

<b>SUBJECT CODE</b>	<b>SUBJECT</b>	<b>PAPER</b>																
<b>A-08-02</b>	<b>EARTH SCIENCE</b> (EARTH, ATMOSPHERIC, OCEAN AND PLANETARY SCIENCE)	<b>II</b>																
<b>HALL TICKET NUMBER</b>		<b>QUESTION BOOKLET NUMBER</b>																
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<b>OMR SHEET NUMBER</b>																		
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<b>DURATION</b>	<b>MAXIMUM MARKS</b>	<b>NUMBER OF PAGES</b>	<b>NUMBER OF QUESTIONS</b>															
<b>1 HOUR 15 MINUTES</b>	<b>100</b>	<b>12</b>	<b>50</b>															

This is to certify that, the entries made in the above portion are correctly written and verified.

**Candidates Signature**

**Name and Signature of Invigilator**

**Instructions for the Candidates**

**అభ్యర్థులకు సూచనలు**

- Write your Hall Ticket Number in the space provided on the top of this page.
- This paper consists of fifty multiple-choice type of questions.
- 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** :
  - To have access to the Question Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal and do not accept an open booklet.
  - Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.**
  - After this verification is over, the Test Booklet Number should be entered in the OMR Sheet and the OMR Sheet Number should be entered on this Test Booklet.
- Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.
 

**Example:** (A) (B) (C) (D)

where (C) is the correct response.
- Your responses to the items are to be indicated in the **OMR Answer Sheet given to you**. If you mark at any place other than in the circle in the Answer Sheet, it will not be evaluated.
- Read instructions given inside carefully.
- Rough Work is to be done in the end of this booklet.
- If you write your name or put any mark on any part of the OMR Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, you will render yourself liable to disqualification.
- The candidate must handover the OMR Answer Sheet to the invigilators at the end of the examination compulsorily** and must not carry it with you outside the Examination Hall. The candidate is allowed to take away the carbon copy of OMR Sheet and used Question paper booklet at the end of the examination.
- Use only Blue/Black Ball point pen.**
- Use of any calculator or log table etc., is prohibited.**
- There is no negative marks for incorrect answers.**

- ఈ పుట పై బాగంలో ఇవ్వబడిన స్థలంలో మీ హాల్ టికెట్ నంబరు రాయండి.
- ఈ ప్రశ్న పత్రము యాభై బహుళైచ్ఛిక ప్రశ్నలను కలిగి ఉంది.
- పరీక్ష ప్రారంభమున ఈ ప్రశ్నపత్రము మీకు ఇవ్వబడుతుంది. మొదటి ఐదు నిమిషములలో ఈ ప్రశ్నపత్రమును తెరిచి కింద తెలిపిన అంశాలను తప్పనిసరిగా సరిచూసుకోండి.
  - ఈ ప్రశ్న పత్రమును చూడడానికి కవర్ పేజీ అంచును ఉన్న కాగితపు సీలును చించండి. స్టికర్ సీలులేని మరియు ఇదివరకే తెరిచి ఉన్న ప్రశ్నపత్రమును మీరు అంగీకరించవద్దు.
  - కవరు పేజీ పై ముద్రించిన సమాచారం ప్రకారం ఈ ప్రశ్నపత్రములోని పేజీల సంఖ్యను మరియు ప్రశ్నల సంఖ్యను సరిచూసుకోండి. పేజీల సంఖ్యకు సంబంధించి గానీ లేదా సూచించిన సంఖ్యలో ప్రశ్నలు లేకపోవుట లేదా నిజప్రతి కాకపోవుట లేదా ప్రశ్నలు క్రమసంబద్ధతలో లేకపోవుట లేదా ఏదైనా తేడాలుండటం వంటి దోషప్రారంభమైన ప్రశ్న పత్రాన్ని వెంటనే మొదటి ఐదు నిమిషాల్లో పరీక్షా పర్యవేక్షకునికి తిరిగి ఇచ్చివేసి దానికి బదులుగా సరిగా ఉన్న ప్రశ్నపత్రాన్ని తీసుకోండి. తదనంతరం ప్రశ్నపత్రము మార్చబడదు అదనపు సమయం ఇవ్వబడదు.
  - పై విధంగా సరిచూసుకొన్న తర్వాత ప్రశ్నపత్రం సంఖ్యను OMR పత్రము పై అదేవిధంగా OMR పత్రము సంఖ్యను ఈ ప్రశ్నపత్రము పై నిర్దిష్టస్థలంలో రాయవలెను.
- ప్రతి ప్రశ్నకు నాలుగు ప్రత్యామ్నాయ ప్రతిస్పందనలు (A), (B), (C) మరియు (D) లుగా ఇవ్వబడ్డాయి. ప్రతి ప్రశ్నకు సరైన ప్రతిస్పందనను ఎన్నుకొని కింద తెలిపిన విధంగా OMR పత్రములో ప్రతి ప్రశ్నా సంఖ్యకు ఇవ్వబడిన నాలుగు వృత్తాల్లో సరైన ప్రతిస్పందనను సూచించే వృత్తాన్ని బాల్ పాయింట్ పెన్ తో కింద తెలిపిన విధంగా పూరించాలి.
 

ఉదాహరణ : (A) (B) (C) (D)

(C) సరైన ప్రతిస్పందన అయితే
- ప్రశ్నలకు ప్రతిస్పందనలను ఈ ప్రశ్నపత్రములో ఇవ్వబడిన OMR పత్రము పైని ఇవ్వబడిన వృత్తాల్లోనే పూరించి గుర్తించాలి. అలాకాక సమాధాన పత్రంపై వేరొక చోట గుర్తిస్తే మీ ప్రతిస్పందన మూల్యాంకనం చేయబడదు.
- ప్రశ్న పత్రము లోపల ఇచ్చిన సూచనలను జాగ్రత్తగా చదవండి.
- చిత్తువనిని ప్రశ్నపత్రము చివర ఇచ్చిన ఖాళీస్థలములో చేయాలి.
- OMR పత్రము పై నిర్దిష్ట స్థలంలో సూచించవలసిన వివరాలు తప్పించి ఇతర స్థలంలో మీ గుర్తింపును తెలిపే విధంగా మీ పేరు రాయడం గానీ లేదా ఇతర చిహ్నాలను పెట్టడం గానీ చేసినట్లయితే మీ అనర్హతకు మీరే బాధ్యులవుతారు.
- పరీక్ష పూర్తయిన తర్వాత మీ OMR పత్రాన్ని తప్పనిసరిగా పరీక్ష పర్యవేక్షకుడికి ఇవ్వాలి. వాటిని పరీక్ష గది బయటకు తీసుకువెళ్లకూడదు. పరీక్ష పూర్తయిన తరువాత అభ్యర్థులు ప్రశ్న పత్రాన్ని, OMR పత్రం యొక్క కార్బన్ కాపీని తీసుకువెళ్లవచ్చు.
- నీలి/నల్ల రంగు బాల్ పాయింట్ పెన్ మాత్రమే ఉపయోగించాలి.
- లాగరిథమ్ టేబుల్స్, క్యాలిక్యులేటర్లు, ఎలక్ట్రానిక్ పరికరాలు మొదలగునవి పరీక్ష గదిలో ఉపయోగించడం నిషేధం.
- తప్పు సమాధానాలకు మార్కుల తగ్గింపు లేదు.



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**EARTH SCIENCE**  
**(Earth, Atmospheric, Ocean and Planetary Science)**  
**Paper – II**

1. The “Nebular Hypothesis” was proposed by
  - (A) Laplace
  - (B) Kant
  - (C) Kant and Laplace independently
  - (D) Kant and Laplace together
2. The temperature of the “Moho” beneath the continents ranges from
  - (A) 700° C – 900° C
  - (B) 500° C – 700° C
  - (C) 200° C – 500° C
  - (D) 150° C – 200° C
3. Mohorovicic Discontinuity is marked by
  - (A) Gradual decrease in the seismic wave velocities
  - (B) Gradual increase in the seismic wave velocities
  - (C) Abrupt decrease in the seismic wave velocities
  - (D) Abrupt increase in the seismic wave velocities
4. The seismic velocities attain their maximum value for the Earth in
  - (A) Outer Core
  - (B) Inner Core
  - (C) Lower Mantle
  - (D) Upper Mantle
5. Which one of the following is a non – radioactive isotope of Lead ?
  - (A)  $\text{Pb}^{204}$
  - (B)  $\text{Pb}^{206}$
  - (C)  $\text{Pb}^{207}$
  - (D)  $\text{Pb}^{208}$
6. Milky way is the
  - (A) Fog like star
  - (B) Band of planets
  - (C) Body of planets
  - (D) Galaxy that contains our solar system



7. The modern uses of Radioactive isotopes are :
- (A) Archaeological dating
  - (B) Medicinal uses
  - (C) Ford irradiation
  - (D) All the above
8. Geoid is
- (A) A solid generated by rotating an ellipse
  - (B) A solid for which all plane sections through one axis are ellipse
  - (C) An equipotential gravity surface of the Earth at mean sea level
  - (D) An inequipotential gravity surface of the Earth
9. The study of trace forth is known as
- (A) Ichthyology
  - (B) Ichnology
  - (C) Synecology
  - (D) Paleoecology
10. Which of the following planets has the least density ?
- (A) Mars
  - (B) Saturn
  - (C) Pluto
  - (D) Venus
11. Tridymite is formed at a temperature of approximately
- (A) 573° C
  - (B) 870° C
  - (C) 1470° C
  - (D) 1700° C
12. The largest chromite deposit in India is located at
- (A) Suvinda
  - (B) Kondapalle
  - (C) Agnigundala
  - (D) Khetri
13. Olivine alters to serpentine by addition of
- (I)  $H_2O$
  - (II)  $SiO_2$
  - (III)  $CO_2$
  - (IV) F
- The correct answer is
- (A) I and II
  - (B) I and III
  - (C) I and IV
  - (D) II and III



**14. Assertion (A) :**

Some minerals like Calcite are characterized by three sets of cleavage.

**Reason (R) :**

Presence of cleavage in minerals indicates ordered arrangement of ions in a particular plane. In the context of the above two statements, which one of the following is correct.

- (A) A is right but R is wrong
- (B) Both A and R are right
- (C) Both A and R are wrong
- (D) A is wrong but R is right

**15. Arrange the following minerals in the decreasing order of their hardness**

- (I) Fluorite
- (II) Augite
- (III) Corundum
- (IV) Quartz

**Codes :**

- A) III, IV, II, I
- B) III, II, IV, I
- C) III, I, II, IV
- D) I, II, IV, III

**16. Match the following and find the correct answer :**

**List I**

**List II**

- |                       |                 |
|-----------------------|-----------------|
| I. Pearly lustre      | 1. Chalcopyrite |
| II. Adamantine lustre | 2. Calcite      |
| III. Metallic lustre  | 3. Muscovite    |
| IV. Vitreous lustre   | 4. Diamond      |

**Codes :**

- |     | I | II | III | IV |
|-----|---|----|-----|----|
| (A) | 3 | 2  | 1   | 4  |
| (B) | 2 | 3  | 1   | 4  |
| (C) | 3 | 4  | 1   | 2  |
| (D) | 4 | 1  | 2   | 3  |

**17. Match the following :**

**List I**

**List II**

- |              |  |
|--------------|--|
| I) Hogbacks  | 1) Flat topped hills or small mountains                                    |
| II) Mesas    | 2) Erosional ridge with a long gentle slope and short steep slope on other |
| III) Cuestas | 3) Isolated masses without flat tops                                       |
| IV) Butte    | 4) Long gentle slope on one side and an abrupt slope cliff on the other.   |

- |     | I | II | III | IV |
|-----|---|----|-----|----|
| (A) | 1 | 2  | 4   | 3  |
| (B) | 2 | 3  | 4   | 1  |
| (C) | 4 | 3  | 2   | 1  |
| (D) | 2 | 1  | 4   | 3  |



18. The largest river basin of India
- (A) Ganga
  - (B) Brahmaputra
  - (C) Mahanadi
  - (D) Krishna
19. The river Narmada originates at
- (A) Satpura
  - (B) Brahmagir
  - (C) Amarkantak
  - (D) Aravallis
20. The portion of the sea enclosed within atoll is described as
- (A) Barrier reef
  - (B) Lagoon
  - (C) Fringing reef
  - (D) Bay bars
21. Folding occurs when rocks behave as
- (A) Ductile solids
  - (B) Frozen solids
  - (C) Fluids
  - (D) Brittle solids
22. Remnants of oceanic crust is represented by
- (A) Tektite
  - (B) Tholeiite
  - (C) Quartz – Tholeiite
  - (D) Ophiolite
23. Plates are made up of
- (A) Crust only
  - (B) Crust and upper mantle
  - (C) Crust and whole of mantle
  - (D) Crust, mantle and core
24. Intense structural deformation of the earth's crust associated with plate tectonics is referred to
- (A) Folding
  - (B) Faulting
  - (C) Orogeny
  - (D) Warping
25. Shallow focus earth quakes are generally due to
- (A) Normal faulting
  - (B) Reverse faulting
  - (C) Thrust faulting
  - (D) Gravity faulting



26. Gravity faults are formed due to
- (A) Compressive stress regime
  - (B) Tensile stress regime
  - (C) Shear stress regime
  - (D) Effects of torsional forces
27. Strike slip faults of very deep – origin are
- (A) Transcurrent faults
  - (B) Strike – faults
  - (C) Dip slip fault
  - (D) Oblique faults
28. Decollement is a type of
- (A) Fold
  - (B) Fault
  - (C) Joint
  - (D) Unconformity
29. Thermal remanent magnetism is acquired when mineral is cooled
- (A) Above the curic temperature
  - (B) Below the curic temperature
  - (C) At curic temperature
  - (D) Randomly
30. The latest theory explaining plate tectonics is
- (A) Triple Point Theory
  - (B) Slab – Pull Theory
  - (C) Magnetic Theory
  - (D) Expanding earth hypothesis
31. Ozone is formed primarily in the tropical Latitudes at a height above \_\_\_\_\_ Kms.
- (A) 15
  - (B) 25
  - (C) 10
  - (D) 12
32. The salinity of the Red sea is high due to the process of
- I. High evaporation
  - II. Low inflow from streams
  - III. Low precipitation
  - IV. Salt diapirism in the sea flour
- (A) I, II, IV
  - (B) I, II, III
  - (C) II, III, IV
  - (D) I, IV, III



33. Sachi disk is used to measure \_\_\_\_\_ of sea.
- (A) Salinity
  - (B) Temperature
  - (C) Colour
  - (D) Density
34. A Body of coral reef occurring approximately as a ring with a shallow body of marine water is turned as \_\_\_\_\_
- (A) Lagoon
  - (B) Attol
  - (C) Ridge
  - (D) All
35. The average height of tropical Easterly jet stream during June through September is \_\_\_\_\_ Kms.
- (A) 10
  - (B) 12
  - (C) 16
  - (D) 21
36. Indian Ocean Dipole has an apparent relationship with the \_\_\_\_\_ monsoon rainfall.
- (A) Summer
  - (B) Winter
  - (C) A and B
  - (D) None
37. Most clouding form in association with the following processes of \_\_\_\_\_
- (A) Expansion and cooling of ascending air
  - (B) Expansion of air
  - (C) Cooling of air
  - (D) All
38. Present level of CO<sub>2</sub> in the atmosphere is about \_\_\_\_\_ ppmv
- (A) 250
  - (B) 300
  - (C) 400
  - (D) 500
39. Tropical cyclones over the Bay of Bengal are most likely to move in \_\_\_\_\_ direction during April and May.
- (A) North ward
  - (B) North west ward
  - (C) South ward
  - (D) West ward





40. Conditional instability of the atmosphere is represented by \_\_\_\_\_

- (A)  $T_s < r < T$
- (B)  $T_s < r$
- (C)  $r > T$
- (D)  $T_s < T$

41. **Assertion (A)** : Extraction of Natural resources like Minerals and Hydrocarbons has impacts on Environment leading to ill effects.

**Reason (R)** : Addition of acid fumes and toxic gases to atmosphere, pollution of land by acid drainage, heavy metals concentration in water courses, mine fires, land subsidence and conflicts with rights of the people living nearby mines are the consequences of Natural resource exploitation.

- (A) Both A and R are false
- (B) Both A and R are true, but R is insufficient explanation
- (C) Both A and R are true and R is sufficient explanation
- (D) A is true but R is false

42. Manganese Nodules contain

- (A) Only Manganese
- (B) Manganese and iron
- (C) Manganese and gas hydrate
- (D) Manganese , Iron, Nickel, Copper and Zinc

43. Which of these is not a benthonic environment ?

- (A) Littoral
- (B) Neritic
- (C) Bathyl
- (D) Hadal

44. Total Dissolved Salts (TDS) in drinking water should be close to

- (A) 500 ppm
- (B) Zero ppm
- (C) 5,000 ppm
- (D) 15,000 ppm

45. Electromagnetic spectrum, used in remote sensing, user wave lengths ranging from

- (A)  $10^4$  meters to  $1A^\circ$
- (B)  $10^{11}$  meters to  $0.1 A^\circ$
- (C)  $10^7$  meters to  $0.1 A^\circ$
- (D)  $10^{14}$  meters to  $0.001 A^\circ$



**46. Assertion (A) :** Earthquakes can be predicted precisely

**Reason (R) :** Areas prone to earthquakes can often be identified with estimates like maximum size and repeat interval

- (A) Both A and R are true and R is the sufficient explanation
- (B) Both A and R are true, but R is insufficient explanation
- (C) A is true but R is false
- (D) A is false but R is true

**47. Assertion (A) :** Ground water moves through Aquifers. Monitoring for Aquifer contamination is important task.

**Reason (R) :** Most aquifers are recharged where they are connected to the surface.

- (A) Both A and R are true and R is complete explanation
- (B) Both A and R are true, but R is not a complete explanation
- (C) A is true but R is false
- (D) A is false but R is true

**48.** Out of the four carbon isotopes,  $C^{10}$  to  $C^{13}$ , one is more abundant

- (A)  $C^{12}$
- (B)  $C^{11}$
- (C)  $C^{10}$
- (D)  $C^{13}$

**49.** The Bombay High oil field is

- (A) Reverse fault
- (B) Doubly plunging Anticline
- (C) Thrust fault
- (D) Normal fault

**50.** Ghyben – Herz'sberg relationship says, for every meter of fresh water in the aquifer above sealevel, there is \_\_\_\_\_ lens of fresh water below sealevel.

- (A) 30 m
- (B) 20 m
- (C) 10 m
- (D) 40 m



**Space for Rough Work**



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