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Subject Code :

1 7

Test Booklet No. : 00463

TEST BOOKLET

GEOLOGY

Time Allowed : 2 (Two) Hours

Full Marks : 200

INSTRUCTIONS

1. The name of the Subject, Roll Number as mentioned in the Admission Certificate, Test Booklet No. and Subject Code shall be written legibly and correctly in the space provided on the Answer Sheet with black ball pen.
2. **Space provided for Series in the Answer Sheet is not applicable for Optional Subject. So the space shall be left blank.**
3. All questions carry equal marks. Your total marks will depend only on the number of correct responses marked by you in the Answer Sheet.
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[No. of Questions : 100]

SEAL

1. The term 'lithosphere' includes the crust and the upper part of the mantle up to a depth of

- (A) 250 kilometres
- (B) 150 kilometres
- (C) 400 kilometres
- (D) 675 kilometres

2. In the solar system, which of the following planets possesses the least density?

- (A) Mercury
- (B) Mars
- (C) Jupiter
- (D) Saturn

3. Exfoliation occurs due to

- (A) running water
- (B) glaciers
- (C) fluctuation in temperature
- (D) strong winds

4. The diameter of the earth is about

- (A) 7400 kilometres
- (B) 13800 kilometres
- (C) 12800 kilometres
- (D) 21300 kilometres

5. The element that makes up about 50% of the earth's crust is

- (A) silicon
- (B) iron
- (C) oxygen
- (D) aluminium

6. Which one of the following is fissure eruption type?

- (A) Vulcanian type
- (B) Icelandic type
- (C) Bandaisan type
- (D) Vesuvian type

7. Flat topped sea mounts are known as

- (A) mesa
- (B) guyot
- (C) inselberg
- (D) monadnock

8. Siliceous deposits formed around geysers are

- (A) cinders
- (B) geysers
- (C) scoriae
- (D) pumice

9. Find the odd one out of the following :

- (A) Frost heaving
- (B) Oxidation
- (C) Hydration
- (D) Solution

10. The Himalayas rose from the primeval sea of

- (A) Atlantic
- (B) Tethys
- (C) Caspian
- (D) Arabian

11. The dip of any bed is considered as

- (A) a vector quantity
- (B) a scalar quantity
- (C) both vector and scalar quantities
- (D) a quantity whose unit is not known

12. Which one of the following is an example of a structure having quaquaversal dip?

- (A) Plateau
- (B) Dome
- (C) Basin
- (D) Horst

13. The shortening of bed takes place in case of

- (A) reverse fault
- (B) normal fault
- (C) wrench fault
- (D) strike slip fault

14. The normal fault having very low-angle dip is called

- (A) detachment fault
- (B) gravity fault
- (C) wrench fault
- (D) pivot fault

15. In NE India, Main Boundary Fault is present in

- (A) Manipur
- (B) Nagaland
- (C) Meghalaya
- (D) Arunachal Pradesh

16. If igneous rocks are unconformably overlain by younger sedimentary rocks, the resulting unconformity is known as
- (A) disconformity
 - (B) non-conformity
 - (C) angular unconformity
 - (D) offlap
17. A limited area of older rocks surrounded by younger rocks is called
- (A) outlier
 - (B) overlap
 - (C) inlier
 - (D) offlap
18. Very closely spaced joints in rocks is known as
- (A) fracture cleavage
 - (B) shear cleavage
 - (C) strain-slip cleavage
 - (D) crenulation cleavage
19. When stream valleys are guided by folds and are parallel to the trend of fold axes, the pattern of drainage is called
- (A) dendritic
 - (B) radial
 - (C) trellis
 - (D) annular
20. In an asymmetrical fold, the axis
- (A) coincides with the crest of an anticline
 - (B) coincides with the trough of the syncline
 - (C) does not coincide with the crest of an anticline
 - (D) coincides with both the trough and the crest of an anticline
21. Which one of the following is not a microfossil?
- (A) Radiolaria
 - (B) Diatom
 - (C) Cypraea
 - (D) Coccolithophore
22. A well-known gastropod shell having sinistral coiling is
- (A) Oliva
 - (B) Physa
 - (C) Nerita
 - (D) Conus
23. Pedicle opening is present in
- (A) cephalopod shell
 - (B) brachiopod shell
 - (C) gastropod shell
 - (D) bivalved shell

24. Cardinal teeth in Lamellibranchia is situated at which place?

- (A) Below the beak
- (B) At the ligament
- (C) Away from the beak
- (D) Cardinal teeth were not present

25. *Orthis* is a genus of

- (A) Cephalopoda
- (B) Gastropoda
- (C) Trilobita
- (D) Brachiopoda

26. _____ surrounds the mouth in Echinoidea.

- (A) Periproct
- (B) Madreporite
- (C) Ambulacrum
- (D) Peristome

27. The toothless form of dentition of Lamellibranchia is known as

- (A) isodont
- (B) taxodont
- (C) schizodont
- (D) edentulous

28. _____ possesses monomyarian type of adductor muscle.

- (A) *Lucina*
- (B) *Unio*
- (C) *Arca*
- (D) *Exogyra*

29. The bivalvia shells are joined together at the dorsal side by

- (A) adductor muscle
- (B) hinge plate
- (C) ligament
- (D) delthyrium

30. Which of the following is arranged properly based on the evolution of suture lines in Ammonoidea?

- (A) Ammonitic, Goniatic, Ceratitic
- (B) Goniatic, Ceratitic, Ammonitic
- (C) Ceratitic, Ammonitic, Goniatic
- (D) Ammonitic, Ceratitic, Goniatic

31. Spire is present in the class of

- (A) Lamellibranchia
- (B) Brachiopoda
- (C) Cephalopoda
- (D) Gastropoda

32. _____ has the features of both plants and animals.

- (A) Alveolina
- (B) Coral
- (C) Euglena
- (D) Foraminifera

33. Gymnosperm is a plant which

- (A) exhibits no extinct varieties
- (B) bears flowers
- (C) does not produce seeds in cones
- (D) produces seeds in cones

34. The age of Baculites is

- (A) Cretaceous
- (B) Tertiary
- (C) Devonian
- (D) Silurian

35. Cranidium of trilobites is a combination of

- (A) glabella + free cheeks
- (B) glabella + fixed cheeks
- (C) glabella + genal angle
- (D) fixed cheeks + free cheeks

36. The normal class of monoclinic system is of

- (A) galena type
- (B) gypsum type
- (C) zircon type
- (D) beryl type

37. In hexagonal system, the twins are formed according to

- (A) Dauphine law
- (B) Carlsbad law
- (C) Pericline law
- (D) Manebach law

38. Which one of the following is not galena type of a mineral?

- (A) Garnet
- (B) Spinel
- (C) Fluorspar
- (D) Rutile

39. A crystal is a periodic arrangement of

- (A) atoms
- (B) molecules
- (C) ions
- (D) both atoms and molecules

40. The phenomenon of piezoelectricity is exhibited by those crystals that lacks a

- (A) symmetry axis
- (B) plane of symmetry
- (C) centre of symmetry
- (D) pseudosymmetry

41. The Miller's symbol for parameters $\frac{1}{2}a : \frac{1}{2}b : c$ will be

- (A) 2 0 1
- (B) 1 1 2
- (C) 0 1 2
- (D) 2 2 1

42. _____ helps in determination of order of interference colour.

- (A) Gypsum plate
- (B) Quartz wedge
- (C) Mica plate
- (D) Sensitive tint

43. Dichroism is restricted to the crystal system(s) of

- (A) isometric
- (B) triclinic and monoclinic
- (C) tetragonal and hexagonal
- (D) orthorhombic

44. Find the odd one out of the following :

- (A) Flint
- (B) Chalcedony
- (C) Anorthite
- (D) Opal

45. Find the odd one out of the following :

- (A) Grossular
- (B) Spessartite
- (C) Almandine
- (D) Lepidolite

46. _____ can be used in the preparation of artificial polarizer.

- (A) Quinine calcium sulphate
- (B) Lead sulphate
- (C) Mixture of lead and iodine
- (D) Quinine iodine sulphate

47. The chemical composition of sillimanite is
- (A) $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$
 - (B) $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2 \cdot 2\text{H}_2\text{O}$
 - (C) $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$
 - (D) $\text{Al}_2\text{O}_3 \cdot 4\text{H}_2\text{O}$
48. A biaxial mineral is positive if
- (A) X is acute bisectrix
 - (B) Z is acute bisectrix
 - (C) Y is acute bisectrix
 - (D) Z is obtuse bisectrix
49. The highest interference colour is produced in a thin section which is
- (A) parallel to the optic axis
 - (B) perpendicular to the optic axis
 - (C) at an angle of 15° from the cleavage direction
 - (D) at an angle of 45° from the vibration direction
50. Which one of the following is a non-pleochroic mineral?
- (A) Biotite
 - (B) Muscovite
 - (C) Hypersthene
 - (D) Garnet
51. _____ is mineralogically equivalent to granite.
- (A) Aplite
 - (B) Gabbro
 - (C) Dolerite
 - (D) Syenite
52. _____ is the volcanic equivalent of granodiorite.
- (A) Rhyolite
 - (B) Dacite
 - (C) Trachyte
 - (D) Phonolite
53. Graphic texture is a product of crystallization at
- (A) tripple point
 - (B) incongruent point
 - (C) eutectic point
 - (D) quadrotectic point
54. Which of the following may not be of metamorphic origin?
- (A) Granite
 - (B) Basalt
 - (C) Trachyte
 - (D) Gabbro

55. Ophitic texture is commonly exhibited by

- (A) lamprophyre
- (B) dolerite
- (C) harzburgite
- (D) trachyte

56. Batholiths are always associated with

- (A) earthquake zones
- (B) orogenic belt
- (C) island arc
- (D) fold and faults

57. _____ texture is absent in plutonic igneous rocks.

- (A) Holohyaline
- (B) Holocrystalline
- (C) Porphyritic
- (D) Granitic

58. Conglomerate with compositionally one type of pebble is called

- (A) polymictic conglomerate
- (B) oligomictic conglomerate
- (C) intraformational conglomerate
- (D) interformational conglomerate

59. Pudding stone is a synonymous term for

- (A) breccia
- (B) grit
- (C) khondalite
- (D) conglomerate

60. _____ is a light-coloured sandstone with at least 25% feldspar.

- (A) Orthoquartzite
- (B) Arkose
- (C) Greywacke
- (D) Grit

61. Silt and clay deposits formed by the sediments carried in suspension by air currents is known as

- (A) marlite
- (B) novaculite
- (C) loess
- (D) lacustrine

62. Find the argillaceous rock from the following :

- (A) Sandstone
- (B) Siltstone
- (C) Shale
- (D) Grit

63. Find out the discordant bedding of the following :

- (A) Current bedding
- (B) Graded bedding
- (C) Ripple marks
- (D) Mud cracks

64. Rounded clasts, high SiO_2 and Al_2O_3 , high ZTR reflect

- (A) high maturity
- (B) low maturity
- (C) tectonic unstability
- (D) reducing conditions

65. Blastoporphyritic means

- (A) an inherited porphyritic fabric
- (B) equigranular fabric
- (C) a fabric that develops during metamorphism
- (D) post-metamorphic fabric

66. Hornfelsic rocks form due to _____ metamorphism.

- (A) regional
- (B) contact
- (C) cataclastic
- (D) pneumatolytic

67. Which of the following rocks was produced by dynamothermal metamorphism?

- (A) Schist
- (B) Marble
- (C) Mylonite
- (D) Slate

68. The general temperature of metamorphism is in between

- (A) 400 °C to 1100 °C
- (B) 500 °C to 1200 °C
- (C) 100 °C to 3000 °C
- (D) 200 °C to 800 °C

69. Regional metamorphism occurred due to _____ conditions.

- (A) heat predominant
- (B) directed pressure predominant
- (C) uniform pressure and heat predominant
- (D) directed pressure and heat predominant

70. The minerals glaucophane and jadeite are suggestive of

- (A) high temperature–low pressure
- (B) high pressure–low temperature
- (C) high temperature–high pressure
- (D) low pressure–low temperature

71. Find the hydrothermal deposit from the following :

- (A) Residual deposit
- (B) Placer deposit
- (C) Cavity-filling deposit
- (D) Evaporites

72. Pyrolusite is an ore of

- (A) manganese
- (B) aluminium
- (C) iron
- (D) copper

73. The zone of oxidation in the supergene sulphide enrichment process extends

- (A) up to the water table
- (B) up to 2.5 metres above water table
- (C) just below water table
- (D) up to the soil level

74. Ladder views are usually found in

- (A) sill
- (B) dyke
- (C) lava flows
- (D) volcanic pipes

75. Which one of the following is not a magmatic concentration deposit?

- (A) Residual liquid deposit
- (B) Immiscible liquid deposit
- (C) Oxidized and supergene deposit
- (D) Pegmatitic deposit

76. Asbestos is used for the production of

- (A) insulator
- (B) smelting material
- (C) textile product
- (D) alloy

77. According to Lindgren's classification, a hydrothermal deposit which is formed at 300 °C to 500 °C and at very high pressure is

- (A) xenothermal
- (B) telethermal
- (C) mesothermal
- (D) hypothermal

78. Which of the following deposits evolves due to sublimation?

- (A) Chromite
- (B) Magnetite
- (C) Sulphur
- (D) Diamond

79. The chemical composition of chromite is

- (A) Cr_2O_3
- (B) $\text{FeO} \cdot \text{Cr}_2\text{O}_3$
- (C) Cr_2SO_4
- (D) $\text{FeO} \cdot \text{CrO}_3$

80. The coal deposit of Assam is economically found in

- (A) Tipam Group
- (B) Surma Group
- (C) Dihing Group
- (D) Barail Group

81. The largest resources of lignite in the country are located in

- (A) Bhuj and Mehsana, Gujarat
- (B) Palana and Baroner, Rajasthan
- (C) Karewa Belt, Kashmir
- (D) Neyveli, South Arcot, Tamil Nadu

82. Tertiary coals are containing _____ amount of ash than the Gondwana coal.

- (A) higher
- (B) equal
- (C) lower
- (D) infinitely higher

83. The oldest oil field of Assam is

- (A) Rudrasagar Oil Field
- (B) Lakwa Oil Field
- (C) Digboi Oil Field
- (D) Naharkatiya Oil Field

84. Chromite is a member of the

- (A) Spinel Group
- (B) Epidote Group
- (C) Olivine Group
- (D) Mellilite Group

85. Copper deposit of Singhbhum is an example of

- (A) fissure vein deposit
- (B) shear zone deposit
- (C) ladder vein deposit
- (D) saddle reef deposit

86. The fundamental unit of lithostratigraphic classification is

- (A) supergroup
- (B) group
- (C) formation
- (D) member

87. The basic unit of biostratigraphy is

- (A) subzone
- (B) zone
- (C) stage
- (D) bed

88. Bhuban Formation is under

- (A) Disang Group
- (B) Jaintia Group
- (C) Surma Group
- (D) Barail Group

89. Which of the following formations contains three fossiliferous limestone member?

- (A) Kopili Formation
- (B) Tikak Parbat Formation
- (C) Shella Formation
- (D) Bokabil Formation

90. _____ Unconformity marks the boundary between the Cuddapah Supergroup and the Archaean granites and gneisses in the Tirupati—Tirumala Hills of South India.

- (A) Eparchaeon
- (B) Conrad
- (C) Murugan
- (D) Narasimhan

91. Which one of the following belongs to the Lower Vindhya Group?

- (A) Kaimur
- (B) Rewa
- (C) Bhandar
- (D) Semri

92. In Upper Assam, the Dupitila Formation is known as

- (A) Dihing Formation
- (B) Dhekiajuti Formation
- (C) Naogaon Formation
- (D) Namsang Formation

93. Palaeogene includes
- (A) Palaeocene, Eocene and Oligocene
 - (B) Oligocene, Miocene and Pliocene
 - (C) Palaeocene, Eocene, Oligocene and Miocene
 - (D) Miocene and Pliocene
94. Which of the following represents the most ancient supracrustal lithounits of Dharwar Craton?
- (A) Sargon Group
 - (B) Bababudan Group
 - (C) Chitradurga Group
 - (D) Ranibennur Group
95. The Lower Part of Shillong Group is
- (A) argillaceous
 - (B) arenaceous
 - (C) carbonaceous
 - (D) rich in phosphorus
96. Shillong Group of Meghalaya is equivalent to
- (A) Iron ore Group
 - (B) Barail Group
 - (C) Raniganj Group
 - (D) Jaintia Group
97. In the following, which is not a lithostratigraphic unit?
- (A) Member
 - (B) Formation
 - (C) Supersuite
 - (D) Group
98. Which one of the following is found as an intrusive rock?
- (A) Myllicm granite
 - (B) Khondalite
 - (C) Deccan Trap
 - (D) Sylhet Trap
99. Triassic Strata as exposed in Spiti Region is mainly
- (A) calcareous and arenaceous
 - (B) calcareous and carbonaceous
 - (C) calcareous and argillaceous
 - (D) argillaceous and arenaceous
100. Who among the following made the 'law of faunal succession'?
- (A) William Smith
 - (B) W. King
 - (C) L. L. Fermor
 - (D) J. A. Dunn