

Earth, Atmospheric, Ocean and Planetary Sciences
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. Basalts containing more than 5% normative nepheline are named :</p> <p>(A) Beforsite</p> <p>(B) Nephelinite</p> <p>(C) Ankaramites</p> <p>(D) Basanite</p> <p>2. Masuda-Coryell diagram is a diagram that plots :</p> <p>(A) Chondrite normalised REE concentrations Vs. atomic nos.</p> <p>(B) REE conc. normalised to MORB reference values Vs. atomic nos.</p> <p>(C) REE concentrations normalised to NASC values Vs. atomic nos.</p> <p>(D) Any trace element concentrations normalised to chondrite reference values Vs. atomic nos.</p> | <p>3. The Panjal volcanics in Kashmir basin, stratigraphically represents :</p> <p>(A) Lower Permian</p> <p>(B) Lower Carboniferous</p> <p>(C) Devonian</p> <p>(D) Cambrian</p> <p>4. NTU is the unit for :</p> <p>(A) Turbidity</p> <p>(B) Total Hardness</p> <p>(C) Electrical conductivity</p> <p>(D) pH</p> |
|--|---|

5. The porous or fractured and permeable zone of soil or rock saturated with freely flowing interstitial water capable of supplying adequate quantities of water to wells and springs is called :
- (A) Subsurface spring
(B) Aquiclude
(C) Aquifer
(D) Interstitial water
6. Graded conditions along a coast are reflected by :
- (A) Continuous sea cliffs.
(B) Multiple wave-cut platforms on headlands
(C) Continuous beaches
(D) Water level weathering
7. Uvarovite is a type of :
- (A) Mica
(B) Olivine
(C) Garnet
(D) Pyroxenoid
8. The single largest bedded type deposit of baryte in India is located at in A.P.
- (A) Mangampetta
(B) Khetri
(C) Hyderabad
(D) Secunderabad
9. The depth at which the P-wave velocity exceeds 7.6 km/s is called :
- (A) Seismological Moho
(B) Gutenberg Seismic discontinuity
(C) Conrad discontinuity
(D) D¹¹ layer

10. Apparent dip of a bed is
the true dip.
- (A) more than
 - (B) less than
 - (C) either more or less than
 - (D) equal to
11. Ostracod appendages bear fine
chitinous bristles are called.....
- (A) expoda
 - (B) podia
 - (C) setae
 - (D) flagellae
12. Characteristic mineral pair of
kimberlites is :
- (A) Olivine—chrome diopside—
phlogophite
 - (B) K-feldspar—garnet—ortho-
pyroxene
 - (C) Plagioclase—clinopyroxene—
garnet
 - (D) Cordierite—sillimanite—
orthopyroxene
13. Mullite-Cordierite-orthopyroxene
association is characterised by :
- (A) Sanidinite
 - (B) Pyroxene hornfels
 - (C) Hornblende hornfels
 - (D) Albite-Epidote hornfels
14. Features typical of karst topography
are :
- (A) Cavities, caves, sinkholes and
disappearing stream
 - (B) Saltwater incursions and cone
of depression
 - (C) Aquiclude and artesian spring
 - (D) Duricrusts and arid landscape

15. The rift basins of Kutch, Cambay and Narmada are supposed to have opened up successively as a result of drifting of the Indian craton after its detachment from Gondwana land in the :
- (A) anticlockwise, Late Triassic, Early Jurassic
 - (B) clockwise, Early Cretaceous
 - (C) Counter clockwise, Late Triassic, Early Jurassic
 - (D) Rift apart and continental drifting, Early Quaternary
16. Quartz wacke can be defined as :
- (A) Calcareous marl with greater than 15% of quartz
 - (B) Sandstone with a fairly large proportion (say >12.5%) of fine grained matrix, wide range of grain size variation, lack of rounding and sorting of the frame work grains
 - (C) Dominated by quartz and feldspar but of volcanic origin
 - (D) Mud with clay enrichment and porosity >10%
17. Feldspathoids are typically present in a magmatic rock that is :
- (A) Silica-oversaturated
 - (B) Silica-saturated
 - (C) Silica-undersaturated
 - (D) Rich in magnesium
18. The passage of seismic wave through a medium and across interfaces between adjacent media is well explained by :
- (A) Snails law
 - (B) Huygen's Principle
 - (C) Fresnd Diffraction
 - (D) Bath's Equation

19. If 'T' is the planet's period of orbit and 'a' is the semi-major axis of the orbit then the Kepler's law of planetary motion states :

(A) $a = \sqrt{T^3}$

(B) $T^2 = a^3$

(C) $T = \frac{1}{a^2}$

(D) $a = \frac{1}{3}(T)^2$

20. The study of organic walled microfossils is called as :

(A) Micropalaeontology

(B) Palynology

(C) Ichinology

(D) Palaeontology

21. The first hominids to migrate out of Africa were :

(A) Homo erectus about 50 Ka

(B) Homo sapiens sapiens 1 million years ago

(C) Homo habilis about 1.8 million years ago

(D) Australopithecus robustus 1.3 million years ago

22. The greatest recorded mass extinction to affect earth occurred at the end of period.

(A) Ordovician

(B) Cretaceous

(C) Permian

(D) Pleistocene

23. The cambrian invertebrate community was dominated by three major group :
- (A) Trilobites, corals, echinoderms
 - (B) Trilobites, brachiopods and archaeocyathids
 - (C) Gastropods, corals, beachrocks, belemnites
 - (D) Brachiopods, corals, archaeocyathids
24. The rates of sea floor spreading can be determined based on magnetic anomalies by :
- (A) Width of the anomaly
 - (B) Frequency of the anomaly
 - (C) Period of the anomaly
 - (D) Width \times length of anomaly
25. Ocean Island Basalt (OIB) represents :
- (A) Hotspot magmatism associated with plume
 - (B) Magmatism in subduction zone
 - (C) Magmatism in rift setting
 - (D) Island arc
26. The southern junction between the Indian and Eurasian plates in the Himalaya has been designated as :
- (A) Central Indian tectonic zone
 - (B) Indus Tsangpo Suture zone
 - (C) Main Central thrust
 - (D) Tso Morari Crystalline

27. The Mesoproterozoic-Neoproterozoic sedimentary basins in the Peninsular India are known as :

- (A) Purana
- (B) Dharwars
- (C) Indo-Gangetic plains
- (D) Siwalik

28. Which one of the following formation does *not* represent the Cretaceous of Gondwanas :

- (A) Jabalpur Formation.
- (B) Chikiala Formation.
- (C) Gangapur Formation.
- (D) Panchet Formation.

29. Which one of the following statements about stream velocity is *correct* :

- (A) Along straight stream stretches stream velocity is highest along the banks.
- (B) The zone of highest velocity is located along the inner bank in a meandering stream.
- (C) The zone of highest velocity is located along the outer bank in a meandering stream.
- (D) The zone of highest velocity is located at the centre in a meandering stream.

30. One of the following is certainly *not* associated with hammada type of desert :

- (A) Yardang
- (B) Pediment
- (C) Inselberg
- (D) Barchan dunes

31. Abundance of nitrates and phosphates in water encourages the growth of plants including algae.

This condition is known as :

- (A) Eutrophication
- (B) Degeneration
- (C) Stagnation
- (D) Decomposition

32. Lahars belong to one of the following types of mass movements :

- (A) Slump
- (B) Rock slide
- (C) Debris flow
- (D) Creep

33. Identify the correct sequence of soil horizons from the surface downward :

- (A) O—A—E—B—C
- (B) A—O—B—E—C
- (C) O—A—B—C—E
- (D) A—B—C—E—O

34. A wall made of earth materials of steel or timber sheet piling or of a combination of various materials, to cover an engineering structure to be built in an area covered with water is called :

- (A) Caissons
- (B) Cofferdams
- (C) Spillway
- (D) Jetties

35. The rapid movement of shallow non-cohesive or loose material down a steep slope following heavy rainfall is called :

- (A) Creep
- (B) Debris flow
- (C) Debris flood
- (D) Debris slide

36. The most important aviation hazard during summer season over North-West India is :

- (A) Dust storm
- (B) Fog
- (C) Heavy Rain
- (D) Icing

37. The magnitude of Coriolis force :

- (A) Increases with latitude
- (B) Remains constant with latitude
- (C) Decreases with latitude
- (D) Does not depend on latitude

38. The concentration of ozone is maximum in :

- (A) Troposphere
- (B) Mesosphere
- (C) Stratosphere
- (D) Thermosphere

39. Capillary rise is maximum in :

- (A) Silt
- (B) Fine sand
- (C) Medium sand
- (D) Coarse sand

40. Clay and humus have :

- (A) Higher water holding capacity
- (B) Lesser water holding capacity
- (C) Higher water transmitting capacity
- (D) Lesser water transmitting capacity

41. What is electronegativity :

- (A) The ability of an atom to attract electrons
- (B) The ability of an atom to attract protons
- (C) The ability of an atom to attract neutrons
- (D) The ability of an atom to repel protons

42. ^{143}Nd produced by decay of :

- (A) ^{147}Sm
- (B) ^{144}Nd
- (C) ^{149}Nd
- (D) ^{142}Nd

43. Belka Pahad in the Sirohi district, where weak wollastonite is reported is considered to be a typical :

- (A) Skarn deposit
- (B) Sedex type deposit
- (C) Cumulate deposit
- (D) Massive Volcanic deposit

44. Bailadilla Iron ore deposit is situated in :

- (A) Bihar
- (B) Maharashtra
- (C) Chhattisgarh
- (D) Jharkhand

45. The study of Palaeomagnetism is based on the assumption that the time-averaged geomagnetic field corresponds to :

- (A) Modern field of the earth
- (B) Geomagnetic quadrupole
- (C) Geocentric monopole
- (D) An axial geocentric dipole

46. Amongst sandstone, alluvium, granites, graphites and quartzites; the highest electrical resistivity is often shown by :

- (A) Granites
- (B) Graphites
- (C) Alluvium
- (D) Quartzites

47. Crystals having a single 3-fold, $\bar{3}$, or 6-fold axis belong to crystal system.

- (A) Cubic
- (B) Orthorhombic
- (C) Tetragonal
- (D) Hexagonal

48. Ankermanite is an example of :

- (A) Cyclosilicate
- (B) Tectosilicate
- (C) Sorosilicate
- (D) Nesosilicate

49. Healthy vegetation appears on false-colour composite image as :

- (A) Blue
- (B) Red
- (C) Green
- (D) Black

50. If there are more number of higher values in the dataset than the distribution is :

- (A) Symmetric
- (B) Positively skewed
- (C) Negatively skewed
- (D) Leptokurtic

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ROUGH WORK

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Test Booklet No.

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Signature of Invigilators

1.

2.

Seat No.

Earth, Atmospheric, Ocean (In figures as in Admit Card)

& Planetary Sciences

Seat No. (In words)

NOV - 35211

Paper II

Answer Sheet No.

Time Allowed : 75 Minutes]

[Maximum Marks : 100

Number of Pages in this Booklet : **16**

Instructions for Candidates

1. Write your Seat Number in the space provided on the top of this page. Write your Answer Sheet No. in the space provided for Answer Sheet No. on the top of this page.
2. Write and darken Test Booklet No. on OMR Answer Sheet.
3. This paper consists of **Fifty (50)** multiple choice type of questions.
4. Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the responses as indicated below on the correct response against each item.
Example : (A) (B) (C) (D)
Where (C) is the correct response.
5. Your responses to the items for this paper are to be indicated on the Answer Sheet only. Responses like (x) (□) (/) and **light shaded responses will not be considered/evaluated.**
6. Read instructions given inside carefully.
7. One Sheet is attached at the end of the booklet for rough work.
8. You should return the test booklet and answer sheet **both** to the invigilator at the end of the paper and should not carry any paper with you outside the examination hall.
9. Answers marked on the body of the question paper will not be evaluated.

परीक्षार्थीसाठी सूचना

1. या पानावरील वरच्या कोपऱ्यात आपला आसन क्रमांक तसेच आपणास दिलेल्या उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
2. प्रश्नपत्रिका क्रमांक OMR उत्तरपत्रिकेवर दिलेल्या रकान्यात लिहून त्याप्रमाणे काळा करावा.
3. या प्रश्नपत्रिकेत **पन्नास** बहुनिवड प्रश्न आहेत.
4. प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळा करावा.
उदा. (A) (B) (C) (D)
जर (C) हे योग्य उत्तर असेल तर.
5. या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे उत्तरपत्रिकेमध्येच द्यावीत. उत्तराच्या रकान्यामध्ये (x) (□) (/) व **अस्पष्टपणे काळे केलेले उत्तर ग्राह्य धरले जाणार नाही.**
6. आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
7. कच्च्या कामासाठी प्रश्नपत्रिकेच्या शेवटी कोरे पान जोडले आहे.
8. या पेपरची परीक्षा संपल्यानंतर प्रश्नपत्रिका व उत्तरपत्रिका **दोन्ही** पर्यवेक्षकांना परत करावी. यातील कोणताही कागद तुमच्या बरोबर परीक्षा केंद्राबाहेर नेण्यास सक्त मनाई आहे.
9. प्रश्नपत्रिकेवर दर्शविलेली उत्तरे तपासली जाणार नाहीत.