

PAPER – III
EARTH SCIENCES

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

1. Minerals of the Hexagonal system are
 - 1) The single optic is parallel to the 4 fold
 - 2) The single optic axis is parallel to the 3 fold
 - 3) They have same optical properties in all directions
 - 4) The system are optically biaxial

2. In convergent plate tectonic setting, thickest continental lithosphere is associated with
 - 1) Ocean-Ocean convergent setting
 - 2) Ocean-continent convergent setting
 - 3) Continent-continent collision setting
 - 4) Ocean-ocean divergent setting

3. Boudins shows
 - 1) Compression
 - 2) Tension
 - 3) Dilation
 - 4) Translation

4. In Cuddapah system Nagari quartzite developed in the
 - 1) Papaghni Series
 - 2) Nallamali Series
 - 3) Cheyair Series
 - 4) Kistna Series

5. The genus *Quinqueloculina* is recorded from
 - 1) Jurassic rocks of Kutch
 - 2) Limestone of Kashmir
 - 3) Tertiary formation of Assam
 - 4) Cenozoic rocks

6. Choose the descending order of nomenclature among the following
 - 1) Kingdom - Division - Class - Order - Genus - Species
 - 2) Division - Kingdom - Order - Class - Species - Genus
 - 3) Kingdom - Phylum - Class - Order - Genus - Species
 - 4) Kingdom - Class - Order - Division - Genus - Species

7. The Eutectic intergrowth of orthoclase and quartz produces
- 1) Graphic granite
 - 2) Mixed crystals
 - 3) Syenite
 - 4) Silicate melt
8. In Oceans, Calcium Compensation Depth is
- 1) 4000 m
 - 2) 6000 m
 - 3) 1000 m
 - 4) 100 m
9. The estimated number of islands in the pacific Oceans is about
- 1) 8,000
 - 2) 12,000
 - 3) 20,000
 - 4) 6,000
10. In inverse slope method of interpretation of data the electrode spacing is plotted against
- 1) V/I
 - 2) α/Pa
 - 3) M/N
 - 4) P/Pa
11. The "anticlinal" traps are classified as
- 1) Concave traps
 - 2) Convex traps
 - 3) Non-concave traps
 - 4) Non - convex traps
12. The path finder element of gold is
- 1) As
 - 2) Se
 - 3) Mo
 - 4) SO_4
13. Makrana marbles are
- 1) Older than Delhi system
 - 2) belongs to Delhi system
 - 3) of the age of Vindhya
 - 4) of the age of Malani suite

14. Microfacies refers to
- 1) Lithofacies
 - 2) Very small scale facies
 - 3) Biofacies
 - 4) Microfossil facies
15. Neotectonics referred to tectonic activity after _____ period.
- 1) Holocene
 - 2) Jurassic
 - 3) Eocene
 - 4) Miocene
16. The word 'Meteoro' is derived from _____ language
- 1) English
 - 2) Spanish
 - 3) Greek
 - 4) Latin
17. Solid portion of the earth is
- 1) Hydrosphere
 - 2) Lithosphere
 - 3) Atmosphere
 - 4) Exosphere
18. UV rays are hindered in _____ layer of atmosphere.
- 1) Troposphere
 - 2) Stratosphere
 - 3) Mesopause
 - 4) Lapse rate
19. Lapse rate is _____°C/KM
- 1) 6.5
 - 2) 7.5
 - 3) 14
 - 4) 50
20. Sub-tropical climate is classified based on
- 1) Latitude
 - 2) Altitude
 - 3) Rainfall
 - 4) Wind speed

21. Longest day in the Northern hemisphere is on
- 1) March 21
 - 2) December 21
 - 3) June 21
 - 4) September 23
22. Value of solar constant is _____ Cal/cm²/min
- 1) 1.94
 - 2) 0.33
 - 3) 2.14
 - 4) 5.6
23. Occurrence of El-Nino is due to
- 1) Latitude
 - 2) Altitude
 - 3) Ocean currents
 - 4) Prevailing winds
24. Prevailing winds during southwest monsoon season are called as
- 1) Westerlies
 - 2) Easterlies
 - 3) Southerlies
 - 4) Northerlies
25. The heat and cold wave can be predicted with _____ weather forecasting
- 1) Short range
 - 2) Medium range
 - 3) Long range
 - 4) Now casting
26. Ground based remote sensing tool is
- 1) Infrared thermometer
 - 2) Spectral radiometer
 - 3) Pilot Balloons
 - 4) All of the above
27. Among platforms used in remote sensing, _____ is having wider application.
- 1) Ground based
 - 2) Air based
 - 3) Satellite based
 - 4) None of the above

- 28.** The long range or seasonal forecast is valid for how many days?
- 1) For one day
 - 2) For one week
 - 3) For one year
 - 4) From a month to a season
- 29.** The climatological drought can be better defined terms of
- 1) Leaf area index
 - 2) Aridity Index
 - 3) Chlorophyll stability index
 - 4) Harvest
- 30.** Regional climates are influenced by
- 1) Water bodies
 - 2) Mountain ranges
 - 3) both 1 & 2
 - 4) None of these
- 31.** Major source of oceanic salinity is
- 1) Ash from volcanoes
 - 2) From rain water
 - 3) From river water
 - 4) From glaciers
- 32.** Tidal range denotes the
- 1) The height of the waves
 - 2) Difference between high and low tide
 - 3) Current movement
 - 4) Rainfall intensity in oceans
- 33.** The portion of the earth's surface covered with water is roughly
- 1) One-third
 - 2) Two-third
 - 3) One-fourth
 - 4) Equal
- 34.** The challenger rise is located in
- 1) Atlantic ocean
 - 2) Pacific ocean
 - 3) Indian Ocean
 - 4) Arabian Sea

- 35.** Instruments that measure relative humidity are called
- 1) Barometers
 - 2) Hygrometers
 - 3) Hydrometers
 - 4) Hydrosopes
- 36.** An example for green house gases
- 1) Oxygen
 - 2) Carbondioxide
 - 3) Ethane
 - 4) Nitrogen
- 37.** Chemical oceanography refers to
- 1) Life in ocean
 - 2) Physical processes in ocean
 - 3) Biological processes in ocean
 - 4) Chemicals present in ocean and their behavior
- 38.** Periodic movement of the sea water is known as
- 1) Waves
 - 2) Tides
 - 3) Currents
 - 4) Swirls
- 39.** Current which flows from lower latitudes to higher latitudes are
- 1) Pacific current
 - 2) Warm Currents
 - 3) Cold currents
 - 4) Atlantic currents
- 40.** Mangroves forest is dominantly occur in
- 1) Rocky shore
 - 2) Muddy shore
 - 3) Sandy shore
 - 4) Temperate region
- 41.** Pelagic deposits consist of
- 1) Gold
 - 2) Silver
 - 3) Tin
 - 4) Organic ooze materials

42. What is the indirect source of nutrients for fish larvae?
- 1) Microalgae
 - 2) Live feed
 - 3) Pellet feed
 - 4) Supplement feed
43. What is the role of live feed organisms in aquaculture?
- 1) Extremely resistance power
 - 2) Long survival
 - 3) Source of nutritional
 - 4) Good Growth and Survival
44. Fishes and other animals caught unintentionally during fishing for a preferred species
- 1) Boreal
 - 2) Biomass
 - 3) Bycatch
 - 4) Browsers
45. To which kingdom the cyanobacteria belong?
- 1) Fungi
 - 2) Eubacteria
 - 3) Protista
 - 4) Plantae
46. Which of the following is an even function of t ?
- 1) t^2
 - 2) $t^2 - 4tt^2$
 - 3) $\sin(2t) + 3t$
 - 4) $t^3 + 6$
47. The electric field intensity at a point situated 4 meters from a point charge is 200 N/C. If a distance is reduced to 2 m, the field intensity will be
- 1) 400 N/C
 - 2) 600 N/C
 - 3) 800 N/C
 - 4) 1200 N/C

48. The value of integral e^2 is evaluated from 0 to 0.4 by the following formula. Which method will give the least error?
- 1) Trapezoidal rule with $h = 0.2$
 - 2) Trapezoidal rule with $h = 0.1$
 - 3) Simpson's 1/3 rule with $h = 0.1$
 - 4) Simpson's 1/3 rule with $h = 0.3$
49. The elongate, narrow and intense isostatic and free-air gravity anomalies are associated with
- 1) Fold mountains
 - 2) Spreading centres
 - 3) Island arcs
 - 4) Rift valleys
50. Which among the following minerals possesses the highest average magnetic susceptibility?
- 1) Pyrite
 - 2) Hematite
 - 3) Magnetite
 - 4) Illmenite
51. The main factor responsible for heat transfer in the deeper mantle is
- 1) Conduction
 - 2) Convection
 - 3) Radiation
 - 4) All the above
52. With which part of the Earth's interior, the features crypto-continent and crypto-oceans are associated with
- 1) Island arcs
 - 2) Sial and Sima
 - 3) Upper mantle
 - 4) D¹¹ layer found near the core-mantle boundary

53. In the seismic zone at the contact between the two plates (in subduction zone), the earthquake focal mechanisms are typical of
- 1) Strike slip faulting
 - 2) Low angle reverse faulting
 - 3) Dip slip faulting
 - 4) Normal faulting
54. Which type(s) of earthquake occur(s) in oceanic ridge system
- 1) Shallow focus earthquake
 - 2) Intermediate focus earthquake
 - 3) Both intermediate and deep focus earthquake
 - 4) Deep focus earthquake
55. Which of the following is useful to estimate the depth to the centre of a spherical body from a gravity anomaly curve?
- 1) Surface integration
 - 2) Twice the absolute maximum
 - 3) Volume integration
 - 4) Half-width of the anomaly
56. The Curie temperature for iron is
- 1) 1300°C
 - 2) 760°C
 - 3) 660°C
 - 4) 350°C
57. Which physical property of the medium governs the response of Ground Penetrating Radar?
- 1) Seismic wave velocity
 - 2) Electromagnetic conductivity
 - 3) Electrical permeability
 - 4) Electrical conductivity
58. Which type of sounding curve represents $\rho_1 < \rho_2 < \rho_3$
- 1) H – type
 - 2) K - type
 - 3) A – type
 - 4) Q – type

59. In seismic exploration, 'ground roll' represents
- 1) Surface wave
 - 2) Direct wave
 - 3) Stonely wave
 - 4) Shear wave
60. Which among the following statements about the Potassium – Argon dating method is false
- 1) The method is effective on igneous rocks that have not been heated since they formed
 - 2) The method cannot be used in sedimentary rocks that consist of detritus of older rocks
 - 3) It is often unsuccessful in metamorphic rocks which have complicated thermal histories
 - 4) The method cannot be used in dating meteorites and lunar basalts
61. Who developed the concept of '*dynamic equilibrium*' in landscape development?
- 1) W.M. Davies
 - 2) G.K. Gilbert
 - 3) James Hutton
 - 4) J.W. Powell
62. Which one of the following places is more likely to be affected by chemical weathering?
- 1) Thar desert
 - 2) Siwalik
 - 3) Tibetan plateau
 - 4) Leh
63. The Aeolian features that have been noticed in the planet Mars are
- 1) Barchans
 - 2) Inselbergs
 - 3) Zeugens
 - 4) Yardangs
64. Which type of climate classification scheme uses vegetation patterns as a prominent feature?
- 1) Mc Clatchy
 - 2) Holden
 - 3) Koppen
 - 4) Maxfield

- 65.** The equator is warmer than the poles. Why do the surface winds not blow directly from the poles to the equator?
- 1) Because there are mountain ranges in the way
 - 2) Because of the Earth's rotation
 - 3) Because the oceans deflect the air flow
 - 4) Because hot air rises
- 66.** Which of these regions does not experience monsoon conditions?
- 1) South America
 - 2) West Africa
 - 3) North America
 - 4) Australia
- 67.** A species or taxonomic group which is restricted geographically or widespread but never found in abundance is
- 1) Indigenous
 - 2) Primary endemic
 - 3) Rare
 - 4) Disjunct
- 68.** Which of the following is NOT an ecological factor which determines biogeographical pattern?
- 1) Mobility
 - 2) Succession
 - 3) Climate
 - 4) Alien immigration
- 69.** Why might derelict land with a sparse vegetation cover actually be a biogeographical sanctuary?
- 1) It is unwanted land that can be left to develop at its own rate
 - 2) Because it can support a large population of animals
 - 3) Because some species unable to tolerate competition under normal conditions can flourish here
 - 4) The sparse vegetation cover allows easy monitoring of change

70. The subject which focuses on how people living on Earth interact with nature is classified as
- 1) Atmospheric geography
 - 2) Environmental geography
 - 3) Physical geography
 - 4) Human geography
71. Which of the following is a better definition for natural resources conservation?
- 1) Protection of wildlife
 - 2) Environmental activism
 - 3) Preservation of natural resources
 - 4) Efficient use of natural resources
72. Which of the following is a renewable resource?
- 1) Iron ore
 - 2) Coal
 - 3) Crude oil
 - 4) Bio fuel
73. Which of the following state has smallest land area?
- 1) Goa
 - 2) Nagaland
 - 3) Sikkim
 - 4) Tripura
74. The highest Himalayan peak in India
- 1) K-2
 - 2) Nagar Parbat
 - 3) Everest
 - 4) Kanchenjunga
75. Which of the following is not Kharif?
- 1) Peas
 - 2) Maize
 - 3) Paddy
 - 4) Cotton

ROUGH WORK

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