1. Flexure fold are formed due to

(A) Tension and compression
(B) Tension only
(C) Compression only
(D) Shearing
(E) Answer not known

2. The direction of a horizontal line formed by the intersection of the bed with the horizontal plane is called

(A) full dip
(B) apparent dip
(C) dip
(D) strike
(E) Answer not known

3. The clinometer is used for measuring

(A) Vertical direction
(B) Vertical plane of deformation
(C) Vertical angle of displacement
(D) Vertical angles of slope and dip
(E) Answer not known

4. When measuring strike using a clinometer, the instruments should be held

(A) Parallel to the ground
(B) Orientation direction
(C) Perpendicular to the ground
(D) At 60^{o} angle to the ground
(E) Answer not known

5. It is hard to discriminate between primary dip and the secondary kind of dip, if it is induced by

(A) Deposition
(B) Distortion
(C) Deformation
(D) Displacement
(E) Answer not known

6. In an overturned fold, the oldest rocks are typically found

(A) Along the hinge
(B) At the axial plane
(C) On the upper limb
(D) On the lower limb
(E) Answer not known

7. The direction of the dip always read from ———— point of the dial.

(A) North
(B) North or South
(C) South
(D) East or West
(E) Answer not known

8. An overturned fold in one in which

(A) the axial plane is vertical
(B) the axis is vertical
(C) the strata in one limb are horizontal
(D) both limbs dip in the same direction
(E) Answer not known

9. The attitude of planar feature are

(A) Joints
(B) Strike
(C) Dip
(D) All the above
(E) Answer not known

10. The "slip fold" is called as

(A) normal fold
(B) shear fold
(C) flow fold
(D) flexure fold
(E) Answer not known

11. The extended competent layers which are not separated from each other in individual fragments is called as

(A) necking
(B) pinch-and-swell
(C) boudins
(D) boudinage
(E) Answer not known

12. The space between the individual folium and domain is 10 μm to 10 cm are called as

(A) Anastomosis
(B) Microlithon
(C) Joints
(D) Stylolite
(E) Answer not known

13. ———— texture is characterised by the presence of large, visible crystals embedded in a fine grained matrix.

(A) Clastic
(B) Crystalline
(C) Porphyritic
(D) Oolitic
(E) Answer not known

14. The high temperature makes rock softer, malleable, hence the rock undergoes ———— deformation.

(A) elastic
(B) plastic
(C) ductile
(D) both (A) and (C)
(E) Answer not known

15. A pair of asymmetric folds with opposite senses of asymmetry such that, the axial surfaces dip towards each other are termed as

(A) Polyclinical fold
(B) Conjugate fold
(C) Harmonic fold
(D) Parasitic fold
(E) Answer not known

16. Substance that undergo a large plastic deformation before rupture are called

(A) Brittle
(B) Ductile
(C) Amorphous
(D) Malleable
(E) Answer not known

17. A common type of conjugate fold, where the fold angles are approximately 90^{o} forming an almost rectangular structure

(A) Box fold
(B) Polyclinal fold
(C) Parasitic fold
(D) Disharmonic
(E) Answer not known

18. A circular, elliptical or irregular erosional depression or gap in overthrust sheet wherein the younger strata beneath the thrust are exposed, such a structure is called

(A) Nappe
(B) Fenster
(C) Mountain arc
(D) Fault block mountain
(E) Answer not known

19. A group of folds which differ from one layer to another due to difference in lithology are called as

(A) parasitic fold
(B) drag fold
(C) en-echelon fold
(D) disharmonic fold
(E) Answer not known

20. Joints parallel to the axial planes of folds as

(A) Release joints

(B) Extension joints

(C) Shear joints

(D) Fractures

(E) Answer not known

21. Match the Mineral Composition :

(a)	Hematite	1.	(Zn, Fe) S
(b)	Sphalerite	2.	TiO_2
(c)	Rutile	3.	$CuFeS_2$
(d)	Chalcopyrite	4.	Fe_2O_3

	(a)	(b)	(c)	(d)
(A)	4	1	2	3
(B)	1	2	3	4
(C)	4	3	1	2
(D)	1	2	4	3

(E) Answer not known

22. Match the following with the types of cleavage :

(a)	Rhombohedral	1.	It is four direction
(b)	Octahedral	2.	It is tridirectional not at 90°
(c)	Cubic	3.	It is bidirectional
(d)	Prismatic	4.	It is tridirectional at 90°

	(a)	(b)	(c)	(d)
(A)	1	2	3	4
(B)	3	4	2	1
(C)	2	1	4	3
(D)	4	3	1	2

(E) Answer not known

23. Black streak characteristic mineral is

(A) Chalcopyrite (B) Hematite

(C) Siderite (D) Zeolite

(E) Answer not known

24. Which formula given below represents pure dolomite?

(A) $CaCO_3$ (B) $CaMg(CO_3)_2$

(C) $CaFe(CO_3)_2$ (D) $CaMn(CO_3)_2$

(E) Answer not known

25. Botryoidal, Mammillated and stellate are the terms used to denote the

(A) Form (B) Fracture

(C) Crystal aggregates (D) Tenacity

(E) Answer not known

26. The Aluminium Silicates, andalusite, sillimanite, kyanite and staurolite are classified as

(A) Nesosilicates
(B) Sorosilicates
(C) Cyclosilicates
(D) Inosilicates
(E) Answer not known

27. Assertion [A] : In Isotropic crystals, light moves in all directions with equal velocity and has single refractive Index.

Reason [R] : In anisotropic the velocity of light various with crystallographic direction and thus more than one refractive index formed.

(A) [A] is true but [R] is false
(B) Both [A] and [R] are true and [R] is the correct explanation of [A]
(C) [A] is false, [R[is true
(D) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
(E) Answer not known

28. In polarised light the mineral forms are perfectly developed is called

(A) Alteration
(B) Anhedral
(C) Subhedral
(D) Euhedral
(E) Answer not known

29. Why ordinary ray (O ray) vibrate in basal plane?

(A) It travels the same distance in same time
(B) It travels different distances
(C) It will not travel any distance
(D) Vibrates right angle to C axis
(E) Answer not known

30. Find the correct sequence of polarised light can be obtained from one of three methods

(A) Refraction, Reflection, Absorption
(B) Reflection, Absorption, Refraction
(C) Absorption, Refraction, Reflection
(D) Reflection, Refraction, Absorption
(E) Answer not known

31. Silicate of aluminium and fluorine is

(A) Tourmaline
(B) Garnet
(C) Topaz
(D) Beryl
(E) Answer not known

32. The Iceland spar is a characteristic of mineral is called

(A) Transparent crystalline variety of calcite
(B) Transparent variety of dolomite
(C) Transparent variety of magnesite
(D) Transparent variety of corundum
(E) Answer not known

33. Tourmaline minerals occurs commonly in

(A) Dunine
(B) Peridotite
(C) Syenites
(D) Granites
(E) Answer not known

34. Staurolite mineral is formed during

(A) Hydrothermal veins
(B) Metazomatism
(C) Regional metamorphism
(D) Contact metamorphism
(E) Answer not known

35. Large deposits of zircons are available in the coast of

(A) Beach sands of Orissa
(B) Beach sands of Goa
(C) Beach sands of Kerala and Tamilnadu coast
(D) Beach sands of Karnataka
(E) Answer not known

36. The general formula for the garnets is represented as

(A) $R_3\ R_2\ Si_2O_{12}$ where R_3 = Fe, Mn, Si, Ca, R_2 = Al or Co
(B) $R_1\ R_3\ Si_3O_{11}$ where R_1 = Mn, Ca, Si R_2 = Co Ni
(C) $R_3\ R_4\ Si_4O_{12}$ where R_3 = Ca, Si, Mn, R_4 = Al or Ni
(D) $R''_3\ R'''_3\ Si_3O_{12}$ where R″ = Fe″, Mg, Mn″ or Ca R‴ = Fe‴, Al or Cr
(E) Answer not known

37. What is the composition of sphalerite?

(A) Zinc-iron-sulfur minerals
(B) Lead – sulfur mineral
(C) Copper – iron – sulfur mineral
(D) Titanium dioxide
(E) Answer not known

38. Black Mica is called as

(A) Paragonite
(B) Biotite
(C) Muscovite
(D) Lepidolite
(E) Answer not known

39. Which of the following is a Triclinic Pyroxene?

(A) Bronzite
(B) Pigeonite
(C) Rhodonite
(D) Hedenbergite
(E) Answer not known

40. Which of the following is correctly paired?

(i) Orthopyroxene – Parallel extinction
(ii) Clinopyroxene – Inclined extinction
(iii) Quartz – Undulose extinction

(A) (i) only
(B) (i) and (iii)
(C) (ii) and (iii)
(D) (i), (ii), (iii)
(E) Answer not known

41. Rhodocrosite is the ore mineral of

(A) Iron
(B) Copper
(C) Lead and zinc
(D) Manganese
(E) Answer not known

42. Which is called as peacock ore?

(A) Cuprite
(B) Covellite
(C) Azurite
(D) Bornite
(E) Answer not known

43. Which of the following is incorrectly paired for the geographical distribution of oil and gas field in India?

(1) Arunachal Pradesh – Ningru
(2) Assam – Balal
(3) Andhra Pradesh – Moran
(4) Gujarat – Ankeleshwar

(A) (4) only
(B) (1) only
(C) (1) and (4) only
(D) (2) and (3) only
(E) Answer not known

44. What is made up of bright, glassy looking, jet like coal band with conchoidal fracture? Find out the correct answer given below.

(A) Clarain
(B) Fusain
(C) Durain
(D) Vitrain
(E) Answer not known

45. The carbon content value of Bituminous coal is

(A) 50 – 55%
(B) 45 – 50%
(C) 70 – 85%
(D) 75 – 95%
(E) Answer not known

46. The first united nations conference on the law of the sea held at Geneva during

(A) 1945
(B) 1958
(C) 1967
(D) 1960
(E) Answer not known

47. Which of the following statements are true about 'Metallogenic Provinces?

(1) They are known by the name of dominant and specific mineral

(2) Gold province, Copper province, Iron-ore province, Manganese ore province

(3) It may comprise mineralization of more than one epoch, but essentially the same type

(A) (1) only
(B) (1) and (2) only
(C) (1), (2) and (3)
(D) (2) and (3) only
(E) Answer not known

48. Which of the following statements are true about 'Chief metallogenic epochs of India?

(1) Precambrian

(2) Late palaeozoic

(3) Late mesozoic to early tertiary

(A) (1) only
(B) (1) and (2) only
(C) (1), (2) and (3)
(D) (2) and (3) only
(E) Answer not known

49. The false gossan can be distinguished from true by

(A) lack of limonite and sulphide voids
(B) presence of limonite
(C) the occurrence of copper carbonate
(D) form and size
(E) Answer not known

50. Placer deposits are formed by

(A) Fluid boiling
(B) Magma segregation
(C) Gravitational separation
(D) Wall-rock alterations
(E) Answer not known

51. In a gossan the abundance of voids indicate

(A) No predecessor existed
(B) Abundance of sulphides existed
(C) Abundance of copper existed
(D) Removal of copper existed
(E) Answer not known

52. Cavity filling and replacement are the types of ———————— process.

(A) Hydrothermal
(B) Magmatic
(C) Metamorphic
(D) Metasomatic
(E) Answer not known

53. The high temperature metamorphic minerals assemblage in the gangue mineral of contact metasomatic deposits is called as

(A) Immiscible
(B) Hypogene
(C) Skarn
(D) Ore
(E) Answer not known

54. The formation temperature of different magmatic deposits varies from

(A) 1500 to 300 °C
(B) 1500 to 500 °C
(C) 1000 to 300 °C
(D) 1000 to 500 °C
(E) Answer not known

55. Why is the serpentinised lime stone give rise to chrysotile asbestos?

(A) Due to exsolution process
(B) Due to metamorphic actions
(C) Due to sedimentary process
(D) Due to evaporation
(E) Answer not known

56. ———————— deposits are the syngenetic deposit which are formed at the same time as the enclosing rocks.

(A) Sedimentation deposits
(B) Evaporation deposits
(C) Replacement deposits
(D) Shear zone deposits
(E) Answer not known

57. Bateman's classification of economic minerals emphasizes their significance in

(A) Environmental conservation
(B) Geological process
(C) National security
(D) Tectonic features
(E) Answer not known

58. Which one of the following minerals is classified as an industrial mineral by Bateman's classification?

(A) Gold
(B) Silver
(C) Diamond
(D) Gypsum
(E) Answer not known

59. Which pair is classified by Lindgren (1911)?

(A) Magmatic process – Metamorphic process
(B) Mechanical concentration – Chemical reaction
(C) Hydrothermal process – Magmatic process
(D) Metamorphic – Metasomatic process
(E) Answer not known

60. The melting temperature of Albite is

(A) 1120 °C
(B) 100 °C
(C) 120 °C
(D) 1220 °C
(E) Answer not known

61. One vertical axis of 4 fold symmetry, 4 horizontal axes of 2 fold symmetry corresponds to

(A) Isometric system
(B) Orthorhombic system
(C) Tetragonal system
(D) Hexagonal system
(E) Answer not known

62. Choose the correct pair :

(A) Cassiterite – Tetragonal
(B) Topaz – Tetragonal
(C) Beryl – Isometric
(D) Diamond – Hexagonal
(E) Answer not known

63. Match the following :

(a)	Triclinic	1.	$\alpha = \beta = \gamma = 90^\circ$
(b)	Monoclinic	2.	$\alpha \neq \beta \neq \gamma$
(c)	Hexagonal	3.	$\alpha = \gamma = 90^\circ$
(d)	Tetragonal	4.	$\beta = 90^\circ$

	(a)	(b)	(c)	(d)
(A)	2	3	4	1
(B)	1	4	3	2
(C)	1	2	3	4
(D)	4	3	2	1

(E) Answer not known

64. How many symmetry axes in Tetragonal Normal Class (Zircon Type)?

(A) 4 (B) 5

(C) 7 (D) 3

(E) Answer not known

65. What is meant by Holohedral form?

(A) highest symmetry faces

(B) during the form of crystal system, all the possible face in its domain

(C) not possible face in its domain

(D) all of the above is correct

(E) Answer not known

66. In isometric system, Hexoctahedron symbol is

(A) kkk
(B) lkk
(C) hkl
(D) lll
(E) Answer not known

67. The symmetrical or cyclic twinning appears in the mineral Gypsum is known as

(A) Lamellar twinning
(B) Pericline twinning
(C) Butterfly twinning
(D) Carlsbad twinning
(E) Answer not known

68. Where it appears that twinning has been produced by rotation of one half for 90° or 180° is known as

(A) Reflection twins
(B) Inversion twins
(C) Rotation twins
(D) Contact twins
(E) Answer not known

69. Two crystals of gypsum may be naturally limited as twins popularly known as

(A) multiple twins
(B) simple twins
(C) swallow-tail twins
(D) penetration twins
(E) Answer not known

70. In ———————— twins, the two halves are simple connate, being united to each other by the composition plane.

(A) Penetration
(B) Repeated
(C) Contact
(D) Polysynthetic
(E) Answer not known

71. The contact Goniometer consist of

(A) two flat scale bars are clamped together
(B) three flat scale bars are clamped together
(C) two flat scale bars are clamped at 90°
(D) five flat scale bars are clamped together
(E) Answer not known

72. In a ———————— system, all the crystals are referred to three mutually perpendicular axes with the two horizontal axes (a_1 and a_2) are equal but the vertical axes is of different length.

(A) Isometric system
(B) Tetragonal system
(C) Hexagonal system
(D) Orthorhombic system
(E) Answer not known

73. Two non parallel crystal faces meets in a line that is called as

(A) Edge
(B) Central line
(C) Zone
(D) Lattice
(E) Answer not known

74. The interfacial angle between cube and dodecahedron is

(A) 90° 0′ 00″
(B) 45° 0′ 00″
(C) 60° 15′ 15″
(D) 56° 30′ 15″
(E) Answer not known

75. The interfacial angle between Prism and Pyramid faces of a Apatite crystal is

(A) 60° 13′ (B) 120° 15′

(C) 130° 18′ (D) 140° 00′

(E) Answer not known

76. In orthorhombic system the 'a' axis is known as ———— and the 'b' axis is known as ————

(A) Both the Macro axis

(B) Both the Brachy axis

(C) Brachy axis and Macro axis

(D) Macro axis and Brachy axis

(E) Answer not known

77. In Triclinic system, the normal class is named by the mineral type is

(A) Beryl type (B) Calcite type

(C) Gypsum type (D) Axinite type

(E) Answer not known

78. The $h + k + i = 0$ is a typical relation true for all the forms belonging to ———— system.

(A) Isometric (B) Tetragonal

(C) Hexagonal (D) Monoclinic

(E) Answer not known

79. The twins most commonly of repeated Lamellar type are known as

(A) Albite law
(B) Pericline law
(C) Baveno law
(D) Carlsbad law
(E) Answer not known

80. Scalenohedron is a hemihedral form and it is a derivative form of

(A) Rhombohedron
(B) Prism of first order
(C) Pyramid of first order
(D) Dihexagonal Pyramid
(E) Answer not known

81. Plant fossils like Gangamopteris glossopteris indica and vertebraria indica which are found in talchir group belongs to which age?

(A) Cretaceous age
(B) Upper carboniferous to lower permian age
(C) Lower triassic rock
(D) Upper vindhyan age
(E) Answer not known

82. Find out the correct evolutionary changes if Genus Epihippus from upper Eocene Uinta formation

(A) Digits of fore limbs were still 4. III and IV premolars were completely molarified
(B) The size increased to 33 cm. Fore limbs retained only 4 digits, hind limbs had 3 toes
(C) Head and neck were short; There are three functional toes in the foot along with remants of first and fifth toes
(D) The size was of a praire-wolf but some reached 45 to 60 cms. Limb were long and slender and adopted for rapid running
(E) Answer not known

83. Which of the following is an example of Rhinoceratid fossil?

(A) Aeratherium
(B) Hipparion
(C) Brahmapithecus
(D) Cobus
(E) Answer not known

84. The India elephants, the elephas and the African elephants – the Loxodonta and Mastodont are placed under in which of the following order?

(A) Proboscidae
(B) Moeritherium
(C) Barytherium
(D) Dinotherium
(E) Answer not known

85. The genus homo is placed under which of the following family?

(A) Prosimii
(B) Hominidae
(C) Anthropoidea
(D) Moeritherium
(E) Answer not known

86. Which of the following statements are correct regarding 'regular Echinoids?

(I) Test heart shaped
(II) Bilateral symmetry
(III) Tubercles and spines are both primary and secondary
(IV) Fasciole present

(A) I
(B) II
(C) III
(D) IV
(E) Answer not known

87. The Genus Textularia, Trochomnine and Orbitolina belonging to which super family?

(A) Lituolidea
(B) Endothyridea
(C) Lagnidea
(D) Miholidea
(E) Answer not known

88. Which of the following groups, is described as 'Head footed'?

(A) Gastropoda
(B) Pelecypoda
(C) Cephalopoda
(D) Brachiopoda
(E) Answer not known

89. Which of the following statements are true, about 'Goniatite type of suture'?

(1) The earliest lobes and saddles are few
(2) They are angular and characteristic
(3) This type of suture are found in late Paleozoic forms

(A) (1) only
(B) (1) and (2) only
(C) (1), (2) and (3)
(D) None of the above
(E) Answer not known

90. The tail part of the Trilobita is called

(A) Glabella
(B) Pygidium
(C) Proparian
(D) Gonatoparian
(E) Answer not known

91. Saddles and lobes are the terms applied equally to the

(A) Siphuncles
(B) Sutures
(C) Ornamentation
(D) Aperture
(E) Answer not known

92. The class graptolites constitutes completely ———————— and ———————— organisms.

(A) Living and fluvial
(B) Non – living and fluvial
(C) Extinct and Marine
(D) Living terrestrial
(E) Answer not known

93. The genus nummulites is an excellent example for?

(A) Megalospheric form
(B) Dimorphism
(C) Microspheric form
(D) Monothalamus
(E) Answer not known

94. A minute dominantly marine planktonic unicellular flagellate algal organism, spherical cell wall is covered with minute. Calcareous plates and most common in upper Jurassic limestones and marls.

(A) Coccoliths
(B) Silicoflagellates
(C) Dinoflagellates
(D) Bryozoa
(E) Answer not known

95. What is the term used to describe the study of ancient climates based on fossil evidence?

(A) Palaeobiology
(B) Palaeogeology
(C) Palaeozoology
(D) Palaeoclimatology
(E) Answer not known

96. Which of the following is correctly paired?

(1) Pelagic Foraminifera – Globigerina

(2) Fresh water foraminifera – Allogromidae

(3) Dinoflagellates – Large sized organism

(4) Coccoliths – Multicellular organism

(A) (2) and (3) are correct (B) (3) and (4) are correct

(C) (1) and (2) are correct (D) (1) and (4) are correct

(E) Answer not known

97. The term 'Ichnofossil' includes

(A) Tracks, Burrows and Tubes (B) Mould and cast

(C) Carbonised material (D) Petrified material

(E) Answer not known

98. Which is the biggest animal phylum in terms of number of species?

(A) Cridaria (B) Arthropoda

(C) Chordata (D) Mollusca

(E) Answer not known

99. The study of life of past geologic ages based on the fossil remains of ancient flora and fauna is known as

(A) Palaeontology (B) Palaeoecology

(C) Palynology (D) Climatology

(E) Answer not known

100. The identical species names that denote different species groups is known as

(A) Metatype
(B) Homonyms
(C) Holotype
(D) Topotype
(E) Answer not known

101. Bedding refers to

(A) Most of the sediments are laid down in layers
(B) Beds having lateral continuity and compositional unity
(C) Beds having mm thickness to m thickness
(D) (A), (B) and (C) were correct
(E) Answer not known

102. The zone which receives sediments mainly from the cratonic source is referred as?

(A) Molasse
(B) Geanticline
(C) Eugeosyncline
(D) Miogeosyncline
(E) Answer not known

103. Chemical composition of kyanite is

(A) Al_2SiO_5
(B) Al_2SiO_4
(C) Al_2SiO_3
(D) Al_2SiO_2
(E) Answer not known

104. Select the correct answer for ripple marks

(A) On sand beneath the waves at beaches

(B) On underwater sandbars in streams

(C) On the surface of windswept dunes

(D) (A), (B) and (C) are correct

(E) Answer not known

105. Match the following :

(a)	Siliceous	1.	Lime stone
(b)	Calcareous	2.	Flint
(c)	Ferruginous	3.	Iron ore
(d)	Argillaceous	4.	Clay

	(a)	(b)	(c)	(d)
(A)	2	1	3	4
(B)	1	2	3	4
(C)	4	3	2	1
(D)	2	3	4	1

(E) Answer not known

106. In which of the following sedimentary environment would you expect the sand deposits to be poorly sorted?

(A) glacial

(B) alluvial

(C) beach

(D) desert

(E) Answer not known

107. What is mean by deflation in Eolian Environment?

(A) The impact of the sand grains in motion
(B) The impact of chemical weathering
(C) The impact of physical weathering
(D) Exfoliation impact
(E) Answer not known

108. Decomposition is more active in

(A) Moist and warm areas
(B) Drier areas
(C) Colder regions
(D) Higher areas
(E) Answer not known

109. The most typical argillaceous rock of glacial origin is

(A) Mud clay
(B) Chalk
(C) Boulder clay
(D) Marl
(E) Answer not known

110. _____ are small cinderly fragments between the size of a walnut and pea.

(A) Volcanic Tuffs
(B) Lapillis
(C) Volcanic sands
(D) Agglomerates
(E) Answer not known

111. Fine grained sedimentary rocks of argillaceous composition is

(A) Flint
(B) Oolitic limestone
(C) Shale
(D) Chert
(E) Answer not known

112. Which sedimentary texture is characterised by rounded grains resembling?

(A) Crystalline
(B) Clastic
(C) Oolitic
(D) Porphyritic
(E) Answer not known

113. Why beach sands tend to have a negative skewness?

(A) Five compound are not carried by the wave action
(B) Silt and clay are present
(C) Present of coarse sediments
(D) Five compound are carried away by wave action
(E) Answer not known

114. _____ and _____ are two classes of sedimentary rocks.

(A) Residual deposits and Transported Deposits
(B) Siliceous and calcareous rocks
(C) Rudaceous and Arenaceous rocks
(D) Evaporites and Carbonates
(E) Answer not known

115. The layered arrangement of a sedimentary rock is defined as

(A) Sun cracks
(B) Lamination
(C) Graded Bedding
(D) Stratification
(E) Answer not known

116. Which Breccia is formed by the sea waters?

(A) Crush-breccia
(B) Basal Breccia
(C) Agglomeratic Breccia
(D) Fault Breccia
(E) Answer not known

117. Loamy soil constitutes the admixture of

(A) Sand and silt
(B) Silt and calcium carbonate
(C) Silt and clay
(D) Calcium carbonate and humus
(E) Answer not known

118. Which one of the following is a chemical weathering process involved in the formation of sedimentary rocks?

(A) Abrasion
(B) Frost action
(C) Root wedging
(D) Oxidation
(E) Answer not known

119. Clastic sedimentary rocks are primarily composed of

(A) Organic remains
(B) Precipitated minerals from solution
(C) Interlocking mineral crystals
(D) Rounded fragments and grains
(E) Answer not known

120. The clay rock which contains a considerable proportion of Carbonates, Lime and Magnesia is

(A) Chalk
(B) Talc
(C) Marl
(D) Kaolin
(E) Answer not known

121. Choose the correct sequence

(A) Talchir, Damuda, Panchet, Mahadeva, Rajmahal, Jabalpur
(B) Damuda, Panchet, Talchir, Mahadeva, Jabalpur, Rajmahal
(C) Talchir, Damuda, Panchet, Rajmahal, Mahadeva, Jabalpur
(D) Talchir, Panchet, Damuda, Mahadeva, Rajmahal, Jabalpur
(E) Answer not known

122. Which of the following is a Lamellibrachia fossil found in Trichimopoly stage?

(A) Trigonia
(B) Exogyra
(C) Gryphaea
(D) Inoceramus
(E) Answer not known

123. The basal part of chain formation has yielded ammonites of ———————— age.

(A) Oxfordian
(B) Tithonian
(C) Callovian
(D) Kimmeridgian
(E) Answer not known

124. The phosphatic nodules and gypseous beds of uttatur formation are indicative of a

(A) Transgressing sea
(B) Regressing sea
(C) Rapid sea level fluctuations
(D) Oscillatory sea level
(E) Answer not known

125. The Krol formation is dominated by ———————— sediments.

(A) Carbonate
(B) Flyschoidal
(C) Fluviatile
(D) Lacustrine
(E) Answer not known

126. In Indian subcontinent is situated on which major plates?

(A) African plate
(B) Eurasian plate
(C) Indo-Australian plate
(D) Pacific plate
(E) Answer not known

127. The cretaceous-Tertiary boundary has been identified in the continuous marine section in

(A) Assam
(B) Madhya Pradesh
(C) Meghalaya
(D) Tamil Nadu
(E) Answer not known

128. Indo-Gangetic plain primarily composed of sediments deposited by which rivers?

(A) Godavari
(B) Ganges–Brahmaputra
(C) Indus
(D) Yamuna
(E) Answer not known

129. The syringothyris limestone belongs to

(A) Permian
(B) Early carboniferous
(C) Middle carboniferous
(D) Upper carboniferous
(E) Answer not known

130. The Panjal volcanism had begun in

(A) Late Permian
(B) Late Triassic
(C) Late Cretaceous
(D) Late Eocene
(E) Answer not known

131. The bony fishes are regarded as a very crucial period of

(A) Devonian
(B) Ordovician
(C) Cambrian
(D) Silurian
(E) Answer not known

132. The Tipam group is in the geological age of

(A) Oligocene
(B) Miocene
(C) Eocene
(D) Recent
(E) Answer not known

133. The areal extent of Dharwars of Karnataka is

(A) 14,540 sq.km
(B) 13,540 sq.km
(C) 15,540 sq.km
(D) 12,540 sq.km
(E) Answer not known

134. Lead and copper mineralization has been reported from which of the series in Cuddaph super group?

(A) Cheiyar series
(B) Nallamalai series
(C) Krishna series
(D) Chitravati series
(E) Answer not known

135. The occurrence of diamond is known from the conglomerates at the base of the

(A) Semri group
(B) Kaimur group
(C) Papaghni group
(D) Rewa and Bhander group
(E) Answer not known

136. The Red Fort at Delhi and Fatehpur Sikri Agra are constructed out of the building stones available from which of the following systems?

(A) Aravalli system
(B) Vindhyan system
(C) Cuddapah system
(D) Cretaceous system
(E) Answer not known

137. Match the following and choose the correct answer :

(a)	U^{238}	1.	5730 years
(b)	Th^{232}	2.	50×10^9 years
(c)	Rb^{87}	3.	14.01×10^9 years
(d)	C^{14}	4.	4.468×10^9 years

	(a)	(b)	(c)	(d)
(A)	4	2	3	1
(B)	1	2	3	4
(C)	4	1	2	3
(D)	4	3	2	1

(E) Answer not known

138. The largest chronostratigraphic unit is

(A) System
(B) Series
(C) Stage
(D) Zone
(E) Answer not known

139. The correlation of rock formations by tracing the formations having some distinct lithology is carried out by means of

(A) Index fossils
(B) Marker horizons
(C) Unconformity
(D) Faulted zones
(E) Answer not known

140. A part of the formation, which has some remarkable lithology or some characteristic fossil assemblage is demarcated as

(A) Bed
(B) Member
(C) Complex
(D) Group
(E) Answer not known

141. Which of the following statements are true about electrical resistivity survey?

(i) The resistive values for igneous and metamorphic rocks yield values in the range 10^0 to 10^4 ohm–m for sedimentary and unconsolidated rocks 10^2 to 10^8 ohm

(ii) The Actual resistivities are determined from apparent resistivities

(iii) If the spacing between electrodes is increased a deeper penetration of the electric field occurs and a different apparent resistivity is obtained.

(A) (i) only
(B) (i) and (ii) only
(C) (i) and (iii) only
(D) (ii) and (iii) only
(E) Answer not known

142. Which of the following artificial recharge method divert and spread the water evenly over the large area, relatively in a flat topography?

(A) Ditch and Furrow method
(B) Stream channel method
(C) Basin method
(D) Flooding method
(E) Answer not known

143. The rate of groundwater movements depends upon the

(A) Hydraulic conductivity of an aquifer
(B) Hydraulic gradient
(C) Storage capacity of an aquifer
(D) Both (A) and (B) are correct
(E) Answer not known

144. Which of the following method is most suitable for ground water exploration?

(A) Magnetic method
(B) Resistivity method
(C) Electro Magnetic method
(D) Gravity method
(E) Answer not known

145. The Vadose water occurs in the zone of

(A) Saturation
(B) Main water table
(C) Impermeable rock
(D) Aeration
(E) Answer not known

146. In a soil or rock, the ratio of volume of water that after saturation can be drained by gravity to its own volume.

(A) Specific retention
(B) Field capacity
(C) Specific yield
(D) Retained water
(E) Answer not known

147. Identify the rocks which forms fractured aquifers?

(i) Limestone
(ii) Granite
(iii) Cemented sandstone
(iv) Sandstone

(A) (i), (ii) and (iii) only
(B) (ii) and (iv) only
(C) (ii) only
(D) (i) and (ii) only
(E) Answer not known

148. The Velocity (V) of the groundwater flow is defined as

K = Coefficient of permeability

h_2, h_1= Slope or water table between two points

L = distance between two points

(A) $V = K (h_2 + h_1)/L$

(B) $V = K + (h_2 – h_1)/L$

(C) $V = K (h_2 – h_1)/L$

(D) $V = K (h_2 – h_1)+L$

(E) Answer not known

149. In countries where the metric system has been long established commonly used scale is called

(A) 1:400 Scale

(B) 1:300 Scale

(C) 1:200 Scale

(D) 1:500 Scale

(E) Answer not known

150. In case of diamond drill, Reaming Shell is used for

(A) Cutting the formation

(B) Lifting the core

(C) Cooling the drill by circulating water

(D) Making the hole wider so as to reduce friction

(E) Answer not known

151. Jumper bar or hand drill comes under which type of drilling?

(A) Rotary
(B) Percussion
(C) Both Rotary and Percussion
(D) Miscellaneous
(E) Answer not known

152. The Rotatory drill is eminently suited for

(A) Drilling blast hole in seismic prospecting
(B) Groundwater exploration
(C) Oil well drilling in soft areas
(D) All of the above
(E) Answer not known

153. Dip fault also called as

(A) Down throw fault
(B) Normal fault
(C) Longitudinal fault
(D) Transverse fault
(E) Answer not known

154. Debris fall are described as

(A) The fall of debris from a cliff
(B) Debris are found common along the under cut banks of stream
(C) Debris are consolidated materials
(D) All of the above
(E) Answer not known

155. Uniaxial compressive strength of sedimentary rock "shale" ranges from

(A) 200 – 2000 kg/cm^2

(B) 50 – 200 kg/cm^2

(C) 50 – 150 kg/cm^2

(D) 150 – 200 kg/cm^2

(E) Answer not known

156. Geological problems that affects roads after their construction are

(A) Frost action and erosion along slope

(B) Cutting of rocks

(C) Weathering of rocks

(D) Topography of the area

(E) Answer not known

157. What is the height of Bhakra Dam?

(A) 276 m

(B) 226 m

(C) 256 m

(D) 296 m

(E) Answer not known

158. Which of the following geological applications can be obtained through DEM?

(i) To generate Lineament

(ii) To estimate water level

(iii) To visualize topography

(iv) To understand Land use Land cover

(A) (i) and (iii) only
(B) (i), (ii) and (iii) only
(C) (iii) and (iv) only
(D) (i) and (iv) only
(E) Answer not known

159. What are the distinct process involved during supervised classification?

(i) Training set

(ii) Allocation

(iii) Testing

(A) (i) and (ii) only
(B) (i) only
(C) (iii) only
(D) (i), (ii) and (iii)
(E) Answer not known

160. The point just vertically below the observer's position, in celestial sphere is called

(A) Celestial point

(B) Nadir

(C) Zenith

(D) Pole

(E) Answer not known

161. Metamorphic mineral assemblage of Amphibolite is

(A) Hornblende + andesine + Quartz

(B) Clinopyroxene + Labradorite + Quartz

(C) Smectite + Zeolite

(D) Prehnite + Pumpellyite

(E) Answer not known

162. Which of the following statements are correct about zones of metamorphism?

(i) The zones of Katamorphism and of anamorphism are sharply seperated

(ii) They interpenetrate to a large extent

(A) (i) only

(B) (ii) only

(C) Both (i) and (ii) are correct

(D) Both (i) and (ii) are wrong

(E) Answer not known

163. Which is the typical texture of the rock marble?

(A) Crystalloblastic
(B) Granoblastic
(C) Porphyroblastic
(D) Blastoporphyritic
(E) Answer not known

164. Katazone of metamorphism is characterised by ———————— rocks.

(A) Phyllite and quartz schist
(B) Mica schist and Mica gneiss
(C) Granulites and Eclogites
(D) Mica gneiss and hornblende gneiss
(E) Answer not known

165. Shale exposed to high temperature evolves into a fine grained non foliated rock called

(A) Quartzite
(B) Hornfels
(C) Amphibolite
(D) Marble
(E) Answer not known

166. Which of the following texture denoting fragmental nature of whole rock?

(i) Mortar

(ii) Flaser

(iii) Mylonitic

(iv) Cataclastic

(A) (i) and (iv) only
(B) (i), (ii), (iii) and (iv)
(C) (ii) and (iv) only
(D) (iii) only
(E) Answer not known

167. Adinoles are the products of

(A) Metasomatism
(B) Cataclastic metamorphism
(C) Diapthoresis
(D) Dislocation metamorphism
(E) Answer not known

168. Metamorphic alteration due to the effects of heat and gases are called

(A) Pneumatolysis
(B) Granulation
(C) Recrystallisation
(D) Rock flowage
(E) Answer not known

169. ———————— is a process whereby a single homogeneous magma produces a variety of chemically different igneous rocks.

(A) Assimilation
(B) Magma mixing
(C) Differentiation
(D) All of the above
(E) Answer not known

170. When xenolith represent fragments of rocks which are genetically related to the enclosing rock, have been formed at the early stage of crystallisation?

(A) Accidental xenolith
(B) Enclave
(C) Cognate xenolith
(D) Xenolith
(E) Answer not known

171. Alkali syenite with high amount of mafic minerals is known as

(A) Larvikite
(B) Shonkinite
(C) Nordmarkite
(D) Pulaskite
(E) Answer not known

172. Fine grained equigranular rocks of allotriomorphic texture which are developed as veins and dykes within plutonic masses

(A) Aplites
(B) Pegmatites
(C) Rhyolites
(D) Dacites
(E) Answer not known

173. Which of the following minerals formed during discontinuous reaction series?

(i) Amphibole

(ii) Calcic – Plagioclase

(iii) Olivine

(iv) Alkali – Plagioclase

(A) (ii) and (iv)
(B) (i) and (iii)
(C) (iii) and (iv)
(D) (iii) only
(E) Answer not known

174. Who constructed the tabular classification of Igneous rocks?

(A) Paul Niggli
(B) Bowen
(C) Tyrrell
(D) Shaud and Holmes
(E) Answer not known

175. In the Tabular classification of Igneous rocks, which is the saturated, hypabyssal equivalent of Basalt

(A) Dolerite
(B) Gabbro
(C) Andesite
(D) Granite
(E) Answer not known

176. The colour Index of the Mesocratic rocks are

(A) 1 – 30
(B) 31 – 60
(C) 1 – 40
(D) 41 – 60
(E) Answer not known

177. When albite is the only alkali-feldspar present in the rock the name has been used

(A) Monzonite
(B) Shonkinite
(C) Analcite
(D) Canadite
(E) Answer not known

178. The transformation of glass to crystalline matter is called

(A) Crystallisation
(B) Devitrification
(C) Alteration
(D) Segregation
(E) Answer not known

179. In some plutonic rocks occasionally occur ball – like segregations consisting of

(A) Spherulitic structure
(B) Corona structure
(C) Orbicular structure
(D) Myrmekite structure
(E) Answer not known

180. The Juxtaposition of two kinds of texture has been called as

(A) Poly mottling
(B) Ophimottling
(C) Submottling
(D) Intersertal
(E) Answer not known

181. Choose the right matches among the type :

(1) Volcanic Mountains – Japan, USA

(2) Fault Mountains – Basin and Range province of USA

(3) Folded Mountains – Mount Vesuvias

(4) Residual Mountains – Mount Fuji

(A) (1) and (2) are correct
(B) (2) and (3) are correct
(C) (3) and (4) are correct
(D) (1) and (4) are correct
(E) Answer not known

182. Find out which one period is not recognised the Seafloor spreading?

(A) Early Mesozoic
(B) Late Cenozoic
(C) Early Cenozoic
(D) Late Mesozoic
(E) Answer not known

183. Which of the following statements are true about 'Isostasy'?

(i) The Isostasy is derived from a Greek word

(ii) The meaning of Isostasy is in 'equipoise' (or) 'in balance'

(iii) This theory postulates a system for the distribution of materials in the Earth's core

(A) (i) only
(B) (i) and (ii) only
(C) (i) and (iii) only
(D) (ii) and (iii) only
(E) Answer not known

184. The mountain building is known as

(A) Earth Quakes
(B) Orogenesis
(C) Ocean floor
(D) Continental drift
(E) Answer not known

185. Due to Partial melting of simatic oceanic crust, the silica rich magma is find its way as andesitic volcanoes form a small island are called

(A) Flysch molasse
(B) Island arc
(C) Trench
(D) Volcanism
(E) Answer not known

186. Madagascar is located in the _____ Ocean.

(A) Arctic
(B) Atlantic
(C) Indian
(D) Pacific
(E) Answer not known

187. The _____ is responsible for Earth's magnetic field.

(A) Crust
(B) Mantle
(C) Outer core
(D) Inner core
(E) Answer not known

188. Laurasia and Gondwanaland were separated by

(A) Black Sea
(B) Red Sea
(C) Tethys Sea
(D) Pacific ocean
(E) Answer not known

189. A triple junction of oceanic ridges may overlie a

(A) Thermal plume
(B) Asthenosphere
(C) Lithosphere
(D) Deep-sea trench
(E) Answer not known

190. East African rift is an example of _____ plate boundary.

(A) Divergent
(B) Convergent
(C) Transform fault
(D) Conservative
(E) Answer not known

191. The arcuate depressions on the ocean bottom associated with island arc system (or) young mountain belts are called

(A) Passive margins
(B) Island arc
(C) Geosynclines
(D) Oceanic trenches
(E) Answer not known

192. The lithospheric plates have _____ major and minor plates.

(A) fourteen
(B) twenty
(C) twelve
(D) sixteen
(E) Answer not known

193. The funnel shaped top of the volcano is called as

(A) Caldera
(B) Cones
(C) Crater
(D) Vent
(E) Answer not known

194. The occurrence of deep earthquake in the Pacific belt is

(A) 80%

(B) 89%

(C) 95%

(D) 99%

(E) Answer not known

195. _____ magma must have been produced either by complete melting of continental crust or partial melting of oceanic crust.

(A) Peridotite

(B) Phyolitic

(C) Basaltic magma

(D) Andesitic

(E) Answer not known

196. Choose the incorrect statement :

(i) Basaltic magma is hotter and more fluid than Andesite and Rhyolite magma

(ii) Basaltic lava erupts from magma sources that are mafic or ultramafic in composition

(iii) The explosive potential is greatest in basaltic magma with 4% – 6% gas content

(A) (i) only

(B) (ii) only

(C) (iii) only

(D) (i) and (ii) only

(E) Answer not known

197. The point where water falls often develop in the course of a river is said to be

(A) Falls point
(B) Drop point
(C) Knick point
(D) Slope point
(E) Answer not known

198. ———— is formed when water is caught up between barriers and shore.

(A) Beach
(B) Lagoon
(C) Spits
(D) Bars
(E) Answer not known

199. The sunspots are characterized by zoning of a filamentary border called as

(A) Umbra
(B) Penumbra
(C) Facula
(D) Photospheric granules
(E) Answer not known

200. The mantle is the thickest layer composed of solid rock and capable of flow because of the

(A) Chemical differentiation
(B) High temperature and pressure
(C) Low temperature and pressure
(D) Iron sank to the core
(E) Answer not known

———————