



# EARTH SCIENCES

Name & Signature of the Invigilator

PAPER – II

OMR Answer Sheet No. :

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CODE-20

Roll No. :

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(in figures as in Hall Ticket)

Roll Number in words : .....

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Question Booklet Sl. No.

Time : 2 Hours]

No. of Printed Pages : 20

[Maximum Marks : 200

## Instructions for the Candidates

- Write your Roll Number in the space provided on the top of this page.
- This paper consists of **one hundred (100)** multiple choice type of questions. All questions are compulsory.
- At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as below :
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- Use only Blue/Black Ball point pen.
- Use of any calculator or any electronic devices or log table etc., are prohibited.
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## પરીક્ષાર્થીઓ માટે સૂચનાઓ

- આ પાનાની ટોચ પર દર્શાવેલી જગ્યામાં તમારો રોલ નંબર લખો.
- આ પ્રશ્નપત્રમાં બહુવિકલ્પિક ઉત્તરો ધરાવતા સો (૧૦૦) પ્રશ્નો આપેલા છે. બધા જ પ્રશ્નો ફરજિયાત છે.
- પરીક્ષાની શરૂઆતમાં આપને પ્રશ્નપુસ્તિકા આપવામાં આવશે. પ્રથમ પાંચ (૫) મિનિટ દરમિયાન તમારે પ્રશ્નપુસ્તિકા ખોલી અને ફરજિયાતપણે નીચે મુજબ પરીક્ષણ કરવું :
  - પ્રશ્નપુસ્તિકાનો વપરાશ કરવા માટે આ કવર પૃષ્ઠની ધાર પર આપેલ સીલ સ્ટીકર ફાડી નાખો. કોઈપણ સંજોગોમાં સીલ સ્ટીકર વગરની કે ખુલ્લી પ્રશ્નપુસ્તિકા સ્વીકારશો નહીં.
  - કવર પૃષ્ઠ પર છપાયેલ નિર્દેશનુસાર પ્રશ્નપુસ્તિકાના પ્રશ્નો, પૃષ્ઠો અને સંખ્યાને બરાબર ચકાસી લો. ખામીયુક્ત પ્રશ્નપુસ્તિકા કે જેમાં પ્રશ્નો/ પૃષ્ઠો ઓછાં હોય, કે વાર છપાયાં હોય, અનુક્રમમાં અથવા અન્ય કોઈ ફરક હોય અર્થાત કોઈપણ સંજોગોમાં ખામીયુક્ત પ્રશ્નપુસ્તિકા સ્વીકારશો નહીં અને જો ખામીયુક્ત પ્રશ્નપુસ્તિકા મળી હોય તો નિરીક્ષક પાસેથી તુરંત જ બીજી સારી પ્રશ્નપુસ્તિકા મેળવી લેવી. આ માટે ઉમેદવારને પાંચ (૫) મિનિટનો સમયગાળો આપવામાં આવશે. પછીથી, પ્રશ્નપુસ્તિકા બદલવામાં આવશે નહીં કે કોઈ વધારાનો સમયગાળો આપવામાં આવશે નહીં.
  - આ ચકાસણી સમાપ્ત થાય પછી, પ્રશ્નપુસ્તિકાનો નંબર OMR જવાબ પત્રક પર લખવો અને OMR જવાબ પત્રકનો નંબર પ્રશ્નપુસ્તિકા પર લખવો.
- પ્રત્યેક પ્રશ્ન માટે ચાર જવાબ વિકલ્પ (A), (B), (C) અને (D) આપવામાં આવેલ છે. તમારે સાચા જવાબના ઓવલ (oval) ને નીચે આપેલ ઉદાહરણ મુજબ પેનથી ભરીને સંપૂર્ણ કાઠું કરવાનું રહેશે.  
ઉદાહરણ : (A) (B) (C) (D) કે જ્યાં (B) સાચો જવાબ છે.
- આ પ્રશ્નપુસ્તિકાના પ્રશ્નોના જવાબ અલગથી આપવામાં આવેલ OMR જવાબ પત્રકમાં પેપર-11 લખેલ વિભાગમાં જ અંકિત કરવા. જો આપ OMR જવાબ પત્રકમાં આપેલ ઓવલ (oval) સિવાય અન્ય સ્થાને જવાબ અંકિત કરશો તો તે જવાબનું મૂલ્યાંકન કરવામાં આવશે નહીં.
- કાચું કામ (Rough work) પ્રશ્નપુસ્તિકાના અંતિમ પૃષ્ઠ પર કરવું.
- જો આપ OMR જવાબ પત્રક નિયત જગ્યા સિવાય અન્ય કોઈપણ સ્થાને, આપનું નામ, રોલ નંબર, ફોન નંબર અથવા એવું કોઈ ચિહ્નકે જેનાથી તમારી ઓળખ થઈ શકે, અંકિત કરશો અથવા અભદ્ર ભાષાનો પ્રયોગ કરો, અથવા અન્ય કોઈ અનુચિત સાધનોનો ઉપયોગ કરો, જેમકે અંકિત કરી દીધેલ જવાબ ભૂંસી નાખવો કે સફેદ શાહીનો ઉપયોગ કરી બદલશો તો આપને પરીક્ષા માટે અધોગ્રહ જાહેર કરવામાં આવશે.
- પરીક્ષા સમય પૂરો થઈ ગયા બાદ ઓરીજનલ OMR જવાબ પત્રક જે તે નિરીક્ષકને ફરજિયાત સોપી દેવું અને કોઈ પણ સંજોગોમાં તે પરીક્ષા ખંડની બહાર લઈ જવું નહીં. પરીક્ષા પૂર્ણ થયા બાદ ઉમેદવાર ઓરીજનલ પ્રશ્નપુસ્તિકા અને OMR જવાબ પત્રકની ડુપ્લિકેટ કોપી પોતાની સાથે લઈ જઈ શકે છે.
- માત્ર કાળી / ભૂરી બોલ પોઈન્ટ પેન વાપરવી.
- કેલ્ક્યુલેટર, લોગ ટેબલ અને અન્ય ઇલેક્ટ્રોનિક યંત્રોનો ઉપયોગ કરવાની મનાઈ છે.
- ખોટા જવાબ માટે નકારાત્મક ગુણ્યાંકન પ્રથમ નથી.



**DO NOT WRITE HERE**





## **EARTH SCIENCES**

### **Paper – II**

1. Relative abundance of elements in decreasing order in the earth is
  - (A) Fe, O, Si, Mg
  - (B) O, Si, Al, Fe
  - (C) Fe, Mg, Si, O
  - (D) O, Si, Al, Mg
  
2. In a normally progressed deformation, the correct sequence of stress stages are
  - (A) Plastic – Elastic – Rupture
  - (B) Elastic – Plastic – Rupture
  - (C) Elastic – Rupture – Plastic
  - (D) Rupture – Elastic – Plastic
  
3. Vertical distance from trough point to summit point of a Ripple is termed as
  - (A) Ripple index
  - (B) Ripple length
  - (C) Wavelength of Ripple
  - (D) Ripple height
  
4. On the basis of modern mineralogy, identify correct set of minerals used in the IUGS classification of igneous rocks.
  - (A) Alkali feldspar, pyroxene, plagioclase, quartz
  - (B) Alkali feldspar, feldspathoid, plagioclase, quartz
  - (C) Alkali feldspar, clinopyroxene, orthopyroxene, quartz
  - (D) Olivine, Alkali feldspar, plagioclase, quartz
  
5. Identify the sequence of water holding reservoirs from higher to lower rank.
  - (A) Atmosphere > River > Ground water
  - (B) Ground water > Atmosphere > River
  - (C) River > Ground water > Atmosphere
  - (D) Ground water > River > Atmosphere



6. Choose the craton from the following where sedimentary rocks predominates over mafic rocks.
- (A) Bastar craton (B) Eastern Dharwar craton  
(C) Western Dharwar craton (D) Singhbhum craton
7. Kink folding or Chevron folding is also caused by \_\_\_\_\_ between layers and localised yielding in the hinge area.
- (A) Flexural slip (B) Shear folding  
(C) Thickening (D) Thinning
8. Degrees of freedom (F) in the case of invariant point in the P – T space diagram is
- (A) 0 (B) 1  
(C) 2 (D) 3
9. Ganga-Brahmaputra delta is which kind of delta ?
- (A) Wave dominated (B) Fluvial dominated  
(C) Eluvial dominated (D) Tide dominated
10. Which among the following will serve as an ideal reservoir rock ?
- (A) Poorly sorted sandstone (B) Conglomerate  
(C) Well sorted sandstone (D) Compact shale
11. In a stress field diagram where  $\sigma_3$  is oriented vertical ( $\sigma_1, \sigma_2$  – horizontal) the resulting fault would be
- (A) Normal fault (B) Reverse fault  
(C) Oblique fault (D) Strike-slip fault



12. Match the following Geophysical Methods (Group – I) with the Physical Properties of Medium (Group – II).

**Group – I**

- P. Gravity
- Q. Electrical
- R. Seismic
- S. Magnetic

**Group – II**

- 1. Velocity
- 2. Density
- 3. Resistivity
- 4. Susceptibility
- 5. Dielectric constant

- (A) P – 2, Q – 1, R – 5, S – 4
- (B) P – 2, Q – 3, R – 1, S – 4
- (C) P – 5, Q – 2, R – 1, S – 3
- (D) P – 5, Q – 3, R – 4, S – 1

13. Crystallization is said to be in equilibrium when the crystallizing minerals are

- (A) Immediately removed from melt during the process
- (B) In contact with melt and continuously reacting through the entire process
- (C) In contact with melt but do not react during the process
- (D) Crystallised in sequence followed by subsequent removal from melt

14. Microfossils with “carapace” and “hinge” belongs to

- (A) Bryozoa
- (B) Ostracoda
- (C) Calcareous algae
- (D) Pteropods

15. Oxygen atom required to form tropospheric ozone comes from

- (A)  $O_2 \rightarrow O + O$
- (B)  $H_2O \rightarrow 2H + O$
- (C)  $NO_2 \rightarrow NO + O$
- (D)  $CO_2 \rightarrow CO + O$





16. \_\_\_\_\_ is a siliciclastic sedimentary rock comprising predominantly of Gravel-size clasts of similar type.
- (A) Petromict conglomerate (B) Polymict conglomerate  
(C) Oligomict conglomerate (D) Arkose arenite
17. Which among the following are silicious microfossils ?
- (A) Acritarchs, Spores (B) Radiolaria, Silicoflagelates  
(C) Pteropods, Calpionelids (D) Ostracods, Bryozoa
18. Compared to tholeiitic lava, rhyolitic melt under same P and T condition has its viscosity \_\_\_\_\_ than tholeiitic melt.
- (A) Similar (B) Much lower  
(C) Much higher (D) Lower
19. Rock floored terraces as preserving part of the former valley flat are called
- (A) Strath terraces (B) Abrasion ramps  
(C) Fill terraces (D) Alluvial terraces
20. The largest fluvio deltaic system is
- (A) Yellow – Ba Hoi (B) Ganga – Brahmaputra  
(C) Red – Mekong (D) Mississippi – Ohio
21. Cyclomedusa, Dickinsonia, Spriggina are the characteristic fossils of
- (A) Ediacara (B) Cambrian  
(C) Permian (D) Ordovician



22. An element preferentially fractionating in favor of crystallizing minerals from the melt is referred as \_\_\_\_\_ element.
- (A) Trace (B) Major  
(C) Incompatible (D) Compatible
23. \_\_\_\_\_ are high altitude clouds.
- (A) Stratus (B) Nimbus  
(C) Cumulonimbus (D) Cirrus
24. Petrographically, a sandstone, with compositions of 55% quartz, 22% feldspar, 3% rock fragments and a matrix of 20% is classified as
- (A) Arkosic Arenite (B) Lithic Arenite  
(C) Arkosic Wacke (D) Quartz Wacke
25. Chalks are dominantly characterised by
- (A) Quartz and feldspar  
(B) Nanoplankton and foraminifera  
(C) Gravels and pebbles  
(D) Feldspars and lithic component
26. If a metamorphic rock displays texture owing to the oriented distribution of minerals (generally at macroscopic scale), such a feature is called as
- (A) Schistosity (B) Lineation  
(C) Fabric (D) Foliation
27. Which one of the following unit comprises the largest reservoir of "O" in the earth ?
- (A) Biosphere (B) Hydrosphere  
(C) Atmosphere (D) Lithosphere



28. Match the depositional setting/processes from Group I with the resulting sedimentary structures of Group II.

**Group – I**

- P. Melting ice
- Q. Soft sediment deformation
- R. Turbulent scour
- S. Migration of mega ripples

**Group – II**

- 1. Cross bedding
- 2. Flutes
- 3. Loadcasts
- 4. Dripstones
- 5. Graded bedding

- (A) P – 4, Q – 2, R – 3, S – 1
- (B) P – 4, Q – 3, R – 2, S – 1
- (C) P – 4, Q – 2, R – 3, S – 5
- (D) P – 4, Q – 5, R – 1, S – 2

29. Hydrocarbon source rocks are generally

- (A) Conglomerate
- (B) Dolomite
- (C) Shale
- (D) Sandstone

30. Identify lowest grade metamorphic facies from the given choices.

- (A) Eclogite facies
- (B) Amphibolite facies
- (C) Green schist facies
- (D) Blue schist facies

31. Which is the largest freshwater lake in India ?

- (A) Wular lake
- (B) Lonar lake
- (C) Pulicat lake
- (D) Naini lake

32. Choose from the given choices that shows two important properties of an aquifer.

- (A) Porosity and rock type
- (B) Porosity and permeability
- (C) Permeability and specific yield
- (D) Porosity and specific yield





33. Porosity in the case of carbonate reservoir is mainly controlled by
- (A) Grain sorting (B) Diagenesis  
(C) Grain mineralogy (D) Shape of grain
34. Equation  $\frac{dP}{dT} = \frac{\Delta S}{\Delta V}$ , is useful in calculating the slope of a reaction in the P-T, space is popularly referred as
- (A) Reddlich Knong equation (B) Clausius-Clayperon equation  
(C) Clayperon equation (D) Ideal equation
35. Identify from the given options that lists correct arrival of different seismic waves post event.
- (A) Surface waves, P and S (B) P, S and surface waves  
(C) S, P and surface waves (D) S, surface waves and P
36. Secondary migration of hydrocarbon is essentially controlled by
- (A) Buoyancy and capillary process (B) Sandstone composition  
(C) Porosity of source rocks (D) Composition of cap rock
37.  $^{14}\text{C}$  measurements of a sample to be dated are carried out by \_\_\_\_\_ technique.
- (A) OSL (B) AMS (C) TL (D) TM
38. The Eocene sediments of Kachchh is characterised by \_\_\_\_\_ fossils.
- (A) Macrocephalites (B) Nummulites  
(C) Gangompteris (D) Belemnites
39. When depositional environment is oxygen deficient ( $\text{O}_2$  less than 0.02 mole/lit), such an environment is termed as
- (A) Oxic (B) Hypoxia  
(C) Anoxic (D) Lencoxic



40. Addition of fluid component ( $H_2O$  and  $CO_2$ ) in magmatic systems results in  
(A) Lowering of melting point (B) Raises the melting point  
(C) Hydration of silicate minerals (D) Increases the viscosity of the melt
41. Sag ponds, shutter ridges, offset drainage and beheaded streams are generally associated with  
(A) Strike slip faults (B) Normal dipslip fault  
(C) Reverse dipslip fault (D) Thrust zone
42. The oldest unit of Vindhyan Stratigraphy is  
(A) Bhandar (B) Kaimur (C) Rewa (D) Semri
43. Which from the following options, represents tectonic setting where new crust is generated ?  
(A) Transform fault (B) Convergent plate boundary  
(C) Divergent plate boundary (D) Transcurrent fault
44. Only cation that can substitute for  $Si^{+4}$  in the tetrahedral site of mineral structure is  
(A)  $Ti^{+4}$  (B)  $Cr^{+4}$  (C)  $Al^{+3}$  (D)  $Fe^{+3}$
45. \_\_\_\_\_ is thought to be responsible for the Earth's magnetic field.  
(A) Crust (B) Outer core  
(C) Inner core (D) Mantle
46. Identify from the following, sedimentary structure that forms under oscillatory flow.  
(A) Hummocky cross stratification  
(B) Asymmetrical ripple marks  
(C) Graded bedding  
(D) Soft Sediment Deformation (SSD)



47. Match the following and select the correct answer.

- |                     |                    |
|---------------------|--------------------|
| P. Lias             | 1. Miocene         |
| Q. Jhuran formation | 2. Cambrian        |
| R. Uttatur          | 3. Middle Triassic |
| S. Muschelkalk      | 4. Lower Jurassic  |
|                     | 5. Late Jurassic   |
|                     | 6. Cretaceous      |

- (A) P – 4, Q – 6, R – 2, S – 1  
(B) P – 1, Q – 5, R – 6, S – 3  
(C) P – 4, Q – 5, R – 6, S – 3  
(D) P – 2, Q – 3, R – 6, S – 1

48. Number of moles of NaCl in 100 gms is

- (A) 58.44                      (B) 1.7122                      (C) 23.00                      (D) 35.55

49. Most abundant metal element in the earth's crust is

- (A) Fe                      (B) Cr                      (C) Al                      (D) Na

50. In bio-stratigraphy, association of three or more taxa are termed as

- (A) Assemblage zone                      (B) Concurrent range zone  
(C) Chrono zone                      (D) Abundance zone

51. The age of the oldest rocks in the present day ocean basins is

- (A) Eocene                      (B) Permian                      (C) Devonian                      (D) Jurassic

52. Si : O ratio in the phyllosilicates is

- (A) 1 : 4                      (B) 1 : 2                      (C) 4 : 11                      (D) 2 : 5

53. \_\_\_\_\_ Ka years back; sea levels rose significantly during Late Quaternary period.

- (A) 125 Ka                      (B) 20 Ka                      (C) 6 Ka                      (D) 225 Ka



54. The age of gold bearing quartz vein in Hutti and Kolar area is
- (A) Proterozoic (B) Archean  
(C) Ediacaran (D) Early cambrian
55. Select the sequence of evolution (from simple to complex) of cephalopod sutures.
- (A) Goniatite – Ceratite – Nautiloid – Ammonite  
(B) Nautiloid – Goniatite – Ceratite – Ammonite  
(C) Nautiloid – Ceratite – Goniatite – Ammonite  
(D) Goniatite – Ammonite – Ceratite – Nautiloid
56. Carbon Compensation Depth (CCD) is the depth in ocean/sea systems, below which the bulk descending flux of  $\text{CaCO}_3$  (calcite, aragonite) does not exist owing to its
- (A) Consumption by the marine organisms  
(B) Dissociation into  $\text{Ca}^{++}$  and  $\text{CO}_3^{--}$   
(C) Upwelling of the flux  
(D) Retention of the flux as blanket deposits over shelves
57. Which of the following statement is correct in the context of Neolithic period ?
- (A) The period is significant due to its megalithic architecture  
(B) The people during this period were predominantly hunters and gatherers  
(C) Domestication of animals was not known during this period  
(D) Mammoths were roaming in widespread regions during this period
58. Choose the correct order (lowest to highest) of lithostratigraphic units.
- (A) Formation – Member – Supergroup – Group  
(B) Member – Formation – Supergroup – Group  
(C) Member – Formation – Group – Supergroup  
(D) Supergroup – Group – Formation – Member



59. The zigzag pattern observed in some limestones formed due to pressure solution process along which non-carbonate impurities may precipitate is known as  
(A) Overgrowth      (B) Septaria      (C) Cone-in-cone      (D) Stylolites
60. Negatron decay ( $\beta^-$ ) does not change \_\_\_\_\_ in the daughter nuclide.  
(A) Atomic number      (B) Atomic mass  
(C) Proton number      (D) Neutron number
61. During spheroidal weathering, a block of rock turns to spheroid due to  
(A) Breaking of the corners due to transport  
(B) Uniform action of both chemical and physical weathering over the entire exposed surface  
(C) Rapid chemical weathering at the corners relative to the other exposed surface of the block  
(D) Rapid physical weathering at the corners as compared to the other exposed surface of the block
62. In bio-stratigraphy, the interval between lowest and highest occurrence of single taxon is known as  
(A) Taxon range zone      (B) Index fossil  
(C) Assemblage zone      (D) Abundance zone
63. Equation  $P_i = P_i^{\circ} X_i^{\text{solution}}$ , is a famous equation which is a quantitative statement of the law dealing with dilute solutions in order to assume solutions to behave as an ideal solution similar to the ideal gas mixture. (Where  $P_i$  is the partial pressure of the  $i^{\text{th}}$  component in the vapour,  $X_i$  is the mole fraction of the  $i^{\text{th}}$  component in solution and  $P_i^{\circ}$  vapour pressure of  $i^{\text{th}}$  constituent in equilibrium with pure  $i^{\text{th}}$  constituent.) The law is  
(A) Henry's law      (B) Raoult's law  
(C) Ideal gas law      (D) Dalton's law



64. Polymorph of  $\text{SiO}_2$  likely to form due to impact of a meteorite is  
(A) Tridymite (B) Opal (C) Quartz (D) Stishovite
65. The age of banded iron formation is  
(A) Cambrian (B) Proterozoic (C) Archean (D) Permian
66. Long Chain Decay of  $^{235}\text{U}$  will give its last stable daughter nuclide as  
(A)  $^{207}\text{Pb}$  (B)  $^{208}\text{Pb}$  (C)  $^{206}\text{Pb}$  (D)  $^{204}\text{Pb}$
67. Which of the following processes is not related to the plate tectonics ?  
(A) Subduction (B) Obduction (C) Mountain building (D) Glaciation
68. Lherzolite, Harzburgite are the characteristic rocks of  
(A) Ophiolite suite (B) Eclogite suite  
(C) Continental basalts (D) Doleritic dyke swarm
69.  $\alpha_{A-B} = \frac{R_A}{R_B}$ , is a factor determined between two co-existing phases at equilibrium for the stable isotope of interest, this factor is known as  
(A)  $\alpha$  factor (Alfa factor) (B) there is no specific term  
(C) enrichment factor (D) fractionation factor
70. \_\_\_\_\_ gas dominates the atmosphere of the planet Venus.  
(A)  $\text{N}_2$  (B)  $\text{CO}_2$  (C) Ar (D) H
71. \_\_\_\_\_ is known as amplitude adjustment to the entire trace in seismic processing.  
(A) Trace equalization (B) Amplitude equalization  
(C) Shot correction (D) DMO



72. Anomalously high abundance of Fe, (Normalised w.r.t.  $10^6$  si) in the solar system is attributable to
- (A) Nuclear symmetry only
  - (B) Highest nucleon binding energy only
  - (C) Combination of nuclear symmetry and highest nucleon binding energy
  - (D) Reasons not yet known
73. Among the following wavelength regions in remote sensing, which one is most effective for discerning contrasts between land and water (land-water contrast) ?
- (A) Thermal IR
  - (B) Ultraviolet
  - (C) Near IR
  - (D) Visible
74. The \_\_\_\_\_ represents the maximum elevation on a ripple.
- (A) Brink point
  - (B) Toe point
  - (C) Summit point
  - (D) Saddle point
75. The time taken by a satellite to complete one full orbit is known as
- (A) Cycle
  - (B) Dwell time
  - (C) Period
  - (D) Swath
76. Who among the following proposed the principle "present is the key to the past" ?
- (A) William Smith
  - (B) Nicolus Steno
  - (C) James Hutton
  - (D) Carl von Linnaeus
77. The mud-supported limestone containing more than 10% of allochems is termed as
- (A) Wackestone
  - (B) Mudstone
  - (C) Packstone
  - (D) Grainstone
78. Which of the following is a depositional landform that forms where a stream emerges from a mountainous region onto a plain ?
- (A) Colluvial fan
  - (B) Delta
  - (C) Point bar
  - (D) Alluvial fan



79. The part/region of upper atmosphere; where the electro-magnetic spectrum passes through and reaches the earth's surface without much attenuation is generally on account of the presence of
- (A) Ozone window (B) Ozone hole  
(C) Atmospheric window (D) Black hole
80. Fossils characterized by a narrow geological time range and a broad geographical distribution are referred to as
- (A) Zone fossils (B) Trace fossils  
(C) Index fossils (D) Microfossils
81. \_\_\_\_\_ mineral deposit is formed exclusively by surface geological processes.
- (A) Bauxite (B) Corundum  
(C) Wollastonite (D) Asbestos
82. Choose the incorrect pair from the following.
- (A) Rhodonite – Manganese  
(B) Azurite – Copper  
(C) Samsonite – Chromium  
(D) Goethite – Iron
83. A drainage pattern common in highly dissected dome is
- (A) Centrifugal drainage pattern  
(B) Centripetal drainage pattern  
(C) Annular drainage pattern  
(D) Trellis drainage pattern






84. Jack test is used to determine
- (A) Compressive strength of a rock
  - (B) Frost resistance of rock
  - (C) In-situ deformation in rocks
  - (D) Porosity of the rock
85. \_\_\_\_\_ type of rocks has Schlieren structure.
- (A) Green schist
  - (B) Augen gneiss
  - (C) Migmatite
  - (D) Mica garnet schist
86. A texture showing plagioclase laths penetrating augite is called
- (A) Porphyritic
  - (B) Granitic
  - (C) Felsic
  - (D) Ophitic
87. Most of the oil producing horizons of the Cambay Basin is confined to
- (A) Oligocene
  - (B) Miocene
  - (C) Eocene
  - (D) Pliocene
88. Tsunami is a
- (A) Intraplate earthquake
  - (B) Marine ice melting process
  - (C) Submarine landslide
  - (D) Gigantic oceanic waves produced by undersea earthquake
89. Greatest variety of ore mineral deposits associated with metamorphic rocks is generally found in
- (A) Green schist facies
  - (B) Blue schist facies
  - (C) Granulite facies
  - (D) Amphibolite facies



90. The Universal Transverse Mercator (UTM) Projection System divides the world into \_\_\_\_\_ zones.
- (A) 30                      (B) 90                      (C) 120                      (D) 60
91. On a 1 : 5000 scale map, the length of a fault trace in horizontal plane is represented as 10 cm. The same on 1 : 25000 scale map is
- (A) 2.5 cm                      (B) 5.0 cm                      (C) 2.0 cm                      (D) 4.0 cm
92. The phenomenon \_\_\_\_\_ is described as when superficial similarities observed in the morphology of unrelated members of different phyla.
- (A) Homomorphy                      (B) Paedomorphology  
(C) Homology                      (D) Homeomorphy
93. Sedimentary structure typically associated with greywacke
- (A) Flaser bedding                      (B) Herring bone cross-bedding  
(C) Graded bedding                      (D) Torrential bedding
94. Highest compressive strength is shown by which of the following rocks ?
- (A) Marble                      (B) Quartzite                      (C) Sandstone                      (D) Shale
95. \_\_\_\_\_ can be constructed even on weak foundations.
- (A) Gravity Dam                      (B) Arch Dam  
(C) Multiple Arch Dam                      (D) Embankment Dam
96. Principle ore of thorium is
- (A) Monazite                      (B) Montroydite  
(C) Magnesite                      (D) Monzonite



97. \_\_\_\_\_ is the amount of water that can be transmitted horizontally by the full saturated thickness of the aquifer under a hydraulic gradient of "1".
- (A) Specific yield
  - (B) Storativity
  - (C) Transmissivity
  - (D) Hydraulic conductivity
98. Favourable condition for the formation of porphyry deposits is
- (A) Crystallization of magma at deep crustal level
  - (B) Initial magmas having high ( $H_2O + CO_2$ )
  - (C) Crystallization of magma at the earth's surface
  - (D) Low Eh conditions for the magma
99. Which of the following is true for aquiclude ?
- (A) a saturated formation which not only stores water but also yields sufficient quantity
  - (B) a formation through which only seepage is possible
  - (C) a geological formation which is neither porous nor permeable
  - (D) a geological formation which is impermeable to the flow of water
100. Guano are
- (A) Calcareous deposits
  - (B) Phosphatic deposits
  - (C) Ferruginous deposits
  - (D) Siliceous deposits
- 
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**Space for Rough Work**

