

PAPER – II
EARTH SCIENCES

Note : Attempt all the questions. Each question carries *two* (2) marks.

1. Kepler's second law states that
 - 1) The orbital radius of a planet sweeps out equal areas in equal intervals of time
 - 2) Gravitational force between two objects decreases as the distance squared
 - 3) Planets move on elliptical orbits with the Sun at one focus
 - 4) Inner planets orbit in a different direction than outer ones

2. Which geologic period ended with the second largest extinction event in the Earth's history?
 - 1) Cambrian
 - 2) Ordovician
 - 3) Cretaceous
 - 4) Permian

3. Which of the following radioactive isotopes has the shortest half-life?
 - 1) Uranium-238
 - 2) Rubidium-87
 - 3) Potassium-40
 - 4) Carbon-14

4. The Foraminifers belong to the Class
 - 1) Sporozoa
 - 2) Mastigophora
 - 3) Flagellata
 - 4) Sarcodina

5. The crystal system of Chlorite is
- 1) hexagonal
 - 2) monoclinic
 - 3) orthorhombic
 - 4) tetragonal
6. Which of the following mineral cannot be used as abrasive?
- 1) garnet
 - 2) corundum
 - 3) quartz
 - 4) gypsum
7. The age of the most bituminous coal seams of India is
- 1) Silurian
 - 2) Miocene
 - 3) Permian
 - 4) Carboniferous
8. Drainage pattern in which major streams are parallel and short tributaries join the main stream at nearly right angle is called
- 1) Dendritic
 - 2) Trellis
 - 3) Rectangular
 - 4) Parallel
9. The concept of cycle of erosion was formulated by
- 1) J. Hutton
 - 2) G.B Pratt
 - 3) W.M Davis
 - 4) Dutton

10. Find the correct match

- i) Aquifer – e) clay lenses in sand
- ii) Aquiclude – f) sandstone
- iii) Aqitard – g) basalt
- iv) Aquifuge – h) shale

- 1) i) - h), ii) – g), iii) – f), iv) – e) ;
- 2) i) - f), ii) – h), iii) – g), iv) – e) ;
- 3) i) - f), ii) – g), iii) – e), iv) – h) ;
- 4) i) - f), ii) – h), iii) – e), iv) – g) ;

11. Any change in natural ecosystem is counterbalanced by responses of the system to change is

- 1) homeostatic
- 2) ecobalance
- 3) lumbering
- 4) Jhuming

12. The term dead lakes refers to

- 1) dried lake
- 2) salty water
- 3) no biota
- 4) encroached

13. Cupola like elevations above salt plugs is a

- 1) Oil trap in anticline
- 2) Near –fault oil traps
- 3) Stratigraphic trap
- 4) Envelope structure

14. Shuttle radar Topographic mission was meant to generate
- 1) map of drought prone area
 - 2) digital elevation model
 - 3) forest cover map
 - 4) cloud cover map
15. Which is the largest sea in the World
- 1) Arabian Sea
 - 2) Bay of Bengal
 - 3) South China Sea
 - 4) Black sea
16. Hawaiian islands are located in
- 1) Indian Ocean
 - 2) Atlantic Ocean
 - 3) North Pacific Ocean
 - 4) Red Sea
17. Movement of Air through troposphere of atmosphere on a large scale is known as
- 1) Infrared circulation
 - 2) Radioactive circulation
 - 3) Sound circulation
 - 4) Atmospheric circulation
18. Atmospheric density decreases with the
- 1) Increase in longitude
 - 2) Decrease in altitude
 - 3) Increase in altitude
 - 4) Increase in latitude

19. Which one of the following is not a relief features of ocean floor?
- 1) seamount
 - 2) guyots
 - 3) atoll
 - 4) beach
20. Which is the highest lake above the sea level in the world?
- 1) lake superior
 - 2) lake panchpokhari
 - 3) lake Titicaca
 - 4) lake Tsomoriri
21. The most accurately known physical parameter in the deep Earth is
- 1) Density
 - 2) Elastic moduli
 - 3) Seismic wave velocity
 - 4) Gravity
22. Which one of the following layers of the Earth has the largest volume?
- 1) Upper Mantle
 - 2) Outer core
 - 3) Lower Mantle
 - 4) Inner Core

23. The minimum number of seismic stations needed to locate an earthquake is
- 1) 8
 - 2) 2
 - 3) 3
 - 4) 1
24. The Richter scale is used to determine the
- 1) Intensity of earthquakes
 - 2) Magnitude of earthquakes
 - 3) Damage from earthquakes
 - 4) Number of casualties in an earthquake
25. The plate boundary at western Pacific Ocean is
- 1) Consuming plate
 - 2) Divergent plate
 - 3) Accreting plate
 - 4) Convergent plate
26. Plates are essentially _____ regions of the Earth
- 1) Inert / aseismic
 - 2) Active / mobile
 - 3) Oldest / tectonic
 - 4) Recent / active

27. Which among the following constitute the moon's crust

- 1) Andesite and Granite
- 2) Andesite and Basalt
- 3) Anorthosite and Basalt
- 4) Anorthosite and Granite

28. Within which spiral arm of the Milky Way galaxy, our Solar System is situated?

- 1) Orion arm
- 2) Perseus arm
- 3) Sagittarius arm
- 4) White arm

29. The Earth is nearest to the Sun during its orbital motion on

- 1) September 23
- 2) December 21
- 3) March 21
- 4) January 3

30. The rate of heat flow in areas of active volcanism is
- 1) 10 J (cm² s)
 - 2) 50 J (cm² s)
 - 3) 15 J (cm² s)
 - 4) 5 J (cm² s)
31. What is the average density of crustal rocks above sea level?
- 1) 3.30 g/cm³
 - 2) 2.67 g/cm³
 - 3) 5.50 g/cm³
 - 4) 4.56 g/cm³
32. The term “Isostasy” was coined by
- 1) Bradley
 - 2) Newton
 - 3) Dutton
 - 4) Kepler
33. Which of the following mineral is harder than knife blade?
- 1) gypsum
 - 2) calcite
 - 3) fluorite
 - 4) quartz
34. The dominant process of heat transport in the lithosphere is
- 1) advection
 - 2) conduction
 - 3) convection
 - 4) radiation

35. Amount of the sun's energy that is absorbed by the earth's surface, clouds, and atmosphere causes warming in percentage

- 1) 60
- 2) 65
- 3) 80
- 4) 70

36. Earth's average albedo is about

- 1) 0.30
- 2) 0.45
- 3) 0.030
- 4) 0.20

37. Example of antecedent river is

- 1) Yamuna
- 2) Ganga
- 3) Brahmaputra
- 4) Godavari

38. Electrical sounding surveys give information about

- 1) depth of aquifer
- 2) lateral variation
- 3) water potential
- 4) vertical variation

39. Gossan is the Cornish word that refers to
- 1) pyrite and galena
 - 2) oxidized mass of Limonite
 - 3) hematite
 - 4) malachite
40. The deepest earthquake may have their focus at a depth of
- 1) 900 km
 - 2) 500 km
 - 3) 700 km
 - 4) 300 km
41. This layer of the earth is in liquid state
- 1) outer core
 - 2) inner core
 - 3) mantle
 - 4) crust
42. Spatial resolution is
- 1) resolving power of sensor
 - 2) ability to detect number of grey shades
 - 3) revisit capability
 - 4) number of spectra

43. Troposphere is bounded by boundary which is known as

- 1) Thermo pause
- 2) Stratopause
- 3) tropo-pause
- 4) mesopause

44. Refractive index of Air is

- 1) Less than 0
- 2) Greater than 2
- 3) Greater than 1
- 4) Less than 1

45. Earth is nearest to the sun on

- 1) 4th July
- 2) 21st June
- 3) 23rd Sep
- 4) 3rd Jan

46. Which one of the following ocean current is found in Southern hemisphere?

- 1) Oyashio current
- 2) West wind drift
- 3) Gulf stream
- 4) Canaries current

47. The discontinuity that separate lower mantle and outer core is
- 1) Cornard
 - 2) Mohorovicic
 - 3) Gutenberg
 - 4) Repetti
48. The slow, permanent and continuous deformation of materials under constant load is called
- 1) Stress stiffening
 - 2) Creep
 - 3) Work hardening
 - 4) Strain hardening
49. Strike-slip faults can also be
- 1) Dip-slip faults
 - 2) Transform faults
 - 3) Anticlines
 - 4) Syncline
50. Folds whose limbs are horizontal are known as
- 1) Horizontal layers
 - 2) Overturned folds
 - 3) Isoclinal folds
 - 4) Recumbent folds

ROUGH WORK

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