



EARTH SCIENCES

Name & Signature of the Invigilator

PAPER – II

OMR Answer Sheet No. :

CODE-20

Roll No. :

(in figures as in Hall Ticket)

Roll Number in words :

200075

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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- Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the oval as indicated below on the correct response against each item.
Example: (A) ☒ (B) ☐ (C) ☐ (D) ☐ where (B) is the correct response.
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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.
- There shall be no negative marking.

પરીક્ષાર્થીઓ માટે સૂચનાઓ

- આ પાનાની ટોચ પર દર્શાવેલી જગ્યામાં તમારો રોલ નંબર લખો.
- આ પ્રશ્નપત્રમાં બહુવૈકલ્પિક 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 નિર્દેશાનુસાર પ્રશ્નપુસ્તિકાના પ્રશ્નો, પૃષ્ઠો અને સંખ્યાને બરાબર ચકાસી લો. ખામીયુક્ત પ્રશ્નપુસ્તિકા કે જેમાં પ્રશ્નો/ પૃષ્ઠો ઓછાં હોય, બે વાર છપાયા 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 કાળું કરવાનું રહેશે.
ઉદાહરણ : (A) ☒ (B) ☐ (C) ☐ (D) ☐ કે જ્યાં (B) સાચો જવાબ છે.
- આ પ્રશ્નપુસ્તિકાના પ્રશ્નોના જવાબ અલગથી આપવામાં આવેલ OMR જવાબ પત્રકમાં પેપર-II 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, કોન નંબર અથવા એવું કોઈ ચિહ્ન 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 અયોગ્ય 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 પોઇન્ટ પેન વાપરવી.
- કેલ્ક્યુલેટર,લોગ ટેબલ અને અન્ય ઇલેક્ટ્રોનિક યંત્રોનો ઉપયોગ કરવાની મનાઈ છે.
- ખોટા જવાબ માટે નકારાત્મક ગુણંકન પ્રથા નથી.

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Paper – II

- The present day universe is in expansion mode and the supporting evidence is _____.
(A) Red shift phenomenon
(B) Presence of black holes
(C) Presence of antimatter
(D) Gravitational pull strengthening
- Identify the correct order of time units from higher time to lower time used in geological timescale.
(A) Eon – Epoch – Period – Era
(B) Epoch – Period – Eon – Era
(C) Era – Eon – Epoch – Period
(D) Eon – Era – Period – Epoch
- Kamacite and taenite are mineral constituents of _____.
(A) Stony meteorites
(B) Iron meteorites
(C) Stony – Iron meteorites
(D) Mesosiderites
- Which amongst the following is correctly arranged in increasing half life of radioactive isotopes ?
(A) $^3\text{H} - ^{14}\text{C} - ^{40}\text{K} - ^{147}\text{Sm}$
(B) $^{14}\text{C} - ^3\text{H} - ^{40}\text{K} - ^{147}\text{Sm}$
(C) $^{40}\text{K} - ^3\text{H} - ^{14}\text{C} - ^{147}\text{Sm}$
(D) $^{147}\text{Sm} - ^{40}\text{K} - ^3\text{H} - ^{14}\text{C}$
- The following statement refers to which law ?
“The square of the time period of revolution of a planet around the sun in an elliptical orbit is directly proportional to the cube of its semi – major axis.”
(A) Kepler’s third law
(B) Kepler’s first law
(C) Kepler’s second law
(D) Kepler’s fourth law



6. Earth's lithosphere (the outermost rigid layer-of earth) comprises of the
- (A) Crust + Mantle above asthenosphere
 - (B) Crust + upper Mantle
 - (C) Crust + Mantle
 - (D) Crust
7. In a weathering profile Saprolite generally occurs
- (A) below the layer of humus
 - (B) below the layer of soil
 - (C) above the clay -rich horizon
 - (D) above the unweathered rock
8. Montmorillonite is the dominant clay in areas with
- (A) High rainfall and good drainage
 - (B) High rainfall and poor drainage
 - (C) Low rainfall and good drainage
 - (D) Low rainfall and poor drainage
9. In which portion of a meandering river channel are the coarser sediments deposited ?
- (A) Crevasse splay
 - (B) Natural Levee
 - (C) Channel thalweg
 - (D) Channel margin
10. Identify the set of seismic waves, which are also known as body waves ?
- (A) P, S
 - (B) P, S, L, R
 - (C) S, R
 - (D) L, R
11. Lehmann discontinuity separates _____
- (A) Crust – Mantle
 - (B) Lower Mantle – Upper Mantle
 - (C) Inner Core – Outer Core
 - (D) Core – Mantle



- 12.** Himalayan orogenic belt is an outcome of
- (A) Island arc tectonics
 - (B) Continent – continent collision
 - (C) Oceanic – continent collision
 - (D) Oceanic – oceanic collision
- 13.** The Southern Granulite Terrane (SGT) and the Dharwar craton are separated by the shear zone known as
- (A) Palghat – Cauvery
 - (B) Achan Koril
 - (C) Chitradurga
 - (D) Mercara
- 14.** The principle of faunal succession was propounded by
- (A) Charles Lyell
 - (B) Charles Darwin
 - (C) William Smith
 - (D) J. C. Butler
- 15.** Continental shelf mountains average slope of
- (A) 0.1°
 - (B) 2°
 - (C) 5°
 - (D) 10°
- 16.** The sediment accumulation rate is minimum at
- (A) Continental shelf
 - (B) Continental rise
 - (C) Continental slope
 - (D) Abyssal floor/plain
- 17.** Highest average salinity is recorded from
- (A) Black-sea
 - (B) Dead-sea
 - (C) Red-sea
 - (D) White-sea
- 18.** The Great Rann of Kachchh is an ideal example of
- (A) Lagoonal environment
 - (B) Sabkha environment
 - (C) Coastal environment
 - (D) Fluvial environment



19. Which of the following characteristic are associated with Komatiite ?
- Ophitic texture, High MgO content
 - Spinifex texture, High MgO content
 - Spinifex texture, Low MgO content
 - Graphic texture, Low MgO content
20. The microfossil assemblage of a stratigraphic succession is given below. Which sequence system tract is represented by this ?
- [TOP] Nodosaria – Cassidulma – Globorotalia
 Bolivina – Uvigerina – Bulimina
 Ammonia – Elphidium – Cibicides
 [BOTTOM] Trochamina – Milimmina – Jadamina
- Highstand System Tract
 - Transgressive System Tract
 - Lowstand System Tract
 - Falling Stage System Tract
21. Harzburgite differs from Lherzolite in mineralogical composition by the conspicuous absence of
- Clinopyroxene
 - Orthopyroxene
 - Biotite
 - Garnet
22. Identify the alkaline plutonic rock.
- Nepheline syenite
 - Granodiorite
 - Anorthosite
 - Syenite
23. The typical mineral assemblage of Khondalite is
- Sillimanite + Quartz + Garnet + Graphite
 - Pyroxene + Amphibole + Quartz + Halite
 - Quartz + Perthite + K-feldspar
 - Hornblende + Plagioclase + Na-feldspar + Amphibole
24. Which of the following minerals is not part of the discontinuous Bowen's Reaction Series ?
- Olivine
 - Plagioclase
 - Amphibole
 - Pyroxene



- 25.** Andesites are found in which plate tectonic setting ?
- Spreading centre
 - Subduction zone
 - Continent-continent collision
 - Transform boundary
- 26.** Choose the system showing peritectic reaction
- Albite – Anorthite
 - Diopside – Anorthite
 - Forsterite – Silica
 - Forsterite – Olivine
- 27.** Among the following statements identify the wrong statement about andalusite, kyanite and sillimanite.
- They have the same crystal structure
 - They have the same chemical formula
 - Commonly one or more of them is present in metamorphosed pelitic rocks
 - If all the three are present, the pressure and temperature conditions can be determined
- 28.** Complete solid solution is exhibited by
- Diopside – Enstatite
 - Enstatite – Ferrosilite
 - Albite – Anorthite
 - Actinolite – Tremolite
- 29.** The equivalent for greenschist facies as per Barrovian metamorphic zone is
- Sillimanite zone
 - Biotite zone
 - Staurolite zone
 - Garnet zone
- 30.** The high pressure polymorphs of quartz like coesite and stishovite are considered to be associated with
- Impact metamorphism
 - Burial metamorphism
 - Hydrothermal metamorphism
 - Contact metamorphism



- 31.** A rock containing phenocrysts of olivine set in a fine-grained matrix of pyroxene and plagioclase is known as
- (A) Gabbro (B) Norite
(C) Basalt (D) Diorite
- 32.** The ratio of normal stress to strain for a rock is known as
- (A) Shear modulus (B) Bulk modulus
(C) Young's modulus (D) Modulus of rigidity
- 33.** On an Indian Topo sheet with a scale of 1 : 50,000, the distance between the upper and lower trace of a bed is 10 cm. The actual distance on the ground in kilometers is
- (A) 10 (B) 5
(C) 2.5 (D) 4
- 34.** Of the following folds which one represents the axis of plunging direction similar to dip of axial surface ?
- (A) Drag fold (B) Concentric fold
(C) Reclined fold (D) Normal fold
- 35.** According to Anderson's theory of faulting _____ type of fault forms when the principal stress is horizontal.
- (A) Normal fault (B) Strike slip fault
(C) Reverse fault (D) Wrench fault
- 36.** A fold with two hinges is called as
- (A) Box fold (B) Chevron fold
(C) Isoclinal fold (D) Fan fold
- 37.** Boudinage is oriented
- (A) Perpendicular to fold axis
(B) Parallel to fold axis
(C) Randomly in a folded bed
(D) Perpendicular to fault plane
- 38.** When the hanging wall relatively moves downward, the fault is termed
- (A) Normal fault (B) Strike slip fault
(C) Dip slip fault (D) Thrust fault



39. Angle of inclination of hinge line with the horizontal is called
 (A) Strike (B) Dip
 (C) Plunge (D) Pitch
40. Which law states that, "the strain in a body is proportional to the applied stress within the elastic limits of the body matter." ?
 (A) Hooke's law (B) Bode's law
 (C) Young's Modulus (D) Bulk Modulus
41. Planktonic foraminiferal biostratigraphy of pelagic sediment sequences often faces the problem of diachronism in the appearance and extinction of fossils. This is due to _____
 (A) Planktonic foraminifera having very slow evolutionary rate
 (B) Planktonic foraminifera being latitudinally provincialized
 (C) Every ocean having different species of planktonic foraminifera
 (D) Planktonic foraminifera having very low stratigraphic range
42. Which of the following is not exclusively marine ?
 (A) Conodonta (B) Radiolaria
 (C) Ostracoda (D) Foraminifera
43. The concept of punctuated equilibrium was proposed by
 (A) James Hutton and Charles Lyell
 (B) Charles Darwin and Alfred R. Wallace
 (C) Niels Elderdge and Stephen Gould
 (D) William Smith and Nicholas Steno
44. The trilobite with pygidium equal to that of cephalon is known as
 (A) Isopygous (B) Micropygous
 (C) Macropygous (D) Bipygous
45. Bioturbation is a benthic process of relevance in the redistribution of the top 10 – 15 cm of sediment. Choose the correct set of bioturbating fauna from the following.
 (A) amphipods, appendicularians, arrow worms, bryozoans
 (B) annelids, clams, heart urchins, lug worms
 (C) anchovies, anemones, calanids, limpets
 (D) ctenophore, doliolids, salps



- 46.** Which of the following is fossilized excreta ?
 (A) Dendrite (B) Stromatolite
 (C) Gastrolith (D) Coprolite
- 47.** The pallial sinus in the bivalves are usually situated at
 (A) anterior side of the valve
 (B) posterior side of the valve
 (C) dorsal side of the valve
 (D) ventral side of the valve
- 48.** The specimen selected to replace the lost holotype (from the same locality) is called
 (A) Cotype (B) Topotype
 (C) Neotype (D) Plastotype
- 49.** Fossil flora *Gangamopteris* can be differentiated from *Glossopteris* by
 (A) size of leaves
 (B) presentation of venation
 (C) acute leaf margin
 (D) absence of midrib
- 50.** Stromatolite structures are related to
 (A) Diatom (B) Algae
 (C) Fungi (D) Foraminifera
- 51.** Amongst the following stratigraphic units, which are correctly matched with their ages and geographic locations ?
 (A) Niniyur Formation – Jurassic – Cauvery Basin
 (B) Long Formation – Oligocene – Andaman Basin
 (C) Bhandar Group – Early Proterozoic – Vindhyan Basin
 (D) Zewan Formation – Permian – Kashmir Basin
- 52.** The “Bagh Beds” were deposited during _____ Period.
 (A) Triassic (B) Cretaceous
 (C) Jurassic (D) Permian



- 53.** The Neogene succession in Himalayas is represented by
 (A) Kasauli Formation (B) Dagshai Formation
 (C) Siwalik Group (D) Subathu Formation
- 54.** Ammonoid genus *Macrocephalites* is found in
 (A) Bhuj formation of Kachchh Basin
 (B) Patcham formation of Kachchh Basin
 (C) Talchir formation of Satpura Basin
 (D) Bijori formation of Satpura Basin
- 55.** Which of the following successions depicts correct stratigraphic order (older to younger) ?
 (A) Uttatur – Trichinopally – Ariyalur – Niniyur
 (B) Uttatur – Ariyalur – Niniyur – Trichinopally
 (C) Uttatur – Niniyur – Ariyalur – Trichinopally
 (D) Uttatur – Trichinopally – Niniyur – Ariyalur
- 56.** The bedform “Antidunes” are formed under
 (A) Transitional flow regime
 (B) Upper flow regime
 (C) Lower flow regime
 (D) Both upper and lower flow regime
- 57.** Coarse clastic sediments can be transported to deep marine environment by
 (A) Turbidity currents (B) Coastal upwelling
 (C) Longshore current (D) Rip current
- 58.** Oolites are distinguished from pisolites by its
 (A) Shape (B) Size
 (C) Composition (D) Sphericity
- 59.** Normally, Asymmetrical ripples are formed under
 (A) Unidirectional flow (B) Oscillatory flow
 (C) Bidirectional flow (D) Combined flow



- 60.** Which sedimentary environment is characterised by mixture of sand, gravel, boulder and mud ?
- (A) Glacial (B) Beach
(C) Dunes (D) Lacustrine
- 61.** Which among the following are indicator minerals for diamond bearing kimberlite ?
- (A) Spinel – Albite – Garnet – Kyanite
(B) Pyrope – Cr-Diopside – Rutile – Ilmenite
(C) Sillimanite – Quartz – Muscovite – Pyrope
(D) Almandine – Anorthite – Forsterite – Omphacite
- 62.** Which mineral aids in leaching of metals in supergene enrichment in near surface environment ?
- (A) Gibbsite (B) Limonite
(C) Kaolinite (D) Pyrite
- 63.** Mansar formation in Sausar – Sakoli group hosts the largest deposits of _____ in India.
- (A) Manganese (B) Iron
(C) Aluminium (D) Chromium
- 64.** Kolar gold deposit is considered as
- (A) Stock work deposit (B) Fissure – Vein deposit
(C) Ladder – Vein deposit (D) Intrusive deposit
- 65.** The oldest formation of siwalik group is
- (A) Nagri formation (B) Pinjor formation
(C) Dhokpathan formation (D) Kamlial formation
- 66.** When the piezometric surface lies above the well elevation level, the resulting well is
- (A) Artesian well (B) Draw-down well
(C) Tube well (D) Pump well
- 67.** Bulk of global fresh water is occurring as
- (A) Polar ice sheets (B) Ground water
(C) River water (D) Fresh water lakes



- 68.** Earth's mantle makes up of _____ % of earth's mass and _____ % of its volume.
- (A) 67 and 84 (B) 30 and 50
(C) 80 and 27 (D) 25 and 75
- 69.** A geophysist travelling from Bay of Bengal through Ganga plain to Himalaya estimates the depth of Moho discontinuity. Which one of the following is the correct order of the Moho discontinuity estimates ?
- (A) Bay of Bengal > Ganga Plain > Himalaya
(B) Himalaya > Ganga Plain > Bay of Bengal
(C) Ganga Plain > Bay of Bengal > Himalaya
(D) Ganga Plain = Bay of Bengal = Himalaya
- 70.** Which of the following river pattern is more common in the Pre-Cambrian successions ?
- (A) Braided (B) Anastomosing
(C) Meandering (D) Straight
- 71.** Lamda (λ) transformations are continuous function over a wide range of T and P. Choose set of parameter that obey (λ) transformation from the listed option.
- (A) ΔH_{trans} and $\Delta C_{p_{trans}}$ only
(B) ΔV_{trans} and ΔS_{trans} only
(C) ΔH_{trans} , ΔS_{trans} , $\Delta C_{p_{trans}}$, ΔV_{trans}
(D) $\Delta C_{p_{trans}}$ only
- 72.** Identify the reaction that fulfils Jadeite coupled substitution reaction.
- (A) $Ca^{2+} + (Mg^{2+} + Fe^{2+}) \rightarrow Na^{+} + Al^{3+}$
(B) $Ca^{2+} + Na^{+} \rightarrow Fe^{2+} + Na^{+}$
(C) $Ca^{2+} + Al^{3+} \rightarrow Mg^{2+} + Fe^{3+}$
(D) $Ca^{2+} + Al^{3+} \rightarrow Na^{+} + Si^{4+}$
- 73.** Sardar Sarovar dam is a type of
- (A) Hybrid dam (B) Buttress dam
(C) Arch dam (D) Gravity dam



- 74.** Unusually wide wave-cut platform is created if the rate of sea-level rise is
- Slightly greater than the coastal uplift
 - Slightly lower than the coastal uplift
 - Significantly lower than the coastal uplift
 - Zero and coastal uplift is rapid
- 75.** Identify the passive geomorphic processes.
- Abrasion and deflation
 - Abrasion and weathering
 - Mass movement and cavitation
 - Weathering and mass movement
- 76.** Which of the following rocks make most of the upper mantle of the Earth ?
- Gabbro
 - Peridotite
 - Basalt
 - Dunite
- 77.** Thickness of sediments in the ocean basin is maximum in _____ and _____.
- Continental shelves and slopes
 - Continental slopes and rises
 - Oceanic ridges and abyssal plains
 - Abyssal floor and continental slopes
- 78.** Deepest oceanic feature encountered in the world's ocean is
- Philippine trench
 - Marianas trench
 - Japan trench
 - Tonga trench
- 79.** Identify the set of parameters that control lateral salinity distribution of surface ocean water.
- Ocean currents, prevailing winds and latitude
 - Depth of water from surface, ocean currents and prevailing winds
 - Depth of water from surface, ocean currents and latitude
 - Depth of water from surface, ocean currents, prevailing winds and latitude



- 80.** When sedimentation process results in production of minerals due to precipitation or evaporation, the class of sediment formed are referred to as _____ sediments.
- (A) Terrigenous (B) Reworked
(C) Authigenic (D) Allogenic
- 81.** Bulk of the younger crust of the earth in the time frame of last 250 Ma occurs in the
- (A) Organic Mountain belts
(B) Ocean basins
(C) Continental flood basalt terranes
(D) Collision zones
- 82.** Ocean wave energy levels will _____ with depth from the surface.
- (A) Increase
(B) Remain unchanged
(C) Decrease
(D) Fluctuate harmonically
- 83.** In the context of a thermodynamic system which of the following options comprises of a set of intensive parameters ?
- (A) m, T, δ, P (B) m, V, P, T
(C) m, δ, V, P (D) T, δ, P, μ
- 84.** The entropy of fusion in the case of quartz compared to the other rock-forming silicate minerals is
- (A) lowest (B) very high
(C) moderate (D) same
- 85.** Elements with high valency and small ionic radius e.g; Hf, Zr, Ti, Nb etc. are termed as _____ elements.
- (A) low field strength
(B) high field strength
(C) incompatible
(D) compatible



- 86.** Fugacity in thermodynamic systems is also understood by the equivalent term
- Chemical affinity of a chemical species
 - Chemical potential of a chemical species
 - Thermodynamic partial pressure
 - Partial pressure of gases in the system
- 87.** 1 mg mole of NaCl dissolved in 1 l deionized water will give ____ ppm of Na and ____ ppm of Cl in the solution.
- 0.5 and 0.5
 - 1 and 1
 - 23 and 35.5
 - 230 and 355
- 88.** The relative cosmic abundance of elements are expressed with respect to the abundance of
- Fe
 - Si
 - H
 - He
- 89.** Region within the ocean where water density changes rapidly with depth is called _____
- Halocline
 - Thermocline
 - Haplocline
 - Pycnocline
- 90.** Choose the correct arrangement of plates in increasing order of size
- Indo-Australian Plate – African Plate – Eurasian Plate – Pacific Plate
 - Pacific Plate – Eurasian Plate – African Plate – Indo-Australian Plate
 - African Plate – Indo-Australian Plate – Pacific Plate – Eurasian Plate
 - Pacific Plate – African Plate – Indo-Australian Plate – Eurasian Plate
- 91.** Which statement is true regarding a craton ?
- Mainly constituted of sedimentary rocks
 - Makes a very small structural unit of the Earth's crust
 - Are largely unaffected by later orogenies
 - Consists mainly of cambrian rocks



92. Match the following and choose the correct answer

Unit

1. System
2. Zone
3. Formation
4. Era

Classification

- a. Lithostratigraphic
- b. Chronostratigraphic
- c. Geological time scale
- d. Biostratigraphic

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

93. Choose the correctly matching combination

Formation

1. Cuddalore formation
2. Muth quartzite
3. Chari formation
4. Uttathur formation

Age

- a. Devonian
- b. Tertiary
- c. Cretaceous
- d. Jurassic

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

94. Global climate change is attributed to the atmospheric increase in two gases produced by human activities. These are :

- (A) Oxygen and Hydrogen
- (B) Ozone and Methane
- (C) Methane and Carbon dioxide
- (D) Ozone and Carbon monoxide

95. Outer core is assumed to be in fluid state because

- (A) P-waves pass through it
- (B) S-waves pass through it
- (C) P-waves cannot pass through it
- (D) S-waves cannot pass through it



- 96.** Greenhouse effect is caused due to
- (A) Blocking incoming short wave solar energy
 - (B) Absorbing incoming short wave solar energy
 - (C) Heating of Earth's stratosphere
 - (D) Absorbing outgoing long wave radiation from the Earth
- 97.** Fossils of older age deposited in rocks of younger age referred to as
- (A) derived fossils
 - (B) living fossils
 - (C) trace fossils
 - (D) misplaced fossils
- 98.** Element 'Fe' owes its significantly high cosmic abundance levels mainly due to _____
- (A) very high nuclear binding energy thereby ensuring nuclear stability
 - (B) even atomic number
 - (C) nucleosynthesis producing 'Fe' more than other elements
 - (D) even atomic mass number
- 99.** The value of C_v (heat capacity at constant volume) is always
- (A) lesser than C_p value (heat capacity at constant P)
 - (B) greater than C_p value
 - (C) lesser or greater than C_p based on the value of isobaric thermal expansion " α "
 - (D) lesser or greater than C_p based on the value of isothermal compression " β "
- 100.** PDB stands for
- (A) Permian Dee Belemnite
 - (B) Post Devonian Belemnite
 - (C) Pre Devonian Belemnite
 - (D) Pee Dee Belemnite
-



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