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  C  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.

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

P.T.O.
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/cm³
   (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 Pre cambrian 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) Orthomobic  (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 calendar year
(B) Distance
(C) Time
(D) Intensity of solar radiations received in one year

33. Which of the following is a mismatch?

(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) Covellite

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/cm³  (B) 2.8 g/cm³

(C) 2.9 g/cm³  (D) 2.7 g/cm³
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) Pyroxonite
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
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

The underground water that occurs within the zone of aeration is called:

(A) Juvenile water  (B) Vadose water
(C) Magmatic water  (D) Connate water

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

Exfoliation is a form of:

(A) physical weathering  (B) chemical weathering
(C) biochemical weathering  (D) solution weathering

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

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P.T.O.
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 2013?
(A) Tamil Nadu  (B) Kerala
(C) Karnataka  (D) Odisha

95. Vikramaditya with whom Vikram Samvat is associated was a ruler of:
(A) Magadh  (B) Ujjain
(C) Kalinga  (D) None of these

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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