

Test Booklet No.

प्रश्नपत्रिका क्र.

F

Paper-II

EARTH, ATMOSPHERIC, OCEAN & PLANETARY SCIENCE

Signature and Name of Invigilator

Seat No.

(In figures as in Admit Card)

1. (Signature)

(Name)

2. (Signature)

(Name)

Seat No.

(In words)

OMR Sheet No.

(To be filled by the Candidate)

AUG - 35215

Time Allowed : 1¼ Hours]

[Maximum Marks : 100

Number of Pages in this Booklet : 16

Number of Questions in this Booklet : 50

Instructions for the Candidates

- Write your Seat No. and OMR Sheet No. in the space provided on the top of this page.
- This paper consists of 50 objective type questions. Each question will carry two marks. All questions of Paper-II will be compulsory, covering entire syllabus (including all electives, without options).
- At the commencement of examination, the question booklet will be given to the student. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as follows :
 - 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 or 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 missing pages/questions or questions repeated or not in serial order or any other discrepancy should not be accepted and correct booklet should be obtained from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given. The same may please be noted.**
 - After this verification is over, the OMR Sheet Number should be entered on this Test Booklet.
- Each question 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 : where (C) is the correct response.

(A)

(B)

(C)

(D)
- Your responses to the items are to be indicated in the **OMR Sheet given inside the Booklet only**. If you mark at any place other than in the circle in the OMR Sheet, it will not be evaluated.
- Read instructions given inside carefully.
- Rough Work is to be done at the end of this booklet.
- If you write your Name, Seat Number, Phone Number or put any mark on any part of the OMR Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
- You have to return original OMR Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry the Test Booklet and duplicate copy of OMR Sheet on conclusion of examination.
- Use only Blue/Black Ball point pen.**
- Use of any calculator or log table, etc., is prohibited.**
- There is no negative marking for incorrect answers.**

विद्यार्थ्यांसाठी महत्वाच्या सूचना

- परिक्षार्थीनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात लिहावा. तसेच आपणांस दिलेल्या उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
- सदर प्रश्नपत्रिकेत 50 बहुपर्यायी प्रश्न आहेत. प्रत्येक प्रश्नास दोन गुण आहेत. या प्रश्नपत्रिकेतील सर्व प्रश्न सोडविणे अनिवार्य आहे. सदरचे प्रश्न हे या विषयाच्या संपूर्ण अभ्यासक्रमावर आधारित आहेत.
- परीक्षा सुरु झाल्यावर विद्यार्थ्यांला प्रश्नपत्रिका दिली जाईल. सुरुवातीच्या 5 मिनीटांमध्ये आपण सदर प्रश्नपत्रिका उघडून खालील बाबी अवश्य तपासून पहाव्यात.
 - प्रश्नपत्रिका उघडण्यासाठी प्रश्नपत्रिकेवर लावलेले सील उघडावे. सील नसलेली किंवा सील उघडलेली प्रश्नपत्रिका स्विकारू नये.
 - पहिल्या पृष्ठावर नमूद केल्याप्रमाणे प्रश्नपत्रिकेची एकूण पृष्ठे तसेच प्रश्नपत्रिकेतील एकूण प्रश्नांची संख्या पडताळून पहावी. पृष्ठे कमी असलेली/कमी प्रश्न असलेली/प्रश्नांचा चुकीचा क्रम असलेली किंवा इतर त्रुटी असलेली सदोष प्रश्नपत्रिका सुरुवातीच्या 5 मिनिटातच पर्यवेक्षकाला परत देऊन दुसरी प्रश्नपत्रिका मागवून घ्यावी. त्यानंतर प्रश्नपत्रिका बदलून मिळणार नाही तसेच वेळही वाढवून मिळणार नाही याची कृपया विद्यार्थ्यांनी नोंद घ्यावी.
 - वरीलप्रमाणे सर्व पडताळून पहिल्यानंतरच प्रश्नपत्रिकेवर ओ.एम.आर. उत्तरपत्रिकेचा नंबर लिहावा.
- प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळ/निळ्या करावा.
उदा. : जर (C) हे योग्य उत्तर असेल तर.

(A)

(B)

(C)

(D)
- या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे ओ.एम.आर. उत्तरपत्रिकेतच दर्शवावीत. इतर ठिकाणी लिहीलेली उत्तरे तपासली जाणार नाहीत.
- आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
- प्रश्नपत्रिकेच्या शेवटी जोडलेल्या को-या पानावरच कच्चे काम करावे.
- जर आपण ओ.एम.आर. वर नमूद केलेल्या ठिकाणा व्यतिरीक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटले अशी कोणतीही खूप केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमागाचा अवलंब केल्यास विद्यार्थ्यांला परीक्षेस अपात्र ठरविण्यात येईल.
- परीक्षा संपल्यानंतर विद्यार्थ्यांनि मूळ ओ.एम.आर. उत्तरपत्रिका पर्यवेक्षकांकडे परत करणे आवश्यक आहे. तथापी, प्रश्नपत्रिका व ओ.एम.आर. उत्तरपत्रिकेची द्वितीय प्रत आपल्याबरोबर नेण्यास विद्यार्थ्यांना परवानगी आहे.
- फक्त निळ्या किंवा काळ्या बॉल पेनचाच वापर करावा.**
- कॅलक्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही.**
- चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही.**

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Earth, Atmospheric, Ocean and Planetary Science
Paper II

Time Allowed : 75 Minutes]

[Maximum Marks : 100

Note : This Paper contains **Fifty (50)** multiple choice questions. Each question carries **Two (2)** marks. Attempt *All* questions.

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- | | |
|---|--|
| <p>1. The primary process by which nutrients in deep sea return to the surface water is :</p> <p>(A) Heating of surface water</p> <p>(B) Upwelling</p> <p>(C) Down welling</p> <p>(D) Surfacing of deep dwelling organism</p> <p>2. The rock komatiite is identified on the basis of its characteristic texture.</p> <p>(A) Porphyritic</p> <p>(B) Spherulitic</p> <p>(C) Spenifex</p> <p>(D) Orbicular</p> | <p>3. Which of the following minerals has two different values of hardness in different orientation ?</p> <p>(A) Quartz</p> <p>(B) Feldspar</p> <p>(C) Fluorite</p> <p>(D) Kyanite</p> <p>4. Which one of the following minerals has no cleavage ?</p> <p>(A) Calcite</p> <p>(B) Garnet</p> <p>(C) Mica</p> <p>(D) Kyanite</p> |
|---|--|
-

5. The repetition of strata can be achieved by :
- (A) Only folding
 - (B) Only faulting
 - (C) Both folding and faulting
 - (D) Only erosion
6. The most abundant mineral of the earth is :
- (A) Rutile
 - (B) Anatage
 - (C) Olivine
 - (D) Perovskite
7. In the direction of the transport, the grain size of the sediment :
- (A) Increases
 - (B) Decreases
 - (C) Remains uniform
 - (D) First increases and then decreases
8. The layer of loose, heterogeneous weathered material lying on the top of rocky hill slopes is :
- (A) Soil
 - (B) Weathered debris
 - (C) Regolith
 - (D) Alluvium
9. On the global scale, hot deserts in the southern hemisphere are found on :
- (A) Western parts of continents
 - (B) Eastern parts of continents
 - (C) Interior parts of continents
 - (D) Only on elevated cratonic areas

10. The earthquakes generated along inclined surface of the subducting plate, occur in :
- (A) Wadatti-Benioff zone
 - (B) Seismo-Subduction zone
 - (C) Inclined epicentre zone
 - (D) Tomographic angular zone
11. A saturated permeable geological rock formation that can transmit large quantities of water under normal hydraulic gradient is called :
- (A) Aquifer
 - (B) Aquiclude
 - (C) Aquitard
 - (D) Aquifuse
12. Which one of the following geophysical methods is widely used in groundwater exploration ?
- (A) Electrical induce polarization
 - (B) Electrical self-potential method
 - (C) Electrical resistivity method
 - (D) Seismic refraction method
13. The Hadley Circulation involves ascending motion near the :
- (A) Sub-tropical Latitudes
 - (B) Mid Latitudes
 - (C) Equator
 - (D) Polar Latitudes

14. Which of these are fundamental forces in the atmosphere ?
- (A) Coriolis force and Centrifugal force
 - (B) Pressure gradient force, Gravitational force and Frictional force
 - (C) Pressure gradient force, Gravitational force and Coriolis force
 - (D) Gravitational force, Pressure gradient force, Coriolis force and Centrifugal force
15. Which of the following is *not* a green-house gas ?
- (A) Carbon dioxide
 - (B) Ozone
 - (C) Argon
 - (D) Methane
16. In the cloud classification, which of these cloud types come under high clouds ?
- (A) Cumulus, Stratocumulus, Stratus
 - (B) Cirrus, Cirrostratus, Cirrocumulus
 - (C) Cirrus, Stratus, Altocumulus
 - (D) Stratocumulus, Altocumulus, Stratus
17. The value of Standard Atmospheric Pressure at mean sea level is :
- (A) 1013.25 hPa
 - (B) 950.13 hPa
 - (C) 990.25 hPa
 - (D) 100.25 hPa

18. The westward drift of the geomagnetic field is because of :
- (A) Differential rotation of core
 - (B) Anticlockwise rotation of the earth
 - (C) Pole to equator geomagnetic variation
 - (D) Equatorial geomagnetic field
19. A part of the Mid-atlantic ridge exposed above the sea-level is in :
- (A) North America
 - (B) Canada
 - (C) Iceland
 - (D) Africa
20. The mineral allanite belongs to :
- (A) Feldspar Group
 - (B) Epidote Group
 - (C) Amphibole Group
 - (D) Pyroxene Group
21. The movement of material is 'rotational' in case of :
- (A) Rock-topple
 - (B) Rock-slide
 - (C) Rock-fall
 - (D) Rock-slump
22. Plasticity Index is calculated by formula :
- (A) Liquid limit – Plastic limit
 - (B) Liquid limit/Plastic limit
 - (C) Plastic limit – Shrinkage limit
 - (D) Plastic limit/Shrinkage limit

23. The difference among conglomerate, tillite and fanglomerate essentially

lies in :

- (A) Clast size
- (B) Nature of matrix
- (C) Environment of deposition
- (D) Age

24. In the curve-matching technique if

$\rho_1 > \rho_2 > \rho_3$, the curve type is :

- (A) 'Q' type
- (B) 'H' type
- (C) 'A' type
- (D) 'K' type

25. The dry adiabatic lapse rate in the atmosphere has a value of :

- (A) 1.8 deg km⁻¹
- (B) 4.8 deg km⁻¹
- (C) 6.8 deg km⁻¹
- (D) 9.8 deg km⁻¹

26. The trace element, that discriminates plume and arc sources is :

- (A) Nb
- (B) Sr
- (C) Ba
- (D) Th

27. The average density of the Earth is :

- (A) 5.52 gm/cm^3
- (B) 8.52 gm/cm^3
- (C) 3.83 gm/cm^3
- (D) 6.28 gm/cm^3

28. The gossan deposits are commonly formed due to :

- (A) Replacement
- (B) Contact metasomatism
- (C) Magmatic differentiation
- (D) Supergene sulphide enrichment

29. Most rivers in the Himalayan System are :

- (A) Antecedent
- (B) Consequent
- (C) Obsequent
- (D) Subsequent

30. Major period of sedimentation in deep sea fan is during :

- (A) Sea level high stand
- (B) Sea level low stand
- (C) Inter-glacials
- (D) Mountain building

31. The phenomenon of net flow of water at an angle to blowing wind on the ocean surface in northern hemisphere is referred to :

- (A) Thermohaline circulation
- (B) Longshore current
- (C) Ekman transport
- (D) Upwelling

32. Marine transgression in Cauvery basin occurred in :

- (A) Cenomanian
- (B) Barremian
- (C) Berriasian
- (D) Valanginian

33. Palana lignite is in :

- (A) Uttar Pradesh
- (B) Bihar
- (C) Rajasthan
- (D) Gujarat

34. Important toxic pollutants in groundwater are :

- (A) Cr, Cd, Mg
- (B) Na, K, Ca
- (C) Au, Ag, Pb
- (D) Mg, Fe, Mn

35. The Malwa Plateau is formed of :

- (A) Vindhya
- (B) Deccan Volcanism
- (C) Bundelkhand Gneiss
- (D) Gondwanas

36. Bode's law states that :

- (A) Each planet is roughly twice as far from the sun as its closest neighbourhood
- (B) Each planet is far from sun in the logarithmic sequence
- (C) Distance of planet from sun is square of its radius
- (D) Radius of planet is square root of its mass

37. One of the mass extinctions occurred

in :

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

38. The continent-continent collision

between Indian and Eurasian plates

was initiated at about :

- (A) 10 Ma
- (B) 25 Ma
- (C) 55 Ma
- (D) 155 Ma

39. The magnetic method of prospecting depends on detecting the :
- (A) Magnetic susceptibility of ore body
 - (B) Chemical composition of ores
 - (C) Structure of ore deposits
 - (D) Anomalies in the earth's magnetic field
40. The deformation processes in the upper crust are chiefly controlled by :
- (A) Ductile processes
 - (B) Brittle processes
 - (C) Ductile-Brittle processes
 - (D) Plastic-deformational processes
41. The highest spreading rates of Mid-oceanic ridge segment are observed in :
- (A) East Pacific rise
 - (B) Indian Ocean rise
 - (C) Mid-Atlantic ridge
 - (D) Central Indian Ocean ridge
42. The gravity anomaly across the mountain chain is strongly negative due to :
- (A) Lithospheric melting
 - (B) Low density root zone
 - (C) Elevated Moho
 - (D) High density root zone

43. Iron rich duricrust is known as :

- (A) Ferricrete
- (B) Alcrete
- (C) Calcrete
- (D) Silcrete

44. In some materials the strain does not reach a stable value immediately after application of stress, but rises gradually to a stable value. Such materials are called :

- (A) Plastic
- (B) Anelastic
- (C) Ductile
- (D) Brittle

45. Which one of the following rocks is often used as roofing stone ?

- (A) Cuddapah slabs
- (B) Basalt
- (C) Dolerite
- (D) Laterite

46. The monument "Gateway of India" is built of :

- (A) Marble
- (B) Limestone
- (C) Basalt
- (D) Granite

47. Coccolithophores are :

- (A) Heterotrophs
- (B) Autotrophs
- (C) Decomposers
- (D) Carnivorous

48. Ladder vein, boxwork and cavity filling structures are common in :

- (A) Hydrothermal deposits
- (B) Magmatic segregation
- (C) Magmatic differentiation
- (D) Evaporitic deposits

49. Kolar gold field is located in :

- (A) Maharashtra
- (B) Karnataka
- (C) Rajasthan
- (D) Orissa

50. Which one of the following era represents the longest time interval ?

- (A) Precambrian
- (B) Palaeozoic
- (C) Mesozoic
- (D) Cenozoic

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ROUGH WORK

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