

Mse Geology

Set No. 1

Question Booklet No.

00054

14P/205/4

(To be filled up by the candidate by blue/black ball-point pen)

Roll No.

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Roll No. (Write the digits in words)

Serial No. of OMR Answer Sheet

Day and Date

(Signature of Invigilator)

INSTRUCTIONS TO CANDIDATES

(Use only blue/black ball-point pen in the space above and on both sides of the Answer Sheet)

1. Within 10 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that it contains all the pages in correct sequence and that no page/question is missing. In case of faulty Question Booklet bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall except the Admit Card without its envelope.
3. A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided. Only the Answer Sheet will be evaluated.
4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
5. On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.
6. No overwriting is allowed in the entries of Roll No., Question Booklet no. and Set no. (if any) on OMR sheet and Roll No. and OMR sheet no. on the Question Booklet.
7. Any change in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
8. Each question in this Booklet is followed by four alternative answers. For each question, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet.
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit only OMR Answer Sheet at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

Total No. of Printed Pages : 32

[उपर्युक्त निर्देश हिन्दी में अन्तिम आवरण पृष्ठ पर दिये गए हैं।]



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ROUGH WORK
रफ़ कार्य

2

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No. of Questions : 150

प्रश्नों की संख्या : 150

Time : 2 Hours

Full Marks : 450

समय : 2 घण्टे

पूर्णाङ्क : 450

Note : (1) Attempt as many questions as you can. Each question carries 3 (Three) marks. One mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question.

अधिकाधिक प्रश्नों को हल करने का प्रयत्न करें। प्रत्येक प्रश्न 3 (तीन) अंकों का है। प्रत्येक गलत उत्तर के लिए एक अंक काटा जायेगा। प्रत्येक अनुत्तरित प्रश्न का प्राप्तांक शून्य होगा।

(2) If more than one alternative answers seem to be approximate to the correct answer, choose the closest one.

यदि एकाधिक वैकल्पिक उत्तर सही उत्तर के निकट प्रतीत हों, तो निकटतम सही उत्तर दें।

01. Most of the groundwater in hard rocks is present in the

- | | |
|--------------------------|--------------------------|
| (1) Pores | (2) Cracks and joints |
| (3) Intergranular spaces | (4) Intragranular spaces |

02. Limestone terrains are characterized by

- (1) Few springs with high discharge
- (2) Many springs with little discharge
- (3) Many springs with high discharge
- (4) Few springs with little discharge

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- 03.** Himalaya is a product of
- (1) Continent-arc-collision .
 - (2) Continent-continent collision
 - (3) Arc-arc-collision
 - (4) Continent-arc-continent collision
- 04.** Most active chemical weathering takes place
- (1) At the water table
 - (2) Below the water table
 - (3) On the surface
 - (4) Zone of aeration above the water table
- 05.** Parallel drainage patterns are found on
- (1) Jointed country
 - (2) Steep slopes with little vegetation cover
 - (3) Granite-gneiss domes
 - (4) Grid like joint systems
- 06.** When a stream or river is diverted from its own bed, and flows instead down the bed of a neighbouring stream, the phenomenon is known as
- (1) Stream piracy
 - (2) Headwater management
 - (3) River shifting
 - (4) Superimposed drainage
- 07.** What is a 'nick point' in a river
- (1) A marked change of slope along flow direction of the channel
 - (2) A sharp bend in the river
 - (3) A sharp meander
 - (4) Point where the river changes its direction of flow suddenly

08. Which of the following is the most characteristic glacial landform
- (1) Narrow 'V' -shaped valleys
 - (2) Wide 'V' -shaped valleys
 - (3) Hanging valleys
 - (4) None of the above
09. Features developed by accumulation of annual thin layers in glacial deposits are known as
- (1) Glacial laminations
 - (2) Varves
 - (3) Glacial beds
 - (4) Annular rings
10. Frosted 'millet seed' sand grains are found in deposits formed by
- (1) Rivers
 - (2) Lakes
 - (3) Winds
 - (4) Glaciers
11. The sand dunes with their long axes transverse to the wind direction are known as
- (1) Sand sheets
 - (2) Barchans
 - (3) Parallel dunes
 - (4) Longitudinal dunes
12. The marine deposits which form between the extreme levels of high and low tides are known as
- (1) Shallow water deposits
 - (2) Littoral deposits
 - (3) Hadal deposits
 - (4) Abyssal deposits
13. The type unconformity in which older and younger formations remain
- (1) Non-conformity
 - (2) Disconformity
 - (3) Angular unconformity
 - (4) Local unconformity

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14. In an almost flat terrain steeply dipping beds exhibit repetition as ABCDEDCBA. It is because of
- | | |
|-------------|-----------------------|
| (1) Erosion | (2) Faulting |
| (3) Folding | (4) None of the above |
15. A limited area of older rock surrounded by younger rock on a geological map is called:
- | | |
|------------|-------------|
| (1) Inlier | (2) Outlier |
| (3) Offlap | (4) Overlap |
16. Listric fault is:
- (1) Steep dipping normal fault
 - (2) Gentle dipping normal fault
 - (3) Steep dipping fault at top and gentle dipping at bottom
 - (4) Gentle dipping fault at top and steep dipping at bottom
17. In a normal stratigraphic sequence, erosion can sometimes expose older rocks within younger rocks. Such exposure are called
- | | |
|-------------|------------|
| (1) Inlier | (2) Window |
| (3) Outlier | (4) Klippe |
18. A major fold structure composed of many smaller anticlines and synclines and having the general form of an arch is called
- | | |
|------------------|-------------------|
| (1) Geanticlines | (2) Anticlinorium |
| (3) Synclinorium | (4) Geosynclines |
19. The principal axes of stress are
- (1) Normal to surface on which no shear stress acts
 - (2) Direction of application of force
 - (3) Direction of maximum compression
 - (4) Direction of maximum tension

20. The dip of the S-surface is best measured on:
- (1) Horizontal (2) Vertical plane
(3) Inclined plane (4) None of above
21. Which one is an example of structure having quaquaversal dip
- (1) Depression (2) plateau
(3) Dome (4) Horse
22. The pole to S-surface plotted on the lower hemisphere of equal area net lie on a circle. This circle is called as
- (1) π -S circle (2) Great circle
(3) Small circle (4) None of the above
23. The quadratic elongation (λ) is
- (1) $(1+e)$ (2) $(1+e)^2$
(3) $(1+e_1)/(1+e_2)$ (4) None of the above
24. Thrust faults are developed when the maximum compressive Stress (σ_1) is
- (1) Vertical (2) Horizontal
(3) Inclined (4) All of the above
25. The fold in which the axes plunges directly down the dip of the axial surface is termed as
- (1) Upright fold (2) Reclined fold
(3) Cascade fold (4) Drag fold

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26. Schist can split into number of thin slabs because of its

- | | |
|---------------|---------------|
| (1) Lineation | (2) Foliation |
| (3) Fracture | (4) Joints |

27. Prism and pinacoids are types of

- | | |
|-----------------------|----------------------|
| (1) Open forms | (2) Closed forms |
| (3) Symmetry operator | (4) All of the above |

28. Miller indices for octahedral plane in cubic crystal:

- | | |
|-----------|-------------------|
| (1) (100) | (2) (110) |
| (3) (111) | (4) None of these |

29. Repeatable entity of a crystal structure is known as:

- | | |
|---------------|--------------------|
| (1) Crystal | (2) Lattice |
| (3) Unit cell | (4) Miller Indices |

30. A family of direction is represented by:

- | | |
|---------------|---------------------------|
| (1) (hkl) | (2) $\langle uvw \rangle$ |
| (3) $\{hkl\}$ | (4) $[uvw]$ |

31. The atomic diameter of an BCC crystal (if a is lattice parameter):

- | | |
|----------------------|----------------------|
| (1) a | (2) $a/2$ |
| (3) $a/(4/\sqrt{3})$ | (4) $a/(4/\sqrt{2})$ |

- 32.** In diamond the coordination no. of carbon is:
- (1) 4 and its unit cell has 8 carbon atoms
 - (2) 4 and its unit cell has 6 carbon atoms
 - (3) 6 with 4 carbon atoms in unit cell
 - (4) 4 with 4 carbon atoms in unit cell
- 33.** A compound formed by elements A and B crystallizes in cubic structure, in which atoms of A are at the corners while that of B are at the face centre. The formula of the compound is:
- (1) AB
 - (2) AB₃
 - (3) A₃B
 - (4) None of these
- 34.** Which of the following mineral belongs to orthorhombic crystal system:
- (1) Diopside
 - (2) Tourmaline
 - (3) Topaz
 - (4) Benitoite
- 35.** The angle between [111] and [112] directions in a cubic crystal is (in degrees):
- (1) 0
 - (2) 45
 - (3) 90
 - (4) 180
- 36.** Swallow Tail Twins are commonly observed in the mineral:
- (1) Gypsum
 - (2) Orthoclase
 - (3) Albite
 - (4) All of these
- 37.** Butterfly twinning is found in:
- (1) Rutile
 - (2) Gypsum
 - (3) Aragonite
 - (4) Pyrite

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- 38.** Stereogram of a crystal shows primarily:
- (1) The interfacial angle projected on the stereogram in the forms of arcs and straight lines
 - (2) The distribution of faces in the zones
 - (3) A symmetry in the distribution of faces
 - (4) All the above
- 39.** The penetrative twin is shown by:
- | | |
|----------------|----------------------|
| (1) Staurolite | (2) Pyrite |
| (3) Fluorite | (4) All of the above |
- 40.** The classification of the crystal systems is based on:
- (1) Angular relationship existing between the crystallographic axes
 - (2) Number of crystallographic axes
 - (3) Relative length of crystallographic axes
 - (4) All the above
- 41.** Double reflection phenomenon shown by:
- (1) Isotropic substances only
 - (2) Anisotropic substances only
 - (3) Both isotropic and anisotropic substances
 - (4) None of the above
- 42.** Uniaxial crystal are positive if:
- (1) Ordinary ray has the greater velocity then the Extraordinary ray
 - (2) Extraordinary ray has the greater velocity then the Ordinary ray
 - (3) Ordinary and Extraordinary rays have same velocity in all direction
 - (4) None of the above

43. Mark the correct one regarding Uniaxial minerals:

- (1) Basal section are isotropic
- (2) Only prismatic sections show pleochroism
- (3) Dichroic
- (4) All of correct

44. Which of the following produces 147nm retardation in the interference colour:

- (1) Quartz wedge
- (2) Mica plate
- (3) Gypsum plate
- (4) None of these

45. Which of the following is Not an isotropic mineral

- (1) Halite
- (2) Fluorite
- (3) Garnet
- (4) Gypsum

46. The inclined Extinction is shown by:

- (1) Hypersthene
- (2) Hornblende
- (3) Biotite
- (4) All of these

47. 'Tartan plaid' twinning is shown by:

- (1) Albite
- (2) Oligoclase
- (3) Microcline
- (4) All of these

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- 48.** The Bertrand lens is used to:
- (1) Determine the interference colour
 - (2) Determine the optical sign
 - (3) Analysis of plane of vibration of light
 - (4) None of the above
- 49.** In Hypersthene, a well marked pleochroism which shows:
- (1) X-pink, Y-green, Z-yellow
 - (2) X-yellow, Y-pink, Z-green
 - (3) X-green, Y-yellow, Z-pink
 - (4) X-pink, Y-yellow, Z-green
- 50.** Which type of extinction is often shown by Quartz mineral:
- | | |
|-----------------|-------------|
| (1) Straight | (2) Oblique |
| (3) Symmetrical | (4) Wavy |
- 51.** Which of the following is a mineral:
- | | |
|-------------|------------|
| (1) Water | (2) Steel |
| (3) Mercury | (4) Halite |
- 52.** The fundamental building block of a mineral is its
- | | |
|---------------|--------------------|
| (1) Unit cell | (2) Crystal system |
| (3) Size | (4) Shape |
- 53.** Iron-rich olivine is
- | | |
|----------------|------------------|
| (1) Forsterite | (2) Monticellite |
| (3) Fayalite | (4) Serpentine |

54. Which of the following is a typical metamorphic mineral?

- | | |
|----------------|----------------|
| (1) cordierite | (2) chert |
| (3) jasper | (4) chalcedony |

55. Garnet present in eclogite is

- | | |
|---------------|-----------------|
| (1) Pyrope | (2) Almandine |
| (3) Uvarovite | (4) Spessartite |

56. A crystal form having only one face is

- | | |
|--------------------|------------|
| (1) Basal pinacoid | (2) Pedion |
| (3) Pyramid | (4) prism |

57. Most abundant element in the earth's crust is

- | | |
|--------------|--------------|
| (1) Carbon | (2) Oxygen |
| (3) Hydrogen | (4) Nitrogen |

58. High-pressure pyroxene is

- | | |
|--------------|------------------|
| (1) Jadedite | (2) Johannsenite |
| (3) Jasper | (4) Zoisite |

59. Calcite and aragonite are

- | | |
|----------------|---------------|
| (1) Polymorphs | (2) Isomorphs |
| (3) Paramorphs | (4) Metamicts |

60. Which of the following contains water in its structure

- | | |
|------------------|-----------------|
| (1) Lepidolite | (2) Hypersthene |
| (3) Anorthoclase | (4) Fayalite |

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- 61.** Glaucophane is considered to be a characteristic mineral of
- | | |
|---------------------|----------------------|
| (1) Collision zones | (2) Subduction zones |
| (3) Mantle plumes | (4) Alteration-zones |
- 62.** Asterism in a property displayed by which group of minerals?
- | | |
|-----------------------|--------------|
| (1) Alumino silicates | (2) Olivine |
| (3) Mica | (4) Feldspar |
- 63.** Which of the following minerals can co-exist with free silica?
- | | |
|----------------|--------------|
| (1) Forsterite | (2) Leucite |
| (3) Nepheline | (4) Fayalite |
- 64.** Cleavage is absent in
- | | |
|----------------|----------------|
| (1) Orthoclase | (2) Garnet |
| (3) Enstatite | (4) Actinolite |
- 65.** The most abundant of pyroxene group of minerals is
- | | |
|---------------|--------------|
| (1) Diopside | (2) Augite |
| (3) Enstatite | (4) Aegerine |
- 66.** What is primitive magma?
- (1) It is a speculative magma derived from a mantle source
 - (2) It is magma as it exists immediately after separation from its source region
 - (3) It is a derivative magma
 - (4) It is a fractionated magma

67. Which of the following systems explains peritectic reaction mechanism-

- (1) Albite-Anorthite system
- (2) Forsterite-Silica system
- (3) Diopside-Anorthite system
- (4) Forsterite-Olivine system

68. Eutectic in any binary system is-

- (1) Tri-variant point
- (2) Bi-variant point
- (3) Uni-variant
- (4) Invariant point

69. What is liquid immiscibility-

- (1) Homogeneous mixing of two liquids of different composition
- (2) The unmixing of two liquids of different composition
- (3) The mixing of two liquids of same composition
- (4) The unmixing of two liquids of same composition

70. In general magma flow is laminar and depends on-

- (1) Viscosity
- (2) Shape of the conduit
- (3) Pressure gradient
- (4) All of three above

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71. Glomeroporphyritic texture is-

- (1) Distinct clusters of phenocrysts in a fine-grained groundmass
- (2) Equigranular in size
- (3) Phenocrysts are absent
- (4) A single big crystal embedded in fine grained groundmass

72. Ophitic texture may be explained as

- (1) Large pyroxene grains enclose small random plagioclase laths
- (2) Small pyroxene grains enclose large random plagioclase laths
- (3) Large hornblende grains enclose small random biotite laths
- (4) Large pyroxene grains enclose small random pyroxene grains

73. Micrographic intergrowth of quartz and alkali feldspar is known as-

- | | |
|------------------------|-------------------------|
| (1) Myrmekite texture | (2) Granophyre texture |
| (3) Variolitic texture | (4) Symplectite texture |

74. Ultramafic igneous rocks contain-

- | | |
|---------------------------|-------------------------|
| (1) 30-50% mafic minerals | (2) >90% mafic minerals |
| (3) >90% felsic minerals | (4) <90% mafic minerals |

75. Mineral composition of Norite is

- (1) Hypersthene and plagioclase feldspar
- (2) Augite and plagioclase feldspar
- (3) Olivine and plagioclase feldspar
- (4) Hornblende and plagioclase feldspar

76. Phonolite is volcanic equivalent of-

- | | |
|-------------|-----------------------|
| (1) Granite | (2) Gabbro |
| (3) Syenite | (4) Nepheline syenite |

77. Which of the following textures is typically observed in komatiite?

- | | |
|----------------------|-------------------------|
| (1) Cumulate texture | (2) Poikilitic texture |
| (3) Spinifex texture | (4) Spherulitic texture |

78. Which of the following is not a mono-mineralic igneous rock?

- | | |
|-----------------|----------------|
| (1) Granite | (2) Dunite |
| (3) Anorthosite | (4) Pyroxenite |

79. Obsidian is composed of-

- | | |
|-----------------------------------|---------------------------------|
| (1) Entirely of crystals | (2) Entirely of glassy material |
| (3) Mixture of glass and crystals | (4) All sizes of crystals |

80. Intergranular and intersertal textures are commonly observed in-

- | | |
|----------------|--------------|
| (1) Basalts | (2) Gabbro |
| (3) Pyroxenite | (4) Trachyte |

81. Coarse-grained sediments are transported by:

- | | |
|------------------------|-----------------------|
| (1) Traction process | (2) Saltation process |
| (3) Suspension process | (4) None |

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82. Ripple marks occur on the:

- (1) Lower surface
- (2) Upper surface
- (3) Internal structure
- (4) None

83. Ripple marks with bifurcated crest and ripple index from 2-5 are generated by:

- (1) Wave
- (2) Current
- (3) Tide
- (4) Storm

84. Graded beds form in marine environments:

- (1) By traction currents
- (2) By turbidity currents
- (3) By suspension fall out
- (4) By debris flow

85. Arkoses are sandstones which contain:

- (1) Appreciable amount of feldspar
- (2) Low percentage of feldspar
- (3) Negligible amount of feldspar
- (4) No feldspar

86. Lithic arenites are:

- (1) Quartz rich sandstones
- (2) Feldspar rich sandstones
- (3) Rock fragments rich sandstones
- (4) Clay rich sandstones

87. Argillaceous sediments containing clay between 33-66% are known as:

- | | |
|---------------|---------------|
| (1) Mudstone | (2) Siltstone |
| (3) Claystone | (4) Dropstone |

88. Oolites form in:

- | | |
|----------------|----------------|
| (1) Agitated | (2) Calm water |
| (3) Cool water | (4) None |

89. Mineralogically mature sandstones are rich in:

- | | |
|------------|--------------------|
| (1) Quartz | (2) Feldspar |
| (3) Mica | (4) Rock fragments |

90. Tilloids are of

- | | |
|--------------------|------------------------|
| (1) Glacial origin | (2) Non glacial origin |
| (3) Fluvial origin | (4) None |

91. Convolute bedding forms along:

- (1) Coast
- (2) In rivers
- (3) Slopes
- (4) Deep marine part

92. Cross-beds are:

- | | |
|------------------------|-------------------|
| (1) Lower surface | (2) Upper surface |
| (3) Internal structure | (4) None |

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93. Heavy minerals are used for deciphering:

- | | |
|----------------|-----------------|
| (1) Provenance | (2) Environment |
| (3) Diagenesis | (4) None |

94. Conversion of chlorite into illite is known as:

- | | |
|--------------------|------------------|
| (1) Chloritization | (2) Illitization |
| (3) Fluidization | (4) None |

95. Foliation is an important characteristic of most metamorphic rocks and its indicate that the rocks formed in an environment of:

- (1) High water content in the minerals
- (2) Very high temperature and low pressure
- (3) Directed pressure
- (4) Partial molten rocks

96. Low temperature high pressure metamorphic rocks are the characteristic of

- (1) Metamorphic zones around granitic intrusions
- (2) Mountain building events at continental collisions
- (3) Volcanic eruptions
- (4) Areas adjacent to subduction zone

97. Which of the following does not occur during metamorphism?

- (1) Mineral orient themselves in a parallel alignment
- (2) Water flower through the rocks and helps transport elements
- (3) Radical changes in mineral composition
- (4) Minerals breakdown and the element recombine to form new minerals

98. Grain growth and size in metamorphic rock are a function of:

- (1) Nucleation kinetics
- (2) Material transfer processes
- (3) Growth rate and P-T crystallization
- (4) All the above

99. Retrograde metamorphism is also known as:

- (1) Diapthoresis
- (2) Additive metamorphism
- (3) Injective metamorphism
- (4) None of these

100. The predominant agents in contact metamorphism is:

- (1) Temperature
- (2) Pressure
- (3) Chemical fluids
- (4) All the above

101. Staurolite forms by the reaction of:

- (1) Chlorite and sillimanite
- (2) Muscovite and chloritoid
- (3) Chlorite and Muscovite
- (4) Chloritoid and muscovite

102. Quartz microcline hypersthene is the assemblage of:

- (1) Khondalite
- (2) Charnockite
- (3) Gondite
- (4) Kudurite

103. What minerals cannot be shown in AKF diagram:

- (1) Na-bearing minerals
- (2) K-bearing minerals
- (3) Ca-bearing minerals
- (4) None of these

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104. Migmatites are the rock which are characterized by:

- (1) Granitic nature
- (2) High grade regional metamorphism
- (3) Low grade regional metamorphism
- (4) Both (1) and (2)

105. The correct sequence of metamorphic zones is:

- (1) Chlorite, Biotite, Garnet, Staurolite, Kyanite and Sillimanite
- (2) Biotite, Chlorite, Staurolite, Garnet, Kyanite and Sillimanite
- (3) Chlorite, Biotite, Garnet, Staurolite, Sillimanite and Kyanite
- (4) Chlorite, Biotite, Staurolite, Garnet, Sillimanite and Kyanite

106. Eskola's ACF and AKF diagrams are used only for the rocks with:

- | | |
|----------------------------|-------------------------|
| (1) Excess SiO_2 | (2) Low SiO_2 |
| (3) Excess CaCO_3 | (4) Low CaCO_3 |

107. In enderbite the dominant feldspar is:

- | | |
|-----------------|----------------|
| (1) Plagioclase | (2) Microcline |
| (3) Orthoclase | (4) Bytownite |

108. The greenschist facies include the:

- | | |
|-----------------------------|-------------------------------|
| (1) Chlorite zone | (2) Chlorite and Biotite zone |
| (3) Biotite and Garnet zone | (4) Garnet and Kyanite zone |

- 109.** The science of the study of remains of all organisms from the past geological ages is called:
- (1) Neontology (2) Planetology
(3) Palaeontology (4) Palichnology.
- 110.** Which of the following organism's skeleton is made up entirely of calcite?
- (1) *Nautilus* (2) *Crania*
(3) *Trigonia* (4) *Patella*
- 111.** All biological names should/may be written in:
- (1) *Italics* (2) CAPITAL LETTERS
(3) Either (1) or (2) (4) None of these
- 112.** The specimen selected to replace the lost *holotype* (from the same locality) is called:
- (1) Neotype (2) Topotype
(3) Plastotype (4) Cotype.
- 113.** Which developmental stage is commonly found during the growth of an individual after the larval stage?
- (1) Ephebic (2) Nepionic
(3) Neanic (4) Gerontic
- 114.** Which of the following is a type of post-embryonic growth of skeletons?
- (1) Accretion of existing parts (2) Addition of new parts
(3) Moulting (4) All of these

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115. A modern organism that has descended from a very ancient stock with comparatively a little change, is known as:

- (1) Extant Organism
- (2) Living Fossil
- (3) Derived Fossil
- (4) None of these.

116. Derived Fossils:

- (1) can not be used as an index fossil
- (2) can be used as an index fossil
- (3) are marker fossils
- (4) are trace fossils.

117. Which of the following is a cementing brachiopod?

- (1) *Crania*
- (2) *Richthofenia*
- (3) Both (1) and (2)
- (4) None of these

118. In which of the following bivalvian genera the beaks are opisthogyrous?

- (1) *Trigonia*
- (2) *Nucula*
- (3) Both of these
- (4) None of these

119. In which of the following gastropod genera the 'slit band' is present?

- (1) *Cypraea*
- (2) *Bellerophon*
- (3) *Planorbis*
- (4) *Patella*.

120. In an endogastric cyrtocone (cephalopod), the siphuncle (si) and the hyponomic sinus (hs) are:

- (1) both located ventrally
- (2) both located dorsally
- (3) si dorsally but hs ventrally
- (4) si ventrally but hs dorsally

121. The Class Crinoidea(is):

- (1) confined in Middle Cambrian
- (2) confined in middle Palaeozoic
- (3) ranges from Middle Cambrian to Holocene
- (4) found in Holocene only.

122. The fresh water bryozoans are found in:

- (1) Late Palaeozoic only
- (2) Jurassic to Cretaceous beds
- (3) Early Tertiary times
- (4) Recent time only.

123. Which of the following is a three-toed horse found in the Siwalik rocks?

- | | |
|-------------------------|------------------|
| (1) <i>Hipparion</i> | (2) <i>Equus</i> |
| (3) <i>Ramapithecus</i> | (4) <i>Bos.</i> |

124. Which of the following is a fossil excreta?

- | | |
|---------------|------------------|
| (1) Coprolite | (2) Gastrolith |
| (3) Dendrite | (4) Stromatolite |

125. Mold and cast are:

- (1) -ive impressions
- (2) +ive impressions
- (3) -ive and +ive impressions
- (4) +ive and -ive impressions

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126. The sub-branch of palaeontology which deals with the impressions produced due to behavioural activities of ancient organism is called:

- | | |
|---------------|------------------------|
| (1) Ichnology | (2) Palaeoecology |
| (3) Taphonomy | (4) Micropalaeontology |

127. Select a pseudofossil from the following

- | | |
|----------------|---------------|
| (1) Chondrites | (2) Dendrites |
| (3) Stylolites | (4) Uncolites |

128. In *Corbula lyrata*, the first and second names respectively stand for

- | | |
|------------------------|--------------------------|
| (1) Genus and species | (2) Species and genus |
| (3) Genus and subgenus | (4) Subgenus and species |

129. Which of the following has agglutinated shell?

- | | |
|------------------|-----------------------|
| (1) Conodonts | (2) Radiolarian |
| (3) Foraminifera | (4) Pollen and spores |

130. In the bivalves the prosogyrous umbones point towards:

- | | |
|---------------------|----------------------|
| (1) Anterior margin | (2) Posterior margin |
| (3) Dorsal margin | (4) Ventral margin |

131. The pallial sinus in the bivalves are usually situated at

- (1) Anterior side of the valve
- (2) Posterior side of the valve
- (3) Dorsal side of the valve
- (4) Ventral side of the valve

132. Select a bivalve genus from the following having taxodont type of dentition:

- | | |
|--------------------|-----------------------|
| (1) <i>Venus</i> | (2) <i>Pholadomya</i> |
| (3) <i>Mytilus</i> | (4) <i>Arca</i> |

133. If a brachiopod shell is concavo-convex in the early growth stages but reverses to convexo-concave in maturity it is known as:

- | | |
|-------------------|---------------------|
| (1) Dorsibiconvex | (2) Convexo-concave |
| (3) Resupinate | (4) Concavo-convex. |

134. In cephalopods the chambered part is known as

- | | |
|----------------|-----------------|
| (1) Body whorl | (2) Phragmocone |
| (3) Siphuncle | (4) Aperture |

135. The cylindrical siphuncle with simple of straight septal neck in cephalopods is called:

- | | |
|--------------------|---------------------|
| (1) Holochoanitic | (2) Ellipochoanitic |
| (3) Orthochoanitic | (4) Cyrtchoanitic |

136. The biogenetic law "Ontogeny recapitulates phylogeny" is best illustrated by:

- | | |
|-----------------|---------------|
| (1) Gastropods | (2) Bivalves |
| (3) Brachiopods | (4) Ammonoids |

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137. Which of the following are plant fossils only of Lower Gondwana in age?

- (1) *Ptillophyllum, Glossopeteris*
- (2) *Glossopeteris, Dicrodium*
- (3) *Dicrodium, Ptillophyllum*
- (4) *Glossopeteris, Gangamopteris*

138. Graphite deposits form largely by:

- (1) Magmatic concentration
- (2) Sedimentation
- (3) Metamorphism
- (4) Residual concentration

139. Chromite deposits of Sukinda is formed by:

- (1) Magmatic concentration
- (2) Contact metasomatism
- (3) Hydrothermal processor
- (4) Metamorphism

140. 'Bort' is the term used for:

- (1) Gem diamond
- (2) Industrial diamond
- (3) Variety of corundum
- (4) Variety of garnet

141. Rhodochrosite is an ore of:

- (1) Copper
- (2) Iron
- (3) Maganese
- (4) Lead

142. Muscovite is associated with:

- (1) Magmatic deposits
- (2) Pegmatitic deposits
- (3) Placer deposits
- (4) Sedimentary deposits

143. India is deficient in:

- | | |
|-------------------|----------------------|
| (1) Iron deposits | (2) Bauxite deposit |
| (3) Mica deposit | (4) Tungsten deposit |

144. Which of the following groups of minerals are prominently associated with the beach sand of Kerala:

- (1) monazite-magnetite-wolframite
- (2) Monazite- cassiterite- rutile
- (3) Monazite-chromite-zircon
- (4) Monazite-ilmenite+rutile

145. Which of the following economic mineral is used in the refractory industry:

- | | |
|----------------|----------------|
| (1) Orthoclase | (2) Tourmaline |
| (3) Chromite | (4) Aragonite |

146. Match the list-I with list-II and select the correct answer using the codes given below the lists:

	List-I		List-II	
	A	B	C	D
	A. Abrasive		1. Kynait	
	B. Ceramic		2. Sulphur	
	C. Refractory		3. Orthoclase	
	D. Chemical		4. Corundum	
(1)	1	3	4	2
(2)	4	3	1	2
(3)	4	2	1	3
(4)	3	1	2	4

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147. Gypsum to be used as fertilizers should have:

- | | |
|---|---|
| (1) 70% $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ | (2) 75% $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ |
| (3) 80% $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ | (4) 85% $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ |

148. Guano is:

- (1) An organic calcareous rock
- (2) An organic phosphatic rock
- (3) An organic ferruginous rock
- (4) None of the above

149. Which amongst the following is the main constituent mineral of a true Gossan:

- | | |
|--------------|---------------|
| (1) Hematite | (2) Magnesite |
| (3) Limonite | (4) Pyrite |

150. Which one of the following is single largest deposit of iron ores in India:

- | | |
|--------------|---------------|
| (1) Chiria | (2) Noamundi |
| (3) Kiriburu | (4) Bailadila |

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ROUGH WORK
रफ़ कार्य

31

P.T.O.

अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण पृष्ठ पर तथा उत्तर-पत्र के दोनों पृष्ठों पर केवल नीली-काली बाल-प्वाइंट पेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के 10 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।
2. परीक्षा भवन में लिफाफा रहित प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।
3. उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा। केवल उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. अपना अनुक्रमांक तथा उत्तर-पत्र का क्रमांक प्रथम आवरण-पृष्ठ पर पेन से निर्धारित स्थान पर लिखें।
5. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गणना कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक तथा सेट का नम्बर उचित स्थानों पर लिखें।
6. ओ० एम० आर० पत्र पर अनुक्रमांक संख्या, प्रश्नपुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्नपुस्तिका पर अनुक्रमांक और ओ० एम० आर० पत्र संख्या की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।
7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित सामन का प्रयोग माना जायेगा।
8. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिए आपको उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गणना करना है।
9. प्रत्येक प्रश्न के उत्तर के लिए केवल एक ही वृत्त को गणना करें। एक से अधिक वृत्तों को गणना करने पर अथवा एक वृत्त को अपूर्ण भरने पर वह उत्तर गलत माना जायेगा।
10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते हैं, तो संबंधित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।
11. रफ कार्य के लिए प्रश्न-पुस्तिका के मुखपृष्ठ के अंदर वाला पृष्ठ तथा उत्तर-पुस्तिका के अंतिम पृष्ठ का प्रयोग करें।
12. परीक्षा के उपरान्त केवल ओ एम आर उत्तर-पत्र परीक्षा-भवन में जमा कर दें।
13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।
14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह दिश्विद्यालय द्वारा निर्धारित दंड का/की, भागी होगा/होगी।

