open joints
- (B) Upstream rocks are carbonate rich
- (C) The foundation consists of impervious rocks
- (D) Stream flow is irregular

43. Normative mineral percentage in igneous rocks indicates :

- (A) Hypothetical percentage calculated from chemical composition of the rock
- (B) Volume percentage of minerals actually present
- (C) Ratio of oversaturated and undersaturated minerals
- (D) None of the above

44. Which of the following criteria can be used in determining the younging direction of a sedimentary sequence ?

- (A) Current Bedding
- (B) Graded Bedding
- (C) Oscillation Ripple Marks
- (D) All of these

45. Which of the following minerals is regarded as the 'pathfinder' in search of gold deposits ?

- (A) Pyrrhotite
- (B) Pyrite
- (C) Chalcopyrite
- (D) Arsenopyrite

46. Which of the following minerals has the highest copper percentage ?
- (A) Chalcocite (B) Chalcopyrite
(C) Bornite (D) Covelite
47. Which of the following rocks is considered as the most likely host for diamond ?
- (A) Rhyolite (B) Ocean floor basalt
(C) Kimberlite (D) Andesite
48. Which of the following is *not* a 'concordant' form of igneous rocks ?
- (A) Ring Dyke (B) Sill
(C) Lopolith (D) Laccolith
49. Which of the following rocks will be most susceptible to chemical weathering ?
- (A) Granite (B) Syenite
(C) Quartzite (D) Dolerite
50. Which of the following is the second most dominant gas in the Earth's atmosphere ?
- (A) Oxygen (B) Nitrogen
(C) Methane (D) Carbon dioxide

51. Which of the following methods can be used in determining the absolute age of a rock ?
- (A) Superposition of strata (B) Cross-cutting relationship
- (C) Radiometric dating (D) Faunal succession
52. The mantle accounts for approximately of the Earth by volume.
- (A) 50% (B) 60%
- (C) 70% (D) 80%
53. Andes Mountains in South America are an example of :
- (A) Collision of oceanic plates
- (B) Collision of oceanic and continental plates
- (C) Collision of continental plates
- (D) Divergence of oceanic plates
54. Monazite is an ore of :
- (A) Thorium (B) Uranium
- (C) Molybdenum (D) Vanadium

55. Pillow lavas are usually associated with :
- (A) Submarine volcanism
 - (B) Continental flood basalt eruptions
 - (C) Pyroclastic volcanism
 - (D) Highly siliceous lava flows in continental regions
56. In case of volcanic rocks the columnar joints are usually :
- (A) developed parallel to the lava flow direction
 - (B) developed at an acute angle to the lava flow direction
 - (C) developed at right angle to the lava flow direction
 - (D) developed randomly in relation to lava flow direction
57. The 25th April, 2015 Nepal earthquake measured on the Richter Scale.
- (A) 6.7
 - (B) 7.2
 - (C) 8.6
 - (D) 7.9
58. Contact metamorphism of limestone by the intrusion of granite will result in the formation of which of the following rocks ?
- (A) Schist
 - (B) Charnockite
 - (C) Skarn
 - (D) Gneiss

59. In a folded terrane slaty cleavages are developed the axial plane.
- (A) oblique to (B) parallel to
(C) at right angle to (D) at an acute angle to
60. Which of the following is the most suitable method for search of oil and gas ?
- (A) Magnetic susceptibility method
(B) Electrical resistivity method
(C) Seismic method
(D) Self-potential method
61. Which of the following scenarios can potentially cause tsunami ?
- (A) High magnitude earthquake (B) Impact of large meteorite
(C) Volcanic eruption (D) All of these
62. The minimum density of 'heavy minerals' is usually :
- (A) 2.6 g/cm^3 (B) 2.8 g/cm^3
(C) 2.9 g/cm^3 (D) 2.7 g/cm^3

63. Which of the following minerals is the primary source for Plaster of Paris ?
- (A) Gypsum (B) Halite
(C) Quartz (D) Fluorite
64. An inclined bed dips at an angle of 45° towards N50E direction. What will be the strike of this bed ?
- (A) N45W (B) S40E
(C) N50W (D) S45W
65. A fault where foot wall has remained stationary and hanging wall has moved relatively down can be called as :
- (A) Normal fault (B) Reverse fault
(C) Thrust fault (D) Transform fault
66. In a rock containing a radioactive element the ratio of parent to daughter elements was found to be 1 : 3. Assuming that the rock did not have any daughter material at the time of formation, how many half lives has it undergone ?
- (A) 1 (B) 2
(C) 3 (D) 4

67. Which of the following does *not* make a correct pair ?
- (A) Magnetite — Fe (B) Azurite — Ag
(C) Sphalerite — Zn (D) Malachite — Cu
68. The Circumpacific Region is also called as the 'Ring of Fire' because :
- (A) the area is prone to frequent forest fires
(B) of the presence of oil wells with gas burning
(C) of frequent volcanic eruptions
(D) occurrence of frequent fires caused by earthquakes
69. Among the following, below which Indian city the thickness of the crust will be maximum ?
- (A) Leh (B) Mumbai
(C) Port Blair (D) Hyderabad
70. Which of the following rocks is known to have 'ophitic' texture ?
- (A) Granite (B) Dolerite
(C) Diorite (D) Lamprophyre
71. A plutonic rock composed essentially of calcic plagioclase and orthopyroxene with minor clinopyroxene and accessory olivine and magnetite can be named as :
- (A) Norite (B) Anorthosite
(C) Gabbro (D) Pyroxenite

72. Which of the following is part of the Mesozoic ?
- (A) Devonian (B) Silurian
(C) Triassic (D) Carboniferous
73. The Paleogene-Cretaceous boundary is placed approximately million years from present.
- (A) 120 (B) 90
(C) 180 (D) 65
74. Which of the following minerals is present in bauxite ?
- (A) Gibbsite (B) Diaspore
(C) Boehmite (D) All of these
75. Stromatolites are :
- (A) types of blue algae
(B) types of sedimentary rocks
(C) rocks with rough weathering surfaces
(D) organo-sedimentary structures
76. The oldest mineral found on the surface of the Earth is :
- (A) Quartz (B) Zircon
(C) Tourmaline (D) Garnet

77. Which of the following represents characteristic feature of fine-grained clastic sedimentary rocks ?
- (A) High porosity only
 - (B) High permeability only
 - (C) High porosity and high permeability
 - (D) High porosity and low permeability
78. The underground water that occurs within the zone of aeration is called :
- (A) Juvenile water
 - (B) Vadose water
 - (C) Magmatic water
 - (D) Connate water
79. Which of the following is the most suitable method for sampling placer deposits ?
- (A) Churn drilling
 - (B) Augur drilling
 - (C) Jet drilling
 - (D) Rotary drilling
80. Exfoliation is a form of :
- (A) physical weathering
 - (B) chemical weathering
 - (C) biochemical weathering
 - (D) solution weathering
81. At which place in Kullu District of H.P. is Jamlu Dev temple ?
- (A) Jagatsukh
 - (B) Sultanpur
 - (C) Malana
 - (D) Bajaura

82. In which month is *Nahole* festival celebrated in lower Himachal ?
- (A) Baishakh (B) Jeshth
(C) Asadh (D) Shravan
83. Who is the author of *Travels in the Western Himalayas* ?
- (A) H.C. Saraswat (B) N.K. Sharma
(C) M.S. Randhawa (D) Vipin Pubby
84. Who was the first Sikh chieftain to invade Kangra Hills ?
- (A) Jassa Singh Ramgarhia (B) Jai Singh Kanhiya
(C) Gurbaksh Singh (D) Maharaja Ranjit Singh
85. Which of the following is Pent roofed style temple ?
- (A) Hidimba Devi (Manali) (B) Shakti Devi (Chhatrari)
(C) Naina Devi (Bilaspur) (D) Hateshwari (Hatkoti)
86. Who led the Praja Mandal Movement in Jubbal State ?
- (A) Satya Dev Bushahri (B) Sada Ram Chandel
(C) Bhagmal Sautha (D) Pt. Padam Dev

87. Which areas constituted Kasumpti Tehsil of Mahasu District of Himachal Pradesh in 1948 ?
- (A) Koti and Junga portion of Keonthal State
(B) Dhami and a portion of Arki State
(C) Junga, Dhami and a portion of Koti State
(D) Dhami and Koti States and Junga portion of Keonthal State
88. Which of the following have been linked to unique ID Aadhaar in Himachal Pradesh ?
- (A) Public Distribution System (B) MGNREGA
(C) Education (D) All of these
89. Which of the following is *not* included in Integrated Housing and Slum Development Programme in H.P. ?
- (A) Solan (B) Kandaghat
(C) Parwanoo (D) Baddi
90. According to a study conducted by Indian Market Research Bureau and *Pratham* which two districts of H.P. have no out of school children (6 to 14 years) ?
- (A) Bilaspur and Lahaul-Spiti (B) Bilaspur and Una
(C) Lahaul-Spiti and Solan (D) Solan and Una

91. With which of the following is Priya Pillai associated ?
- (A) Green peace (B) Child rights
(C) Women liberation (D) Gay issues
92. When was Doordarshan set up ?
- (A) 1959 (B) 1976
(C) 1984 (D) 1988
93. What name has been given to Sardar Vallabhbhai Patel's statue built in Anand District of Gujarat ?
- (A) Statue of Sardar (B) Statue of Iron man
(C) Statue of Integrity (D) Statue of Unity
94. Which state hosted the national games held in 2015 ?
- (A) Tamil Nadu (B) Kerala
(C) Karnataka (D) Odisha
95. Vikramaditya with whom Vikrami Samvat is associated was a ruler of :
- (A) Magadh (B) Ujjain
(C) Kalinga (D) None of these

96. What is the title of Gunter Grass' book on Calcutta ?
- (A) The Flounder (B) The Tin Drum
(C) Dog Years (D) Cat and Mouse
97. Approximately how old was Dharahara tower at Katmandu which was destroyed in April 2015 earthquake ?
- (A) 120 years (B) 180 years
(C) 240 years (D) 280 years
98. Who is the new ruler of Thailand ?
- (A) Hun Sen
(B) General Prayuth Chan-Ocha
(C) Nguyen Tan Dung
(D) Chung Hong-Won
99. How many seats did Scottish National Party win in 2015 elections to the British Parliament ?
- (A) 26 (B) 46
(C) 56 (D) 65
100. Which 20th century U.S. President refused Democratic Party's nomination as a candidate but accepted the Republican Party nomination ?
- (A) Nixon (B) Eisenhower
(C) Carter (D) Kennedy