

1. Booklungs are found in :

- (1) Amoeba
- (2) Polystomella
- (3) Euglypha
- (4) Arachnids

2. Silk is obtained from :

- (1) Adult moth
- (2) Caterpillar stage
- (3) Egg
- (4) Cocoon

3. Neurogenic heart is found in :

- (1) Human beings
- (2) Rat
- (3) Rabbit
- (4) Invertebrates

4. Epiphysis is also known as :

- (1) Pineal
- (2) Pituitary
- (3) Thyroid
- (4) Hypothalamus

5. Simplest and smallest form of amino acid is :

- (1) Glycine
- (2) Proline
- (3) Lysine
- (4) Argenine

6. PCOS is related to :

- (1) Ovary
- (2) Uterus
- (3) Testes
- (4) Oviduct

- 7.** Seminogelin is secreted by :
- (1) Epididymis (2) Seminal Vesicle  
(3) Thecal cells (4) Oviduct
- 8.** First cleavage in frog is :
- (1) Horizontal (2) Meridional  
(3) Equatorial (4) Latitudinal
- 9.** Which of the following is nuclear receptor ?
- (1) AR (2) GPCR  
(3) IR (4) MT1
- 10.** Cryptorchidism is related to :
- (1) Testes (2) Thyroid  
(3) Ovary (4) Pancreas
- 11.** Which of the following is NOT an element of weather and climate ?
- (1) altitude (2) humidity  
(3) temperature (4) pressure
- 12.** What general circulation wind belt is the place of origin for hurricanes ?
- (1) westerlies (2) doldrums  
(3) trade winds (4) horse latitudes

13. Which of the following has highest albedo ?
- (1) fresh snow
  - (2) cloud
  - (3) sand
  - (4) water
14. What determines when a tropical depression or storm is given hurricane status ?
- (1) wind speed
  - (2) central pressure
  - (3) diameter
  - (4) water temperature
15. In stratosphere ultraviolet radiation is absorbed by the ozone layer so lapse rate is :
- (1) positive
  - (2) negative
  - (3) zero
  - (4) constant rate
16. The cross over distance ( $x_r$ ) and critical distance ( $x_c$ ) are related as :
- (1)  $x_r > x_c$
  - (2)  $x_r < x_c$
  - (3)  $x_r = x_c$
  - (4) no relation between  $x_r$  and  $x_c$
17. Which of the following is natural source geophysical method :
- (1) IP method
  - (2) Electrical method
  - (3) Gravity method
  - (4) Seismic method

18. In Cartesian coordinate system, if the geological strike of a two-dimensional body is oriented along the x-direction, then the electromagnetic field components associated with TM mode of magnetotelluric method are :

- |                          |                          |
|--------------------------|--------------------------|
| (1) $H_x, H_y$ and $E_z$ | (2) $E_x, H_y$ and $E_z$ |
| (3) $H_x, E_y$ and $E_z$ | (4) $E_x, H_y$ and $H_z$ |

19. Gravity field is maximum at poles because :

- (1) Polar ice caps,
- (2) High density,
- (3) Excess mass,
- (4) Flattening of earth and earth's centrifugal force

20. Electromagnetic Surveys give better results :

- (1) If the top surface layer is more conductive,
- (2) If the top surface layer is less conductive,
- (3) If the top surface layer is highly magnetic,
- (4) Not depend on the conductivity of surface layer

21. In a 4-layer subsurface model, which combination of A-, H-, k- and Q-type electrical resistivity sounding curves is NOT possible ?

- |        |        |
|--------|--------|
| (1) HA | (2) HQ |
| (3) KQ | (4) AK |

22. Which of the following waves is the slowest ?
- |                   |             |
|-------------------|-------------|
| (1) P waves       | (2) S waves |
| (3) Surface waves | (4) Tsunami |
23. Application of reduction-to-pole technique to a magnetic anomaly results in :
- (1) flattening the anomaly curves
  - (2) transforming the asymmetry in the anomaly to symmetry,
  - (3) halving the amplitude,
  - (4) doubling the amplitude.
24. Hematite is a .....substance :
- |                       |                   |
|-----------------------|-------------------|
| (1) Diamagnetic       | (2) Paramagnetic  |
| (3) Antiferromagnetic | (4) Ferrimagnetic |
25. The latitude correction in gravity is maximum at :
- |                  |                  |
|------------------|------------------|
| (1) $0^{\circ}$  | (2) $45^{\circ}$ |
| (3) $60^{\circ}$ | (4) $90^{\circ}$ |
26. The SP anomaly over ore bodies :
- (1) always positive only
  - (2) always negative only
  - (3) can be positive and negative both
  - (4) does not depends on the depth and dimension of ore body

27. Which of the following log is used for depth matching and well to well correlation while running with other logs ?
- (1) Natural Gamma Log                      (2) Gamma Gamma log  
(3) Neutron log                                (4) SP log
28. Free fluid index (FFI) of a formation is estimated from :
- (1) Neutron Log                                (2) Resistivity Log  
(3) SP log,                                      (4) NMR log
29. Seismic inversion without geological model gives :
- (1) Absolute impedance,  
(2) Relative impedance,  
(3) Both Absolute and relative impedance,  
(4) Lithology
30. The focal mechanism solution of an earthquake depicts quadrants of :
- (1) Compression                                (2) Dilatation  
(3) Compression & dilation                (4) Seismic moment
31. The surface wave magnitude of an earthquake is a function of the amplitude of :
- (1) P waves                                      (2) S waves  
(3) Rayleigh waves                            (4) Love waves

32. .... refers to the horizontal of air while..... is the vertical transport of air.
- (1) Advection, convection                      (2) Convection, Advection  
(3) Advection, Advection                      (4) Convection, Convection
33. Which of the following air masses is the densest ?
- (1) Cold and moist                              (2) Cold and dry  
(3) Warm and moist                              (4) Warm and dry
34. A wind from 300 degrees is a \_\_\_\_ wind.
- (1) Northeast                                      (2) Northwest  
(3) Southwest                                      (4) Southeast
35. The term stratus means :
- (1) Vertically developed                      (2) Upper level  
(3) Horizontally layered                      (4) Low level
36. The best moisture parameter to assess the amount of moisture in the air from the choices below is :
- (1) Relative humidity                      (2) Temperature  
(3) CAPE    (4) Dew point
37. The dry adiabatic lapse rate is equal to :
- (1)  $9.8^{\circ}\text{C}/\text{km}$                                       (2)  $6.5^{\circ}\text{C}/\text{km}$   
(3)  $5.5^{\circ}\text{C}/\text{km}$                                       (4)  $1.5^{\circ}\text{C}/\text{km}$

**38.** A balance between the Coriolis and Pressure Gradient Force is termed the.....wind. This balance occurs most significantly aloft in the middle latitudes with a straight flowing wind.

- |                 |                   |
|-----------------|-------------------|
| (1) Gradient    | (2) Cyclostrophic |
| (3) Geostrophic | (4) Ageostrophic  |

**39.** A hurricane is a (n) :

- |                   |                         |
|-------------------|-------------------------|
| (1) Cold core low | (2) Warm core low       |
| (3) Thermal low   | (4) Anticyclonic system |

**40.** Why is the ITCZ mean position North of the Equator ?

- (1) There is more ocean area in the Northern Hemisphere
- (2) The Coriolis force is stronger in the Northern Hemisphere
- (3) There tends to be lower pressure due to more landmass near the Northern Hemisphere equatorial region
- (4) The magnetic pole is in the Northern Hemisphere



**Short Answer Questions**

**Note:** Attempt any **five** questions. Write answer in **150-200** words. Each question carries **16** marks. Answer each question on separate page, after writing Question Number.

01. Name the various configurations used in geoelectrical measurements. Find out the geometrical factor of any one of these configuration.
02. What do you understand by diurnal and normal corrections in geomagnetic data ?
03. Describe the various velocities used in seismic prospecting. Which one is used for stacking of data with its explanations ?
04. Describe the origin of MT field below and above 1Hz, and write the Cagniard expression of apparent resistivity in MT field.
05. Discuss the relation between gravity and magnetic potentials and its use in interpretation of potential field.
06. Discuss the different types of wind systems.
07. What is break in Monsoon ? Discuss its cause & impact over the Indian region ?
08. Explain the principles of weather forecasting ?
09. Discuss the origin & life cycle of tropical cyclone.
10. Discuss the vertical temperature distribution of atmosphere. Why temperature increases in stratosphere ?