GG: GEOLOGY AND GEOPHYSICS

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PART A: COMMON TO BOTH GEOLOGY AND GEOPHYSICS CANDIDATES

Q.1 - Q.25 carry one mark each.:

1) The number of hydrous minerals in the Moh's scale of hardness is _____ (GATE GG 2013)
2) It takes approximately _____ minutes for sunlight to reach the Earth. (GATE GG 2013)
3) In a remotely sensed data of a planet, the presence of hydrous species can be inferred using _____ region of the electromagnetic spectrum? (GATE GG 2013)

   a) Radiowave b) Gamma c) Infrared d) Visible

4) Amongst the following, which one will have the highest P-wave velocity? (GATE GG 2013)

   a) Granite b) Diamond c) Shale d) Talc

5) Assuming the Earth to be a perfect sphere, its equatorial velocity is approximately _____ km/hr (GATE GG 2013)
6) Both strength and plasticity of a rock increase with the (GATE GG 2013)
   a) increase in temperature
   b) decrease in strain rate
   c) increase in confining pressure
   d) increase in pore fluid pressure
7) Amongst the following options, the acceptable value of the Poisson's ratio of a rock is (GATE GG 2013)

   a) 0.55 b) 1.00 c) 0.25 d) -1.00

8) The acceleration due to gravity, $'g'$ is maximum at (GATE GG 2013)

   a) equator b) poles c) mid-latitudes d) sub-tropical regions

9) The most abundant mineral in the Earth's crust is (GATE GG 2013)

   a) quartz b) K-feldspar c) biotite d) garnet

10) Acoustic impedance is the _____ of density and velocity. (GATE GG 2013) (GATE GG 2013)

    a) sum b) difference c) product d) ratio

11) Choose the diamagnetic mineral from the following. (GATE GG 2013)

    a) Calcite b) Enstatite c) Pyrite d) Ilmenite

12) Two bodies made up of same material with different dimensions have (GATE GG 2013)
    a) same resistances and resistivities
    b) same resistivities but different resistances
    c) same resistances but different resistivities
    d) different resistances and resistivities
13) The type of wave that arrives first at a station from an earthquake hypocenter is (GATE GG 2013)

a) P-wave b) S-wave c) Rayleigh wave d) Love wave

14) Which one of the following is the correct statement? (GATE GG 2013)

a) Accretionary wedge is part of the foreland basin
b) Spreading ridge is a major zone of metamorphism
c) Dehydration of subducting slab induces mantle melting
d) Back arc basin represent a convergent regime

15) Match the following items of **Group** *I* with those of **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) Electrical Method	a) Density
q) Magnetic Method	b) Velocity
r) Gravity Method	c) Resistivity
s) Seismic Method	d) Susceptibility
	e) Dielectric Permittivity

a) P-3, Q-2, R-5, S-1
b) P-3, Q-4, R-1, S-2
c) P-3, Q-4, R-2, S-1
d) P-5, Q-4, R-3, S-2

16) If a radioactive isotope has a decay constant of $1.55 \times 10^{-10}\text{year}^{-1}$, its half-life (in years) would be (GATE GG 2013)

a) 4.57×10^9 b) 4.47×10^9 c) 4.57×10^{10} d) 4.47×10^{10}

17) Which of the following physical properties of rocks has the widest range of variation? (GATE GG 2013)

a) Magnetic permeability
b) Dielectric permittivity
c) Seismic velocity
d) Electrical resistivity

18) Which of the following is **NOT** an inverse square law? (GATE GG 2013)

a) Newton's law of Gravitation
b) Coulomb's law of electrostatics
c) Coulomb's law of magnetostatics
d) Hooke's law

19) A type of unconformity characterized by the occurrence of sedimentary rocks on igneous/metamorphic rocks is known as (GATE GG 2013)

a) angular unconformity
b) nonconformity
c) paraconformity
d) disconformity

20) For seismic S-wave velocity, V, the rigidity modulus, μ, is proportional to (GATE GG 2013)

a) $\sqrt{V}$ b) V c) V^2 d) V^3

21) An active trench is present in the vicinity of (GATE GG 2013)

a) Andaman & Nicobar Islands
b) Gulf of Cambay
c) Lakshadweep
d) Krishna-Godavari delta

22) In a homogeneous anisotropic medium, the physical property varies (GATE GG 2013)

a) with position but not with direction
b) with both position and direction
c) with direction but not with position
d) neither with position nor with direction

23) Which one of the following stable isotopic ratios is used for estimation of palaeo-temperature of seawater? (GATE GG 2013)

a) $^{13}C/^{12}C$
b) $^{18}O/^{16}O$
c) $^{87}S/^{86}Sr$
d) $^{15}N/^{14}N$

24) Match the following items of **Group** *I* with those of **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) Coal	a) Gandhar
q) Copper	b) Singareni
r) Oil	c) Khetri
s) Uranium	d) Jadugoda
	e) Degana

a) P-4, Q-3, R-1, S-2
b) P-2, Q-3, R-5, S-4
c) P-1, Q-3, R-2, S-5
d) P-2, Q-3, R-1, S-4

25) Which of the following logging techniques is best suited to estimate the shaliness of hydrocarbon reservoirs? (GATE GG 2013)

a) Resistivity
b) Sonic
c) Induction
d) Gamma ray

PART B (*SECTION 1*)*: FOR GEOLOGY CANDIDATES ONLY*

Q.26 - Q.55 carry two mark each.

26) Which of the following statements is correct? (GATE GG 2013)

a) Eolian sands do not exhibit cross bedding.
b) Deep marine sands are well sorted.
c) Glacier deposit may contain faceted pebble.
d) Wave ripples do not form on shallow marine sands.

27) The test of organic-walled foraminifera is termed as (GATE GG 2013)

a) Microgranular
b) Hyaline
c) Porcellaneous
d) Tectinous

28) The void ratio (in percentage) of sandstone is 25. Its porosity in percentage is _____. (GATE GG 2013)

29) On a $1 : 10,000$ scale map, the length of a fault trace on a hrizontal plane is represented as $5\,cm$. The same on $1 : 25,000$ scale vertical aerial photograph is _____ *cm* (GATE GG 2013)

30) In high-grade metamorphism, biotite melting indicates (GATE GG 2013)

a) rock cooling
b) rock hydration
c) rock uplifting
d) rock dehydration

31) Match the defination type in **Group** *I* with the bivalves in **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) Desmodont	a) *Mytilus*
q) Dysodont	b) *Ceratoderma*
r) Isodont	c) *Mya*
s) Heterdont	d) *Spondylus*
	e) *Nucula*
	f) *Arca*

a) P-3, Q-1, R-4, S-2
b) P-1, Q-2, R-6, S-5
c) P-3, Q-1, R-5, S-2
d) P-2, Q-1, R-4, S-6

32) Which one of the following is the correct statement regarding hydrocarbon generation? (GATE GG 2013)

a) H/C content of organic matter increases as it matures.
b) O/C content of organic matter increases as it matures.
c) Lignite does not form any hydrocarbon during maturation.
d) Oil source rock is most abundant in Mesozoic.

33) In the stereographic projection, 1, 2 and 3 represent poles of three planes. Choose the correct combination of statements from the following. (GATE GG 2013)

a) The plane corresponding to 1 is horizontal and the plane corresponding to 2 is inclined.
b) The plane corresponding to 1 is striking N-S and the plane corresponding to 2 is horizontal.
c) The plane corresponding to 2 is vertical and the plane corresponding to 3 is striking E-W.
d) The plane corresponding to 2 is striking E-W and the plane corresponding to 3 is inclined.

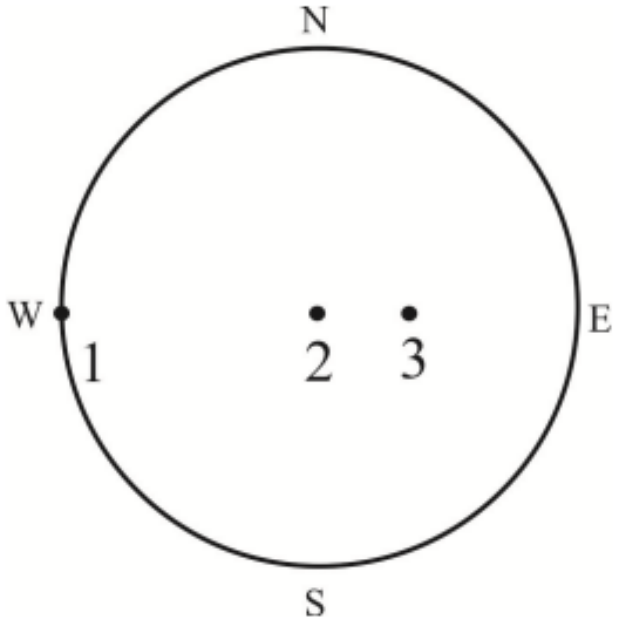

Fig. 1. Question 33

34) Match the minerals in **Group** *I* with its corresponding industrial application in **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) Kaolinite	a) Pigment
q) Rutile	b) Asbestos
r) Graphite	c) Cement
s) Serpentine	d) Lubricant
	e) Abrasive

a) P-1, Q-3, R-4, S-2
b) P-3, Q-1, R-2, S-4
c) P-3, Q-1, R-4, S-2
d) P-1, Q-5, R-3, S-2

35) Match the Hermann-Maugin symbol in **Group** *I* with its corresponding general form in **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) 6/m	a) Trigonal Dipyramid
q) $\bar{3}$m	b) Ditrigonal Dipyramid
r) $\bar{6}m^2$	c) Dihexagonal Pyramid
s) $\bar{6}$	d) Ditrigonal Pyramid
	e) Hexagonal Dipyramid

a) P-5, Q-4, R-2, S-1
b) P-5, Q-4, R-1, S-2
c) P-5, Q-4, R-1, S-3
d) P-3, Q-4, R-2, S-1

36) Which of the following is a type of dam? (GATE GG 2013)

a) Anchor b) Shotcrete c) Geogrid d) Buttress

37) Match the following items in **Group** *I* with those in **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) Kersantite	a) Hornblende-diopside-plagioclase lamprophyre
q) Fenite	b) Basaltic trachyandesite
r) Mugearite	c) Volcanic nepheline syenite
s) Phonolite	d) Biotite-plagioclase lamprophyre
	e) Metasomatic rock associated with carbonatites

a) P-1, Q-2, R-4, S-3
b) P-4, Q-5, R-2, S-3
c) P-3, Q-1, R-2, S-4
d) P-4, Q-5, R-3, S-2

38) A chondrite-normalized REE pattern of quartzo-feldspathic gneiss shows a sharp positive *Eu* anomaly. This indicates presence of (GATE GG 2013)

a) plagioclase in the sample.
b) quartz in the sample.
c) clinopyroxene in the sample.
d) sillimanite in the sample.

39) Choose the correct expression from the following that explains the changing vertical position of a point on the land surface at any time (Surface Uplift - SU, Bedrock Uplift - BU, Deposition - D, Compaction - C, Erosion - E). (GATE GG 2013)

a) $SU = BU - D - C - E$
b) $SU = BU - D + C - E$
c) $SU = BU + D - C + E$
d) $SU = BU + D - C - E$

40) Match the following stratigraphic units listed in **Group** *I* with the Precambrian basins in **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) Badami Group	a) Vindhyan
q) Kheinjua Formation	b) Chhatisgarh
r) Sullavai Group	c) Kaladgi
s) Papaghni Group	d) Cuddapah
	e) Pranhita-Godavari

a) P-3, Q-1, R-5, S-4
b) P-1, Q-5, R-4, S-3
c) P-1, Q-2, R-3, S-5
d) P-3, Q-2, R-5, S-4

41) Mantle xenoliths are observed in (GATE GG 2013)

a) Kimberlite
b) Granite
c) Pegmatite
d) Granulite

42) Dimension of hydraulic conductivity is (GATE GG 2013)

a) LT^{-2} b) L^3T^{-1} c) ML^{-3} d) LT^{-1}

43) Match the items in **Group** *I* with those in **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) Katrol Formation	a) Oligocene
q) Barail Formation	b) Cretaceous
r) Ariyalur Formation	c) Eocene
s) Sylhet Formation	d) Jurassic
	e) Paleocene
	f) Miocene

a) P-2, Q-4, R-5, S-3
b) P-2, Q-5, R-3, S-1
c) P-4, Q-2, R-4, S-5
d) P-4, Q-1, R-2, S-3

44) The outcrop pattern of folded sedimentary strata on the map given below represents (GATE GG 2013)

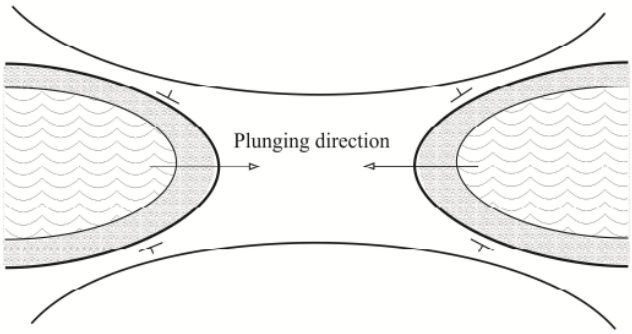

Fig. 2. Question 44

a) culmination of antiform
b) culmination of synform
c) depression of antiform
d) depression of synform

45) Match the economic deposits in **Group** *I* with the host rocks in **Group** *II*. (GATE GG 2013)

Group *I*	**Group** *II*
p) Malanjkhand copper	a) Granite
q) Salem magnesite	b) Dolomite
r) Zawar Pb-Zn	c) Graphitic Schist
s) Rampura-Agucha	d) Ultramafics
	e) Basalt
	f) Rhyollite

a) P-1, Q-4, R-3, S-2
b) P-2, Q-3, R-5, S-2
c) P-1, Q-4, R-2, S-3
d) P-3, Q-2, R-6, S-5

46) The stereographic projection below shows the principal stress axes and fault planes. The projection represents a (GATE GG 2013)

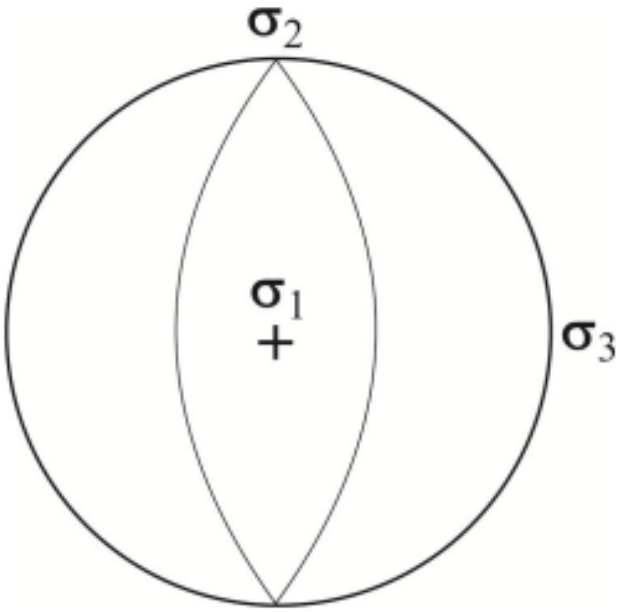

Fig. 3. Question 46

a) normal fault b) reverse fault c) dextral fault d) sinistral fault

47) Select the correct the statement from the following. (GATE GG 2013)

a) Incised channels form an account of aeolin action.
b) Mesa structures are observed only in steeply dipping beds.
c) Crevasse splay is commonly associated with meandering river.
d) Coral reefs are abundant in Gulf of Cambay.

Common Data Questions

Common Data for Questions 48 and 49: A, B, C, D, E, F and G are minerals in a sample of metamorphic rock. The micro-texture of the assemblage is given below. A, D and G are porphyroblasts, B and C are coronas, E and F are inclusions.

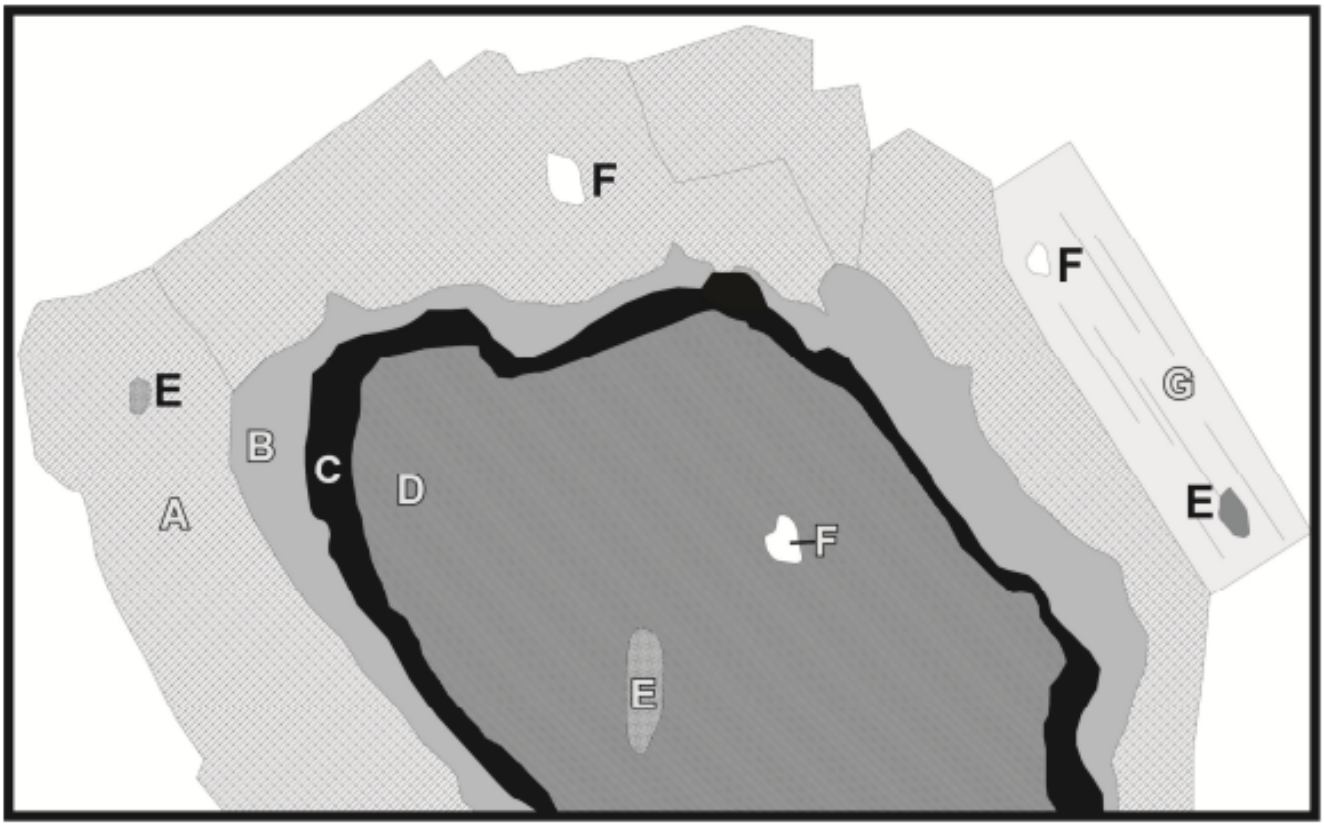

Fig. 4. Common Data Questions 48 and 49

48) Select the appropriate metamorphic reaction from the following options. (GATE GG 2013)

a) $A + B = C + D$
b) $A + C = D + G$
c) $A + D = B + C$
d) $E + D = C + A$

49) Based on the micro-texture, select the oldest assemblage from the following. (GATE GG 2013)

a) $A - D$ b) $E - F$ c) $B - C$ d) $A - G$

Common Data for Questions 50 and 51: The Mohr-Coulomb failure envolope ($A - B$) of a porous limestone is given below.

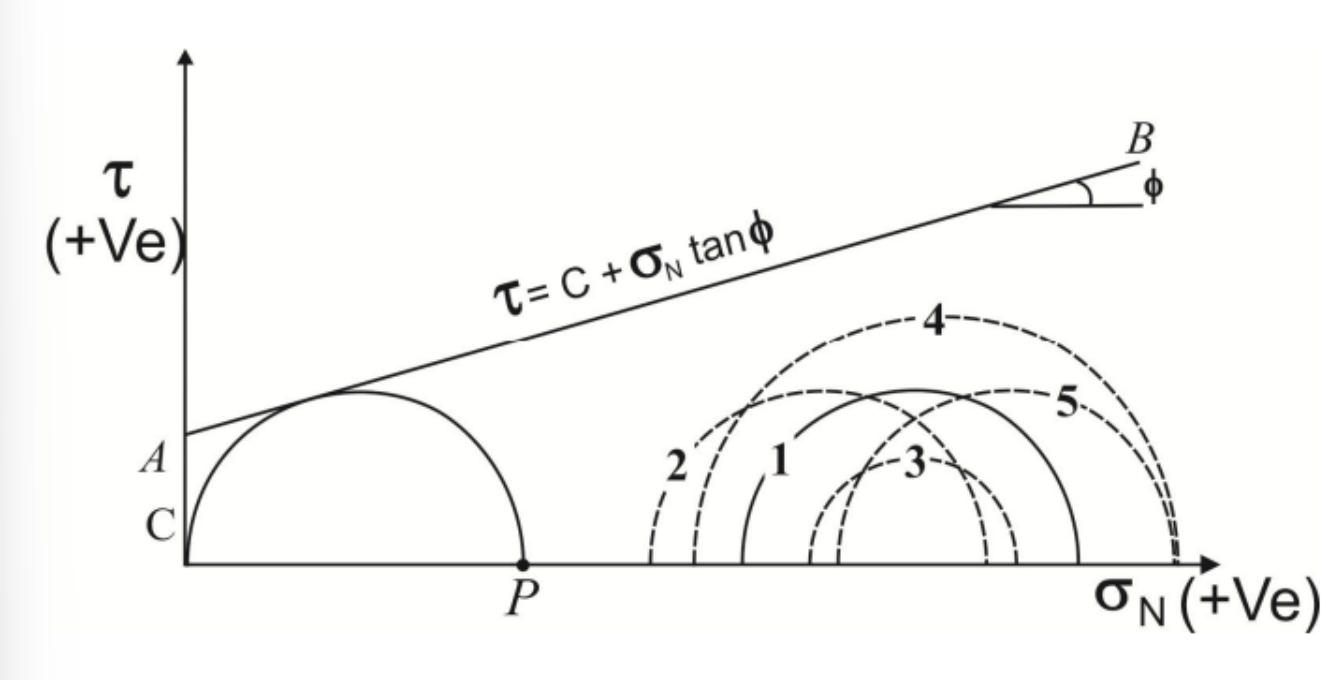

Fig. 5. Common Data Questions 50 and 51

50) The point P represents (GATE GG 2013)
   a) uniaxial tensile strength.
   b) uniaxial compressive strength.
   c) indirect tensile strength.
   d) shear strength.

51) For a condition represented by the circle 1, if pore water pressure increases, the circle will change to (GATE GG 2013)

   a) circle 2. b) circle 3. c) circle 4. d) circle 5.

Linked Answer Questions

Statement for Linked Answer Questions 52 and 53: Sedimentary structures are useful for determining the younging direction of a bed.

52) Which one of the following sedimentary structure represents the bottom of a bed? (GATE GG 2013)

   a) Current crescent
   b) Desiccation crack
   c) Rain print
   d) Load cast

53) Which sedimentary process is responsible for the generation of the structure identified above? (GATE GG 2013)

   a) Wave reworking
   b) Liquefaction of sediments
   c) Drying and desiccation
   d) Erosion of cohesive substrate

Statement for Linked Answer Questions 54 and 55: The table below represents recalculated cation compositions data of minerals.

	I	**II**	**III**	**IV**
Si	3.000	3.00	1.910	2.000
Ti	0.000	0.003	0.003	0.000
Al	1.997	2.000	0.186	0.009
Fe	1.400	6.000	0.160	1.405
Mn	0.000	0.000	0.000	0.032
Mg	1.038	0.510	0.877	0.998
Ca	0.568	0.475	0.848	1.567
Na	0.000	0.024	0.021	0.000
Total	8.003	12.012	4.005	6.011

54) Select the correct garnet $[(Ca, Fe, Mg, Mn)_3\, Al_2 Si_3 O_{12}]$ and clinopyroxene $[Ca\,(FeMg)\,Si_2 O_6]$ pair respectively. hfill(GATE GG 2013)

a) II and III b) II and IV c) I and IV d) I and III

55) Calculate the distribution coefficient $[K_D]$ for the Fe-Mg system. (GATE GG 2013)

a) 0.504 b) 0.620 c) 1.420 d) 1.535

PART B (SECTION 2): FOR GEOPHYSICS CANDIDATES ONLY

Q.26 to Q.55 carry two marks each. :

26) A P-wave is reflected as both P- and S- waves from an interface at angles r_p and r_s respectively. The relationship between r_p and r_s is (GATE GG 2013)

a) $r_p > r_s$ b) $r_p = r_s$ c) $r_p < r_s$ d) $r_p = 2r_s$

27) Which of the following ways of measuring the size of an earthquake does not require instrumental recording? (GATE GG 2013)

a) Richter magnitude
b) Moment
c) M_w
d) Intensity

28) In what circumstances, the migrated reflection seismic section will be same as the unmigrated one? (GATE GG 2013)

a) Inclined interfaces
b) Undulating interfaces
c) Horizontal interfaces
d) Vertical interfaces

29) Which of the following methods is best suited to estimate the resistivity variations in the upper mantle? (GATE GG 2013)

a) Deep electrical resistivity
b) Ground Penetrating Radar
c) Controlled Source Electromagnetics
d) Magnetotellurics

30) Amongst the following 4-electrode configurations of the electrical resistivity method, which is best suited for archeological investigations? (GATE GG 2013)

a) Schlumberger
b) Pole-Pole
c) Wenner
d) Dipole-Dipole

31) A singular value of an $m \times n$ matrix, A, is defined as (GATE GG 2013)

a) positive square root of eigenvalue of AA^T
b) modulus of eigenvalue of A
c) eigenvalue of A^TA
d) square of eigenvalue of A

32) In an ill-posed geophysical inverse problem, stated as non-singular matrix equation, the magnitude of determinant of the coefficient matrix is (GATE GG 2013)

a) large b) zero c) near zero d) very large

33) In a 4-layer subsurface model, which combination of A-, H-, K- and Q- type electrical resistivity sounding curves is **NOT** possible? (GATE GG 2013)

a) HA b) AK c) KQ d) HQ

34) Which of the following characteristics of a Self Potential (SP) anomaly gives the approximate position of centre of the buried ore body? (GATE GG 2013)

a) Position of maximum of the anomaly
b) Position of minimum of the anomaly
c) Position of zero crossing
d) Position midpoint between maximum and minimum of the anomaly

35) Given a scalar function, $f(x, y) = xy$. The curl of gradient of $f(x, y)$ is (GATE GG 2013)

a) $2x\hat{i}$ b) $-2y\hat{j}$ c) $0\hat{i}$ d) $x\hat{i}+y\hat{j}$

36) Which of the following is **NOT** correct? (GATE GG 2013)
a) In VLF-EM technique, the tilt-angle mode is best suited to locate conductive bodies
b) Fraser filter is a difference filter
c) Static shift affects MT impedance phase
d) Tipper vector is derived from the three magnetic field components, H_x, H_y and H_z.

37) If L, B, F and T respectively stand for Latitude correction, Bouguer correction, Free-air correction and Terrain correction, then the order in which they will have to be applied for gravity data analysis is (GATE GG 2013)

a) LFBT b) LBTF c) FLBT d) TBLF

38) Geomagnetic secular variations originate from the (GATE GG 2013)

a) inner core b) outer core c) crust d) mantle

39) Removal of regional component from magnetic data is similar to (GATE GG 2013)
a) band-pass filtering
b) low-pass filtering
c) high-pass filtering
d) band-reject filtering

40) Which of the following is useful to estimate the depth to the centre of a spherical body from a gravity anomaly curve? (GATE GG 2013)
a) Surface integration
b) Volume integration
c) Twice the absolute maximum
d) Half-width of the anomaly

41) Application of reduction-to-pole technique to a magnetic anomaly results in (GATE GG 2013)
a) flattening the anomaly curve.
b) transforming the asymmetry in the anomaly to symmetry.
c) halving the amplitude.
d) doubling the amplitude.

42) The Fourier transform of a comb function is (GATE GG 2013)

a) delta function b) comb function c) sync function d) rectangular function

43) 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 (GATE GG 2013)

a) H_x, E_y and E_z b) E_x, H_y and E_z c) H_x, H_y and E_z d) E_x, H_y and H_z

44) A seismic signal is recorded in the frequency band $100 - 250Hz$. While digitizing the signal, the sampling interval one should choose to avoid aliasing is _____ ms. (GATE GG 2013)

45) Wadati diagram is a plot of the difference in P- and S- wave arrival times against the arrival time of P-wave. It helps in estimating the (GATE GG 2013)

a) velocity of P-wave.
b) velocity of S-wave.
c) time of occurrence of earthquake.
d) hypocenter of earthquake.

46) Match the items of **Group** *I* with those of **Group** *II* (GATE GG 2013)

Group *I*	**Group** *II*
a) Caliper log	a) Permeability
b) NMR log	b) Resistivity
c) Neutron log	c) Diameter
d) SP log	d) Velocity
	e) Porosity

a) P - 3, Q - 4, R - 2, S - 5
b) P - 3, Q - 1, R - 5, S - 2
c) P - 4, Q - 2, R - 4, S - 3
d) P - 1, Q - 3, R - 2, S - 4

47) The most common hydrocarbon indicator is (GATE GG 2013)

a) flat spot b) dim spot c) bright spot d) velocity sag

Common Data Questions

Common Data for Questions 48 and 49: A recursive filter y_n is given by $y_n = 2x_n - 1.5x_{n-1} + y_{n-2}$.

48) The order of y_n is _____. (GATE GG 2013)

49) The transfer function of y_n in z-domain is (GATE GG 2013)

a) $\frac{1-1.5z}{2-z^2}$
b) $\frac{1-z^2}{2-1.5z}$
c) $\frac{2+z^2}{1+1.5z}$
d) $\frac{2-1.5z}{1-z^2}$

Common Data for Questions 50 and 51:: In a linear inverse problem, the coefficient matrix, $A = \begin{pmatrix} 2.00 & 2.01 \\ 2.01 & 2.00 \end{pmatrix}$.

50) The eigenvalues of A are (GATE GG 2013)

a) $(4.01, -0.01)$ b) $(-4.01, -0.01)$ c) $(4.01, 0.01)$ d) $(-4.01, 1.01)$

51) If the elements of A are expressed up to first decimal place only, then the number of possible solution(s) of the resulting inverse problem is (GATE GG 2013)

a) 1 b) 2 c) 3 d) ∞

Linked Answer Questions

Statement for Linked Answer Questions 52 and 53: In an electrical resistivity sounding survey a current of $20mA$ is passed through the current electrodes separated by a distance of $50m$ and a voltage of $3V$ is measured across the potential electrodes, separated by $10m$.

52) The above electrode configuration is known as (GATE GG 2013)

a) Schlumberger
b) Wenner
c) Pole-Dipole
d) Pole-Pole

53) The apparent resistivity (in $\Omega - m$) for the above electrode configuration is close to (GATE GG 2013)

a) 100 b) 200 c) 300 d) 400

Statement for Linked Answer Questions 54 and 55:: An electromagnetic (EM) wave of frequency $25Hz$ is impinging on a homogeneous half-space, having resistivity of $100\Omega - m$.

54) The skin-depth of the wave is about (GATE GG 2013)

a) $1km$ b) $1m$ c) $500km$ d) $500m$

55) The velocity of the EM wave (inkm/s) is close to (GATE GG 2013)

a) 20π
b) 30π
c) 40π
d) 50π

General Aptitude (GA) Questions

56) A number is as much greater than 75 as it is smaller than 117. The number is: (GATE GG 2013)

a) 91 b) 93 c) 89 d) 96

57) The professor ordered to the students to go out of the class.
I *II* *III* *IV*
Which of the above underlined parts of the sentence is grammatically incorrect? (GATE GG 2013)

a) *I* b) *II* c) *III* d) *IV*

58) Which of the following options is the closest in meaning to the word given below: (GATE GG 2013)

a) Modern
b) Historic
c) Primitive
d) Antique

59) Friendship, no matter how _____ it is, has its limitations. (GATE GG 2013)

a) cordial
b) intimate
c) secret
d) pleasant

60) Select the pair that best expresses a relationship similar to that expressed in the pair: **Medicine: Health** (GATE GG 2013)

a) Science: Experiment
b) Wealth: Peace
c) Education: Knowledge
d) Money: Happiness

A. Q.61 to Q.65 carry two marks each.

61) X and Y are two posivtive numbers such that $2X+Y \leq 6$ and $X+2Y \leq 8$. For which of the following values of (X,Y) the function $f(X,Y) = 3X + 6Y$ will give maximum value? (GATE GG 2013)

a) $(4/3\,,10/3)$
b) $(8/3\,,20/3)$
c) $(8/3\,,10/3)$
d) $(4/3\,,20/3)$

62) If $\left|4X-7\right| = 5$ then the values of $2\left|X\right| - \left|-X\right|$ is: (GATE GG 2013)

a) $2, 1/3$ b) $1/2, 3$ c) $3/2, 9$ d) $2/3, 9$

63) Following table provides figures (in rupees) on annual expenditure of a firm for two years - 2010 and 2011. (GATE GG 2013)

Category	2010	2011
Raw material	5200	6240
Power & fuel	7000	9450
Salary & wages	9000	12600
Plant & machinery	20000	25000
Advertising	15000	19500
Research & Development	22000	26400

In 2011, which of the following two categories have registered increase by same percentage?

a) Raw material and Salary & wages
b) Salary & wages and Advertising
c) Power & fuel and Advertising
d) Raw material and Research & Development

64) A firm is selling its product at $Rs.60$ per unit. The total cost of production is $Rs.100$ and firm is earning total profit of $Rs.500$. Later, the total cost increased by 30%. By what percentage the price should be increased to maintained the same profit level. (GATE GG 2013)

a) 5 b) 10 c) 15 d) 30

65) Abhishek is elder to Savar. Savar is younger to Anshul. Which of the given conclusions is logically valid and is inferred from the above statements? (GATE GG 2013)

a) Abhishek is elder to Anshul
b) Anshul is elder to Abhishek
c) Abhishek and Anshul are of same age
d) No conclusion follows

END OF THE QUESTION PAPER