ASSIGNMENT 2: GATE 2012
GG : Geology and Geophysics

EE25BTECH11003 -Adharvan Kshathriya Bommagani

PART A: COMMON TO BOTH GEOLOGY AND GEOPHYSICS CANDIDATES

Q. 1 – Q. 25 carry one mark each.

1) In Mohs' scale of hardness, how many minerals are of silicate composition?
(GATE GG 2012)

a) 4 b) 5 c) 6 d) 7

2) Which one of the following river systems forms the largest fluvio-deltaic system in the world?
(GATE GG 2012)

a) Mississippi–Ohio
b) Red–Mekong
c) Ganga–Brahmaputra
d) Yellow–Ba Hoi

3) Which one amongst the following rocks commonly has highest unconfined compressive strength?
(GATE GG 2012)

a) Coarse-grained sandstone
b) Mica schist
c) Fossiliferous limestone
d) Massive basalt

4) Eparchean unconformity separates geological units of
(GATE GG 2012)

a) early Archaean from late Archaean
b) Archaean from Proterozoic
c) Proterozoic from Palaeozoic
d) Archaean from Phanerozoic

5) Point bar deposit is associated with
(GATE GG 2012)

a) braided river
b) estuary
c) meandering river
d) beach

6) Polymetallic nodules on the ocean floor contain significant amounts of:
(GATE GG 2012)

a) Cu–Ni–Co b) Pb–Zn–Ti c) Hg–Mo–Pt d) U–Th–Nb

7) If the rake of net slip of an inclined fault is 90°, the fault is
(GATE GG 2012)

a) strike-slip fault
b) dip-slip fault
c) oblique-slip fault
d) transcurrent fault

8) On a photo-scale of 1:40000, a square shaped open cast coal mine of 1 km^2 area would have an area $\left(\text{in } cm^2\right)$

(GATE GG 2012)

a) 2.50 b) 4.00 c) 6.25 d) 12.00

9) Bouguer correction is applied to correct for the gravity anomaly due to mass between station location and

(GATE GG 2012)

a) mean sea level
b) local datum plane
c) base of upper crust
d) Mohorovičić discontinuity

10) Which one of the following can be estimated from SP log against a saline-water saturated sandstone formation encountered in a well?

(GATE GG 2012)

a) Resistivity of formation water
b) Degree of water saturation
c) Depth of invasion
d) Permeability

11) During its orbital motion around the Sun, the Earth is nearest to the Sun on

(GATE GG 2012)

a) March 21 b) July 4 c) September 23 d) January 3

12) Which one of the following can be best explored using electromagnetic method?

(GATE GG 2012)

a) Oil-bearing strata
b) Coal-bearing strata
c) Disseminated sulphide deposit
d) Massive sulphide deposit

13) Name the planet in the solar system which has its “day” longer than its “year”.

(GATE GG 2012)

a) Mercury b) Venus c) Mars d) Neptune

14) The most sensitive instrument for magnetic survey is

(GATE GG 2012)

a) magnetic field balance
b) fluxgate magnetometer
c) proton precession magnetometer
d) optically pumped magnetometer

15) Which physical property of the medium governs the response of Ground Penetrating Radar (GPR)?

(GATE GG 2012)

a) Electrical conductivity
b) Electromagnetic conductivity
c) Seismic wave velocity
d) Electrical permeability (dielectric permittivity)

16) Out of the following gases which one has the highest contribution towards the greenhouse effect on the Earth?

(GATE GG 2012)

a) CO_2 b) CO c) CH_4 d) H_2O

17) Depth range of the 'transition zone' associated with phase changes in the Earth's mantle is (in km)

(GATE GG 2012)

a) 35 to 150
b) 150 to 410
c) 410 to 660
d) 660 to 800

18) Choose the correct pair of plutonic rock and its volcanic equivalent.

(GATE GG 2012)

a) Gabbro - Trachyte b) Syenite - Andesite c) Granite - Rhyolite d) Granodiorite - Basalt

19) Which of the following is NOT a variety of silica SiO_2?

(GATE GG 2012)

a) Jasper b) Coesite c) Stishovite d) Flinkite

20) Which one of these is NOT a source of sufficient water supply but can transmit certain quantity of water on a regional scale due to leakage?

(GATE GG 2012)

a) Aquifer b) Aquitard c) Aquiclude d) Aquifuge

21) Identify the type of fault present in the given aerial photograph.

(GATE GG 2012)

Fig. 21

a) Normal fault
b) Reverse fault
c) Left–lateral strike–slip fault
d) Right–lateral strike–slip fault

22) The Jurassic stratigraphic succession of Kutch is characterized by which one of the following? (GATE GG 2012)

a) Cephalopods b) Trilobites c) Brachiopods d) Graptolites

23) Which one of the following mineral constituents exhibits strong absorption in the UV–blue band of the EM spectrum due to charge transfer effect leading to colouration? (GATE GG 2012)

a) Fe–O b) Si–O c) Al–OH d) Mg–OH

24) When did the supercontinent Pangaea begin to break up?

(GATE GG 2012)

a) Cenozoic b) Mesozoic c) Palaeozoic d) Proterozoic

25) In which of the following localities does coal deposit occur?

(GATE GG 2012)

a) Dariba b) Kudremukh c) Wardha d) Rudrasagar

PART B (SECTION 1) FOR GEOLOGY CANDIDATES ONLY

Q. 26 – Q. 55 carry two marks each.

26) Specific discharge of 1 cm per day is observed in a porous medium where hydraulic head difference is 0.5 m and flow length is 20 m. Calculate the hydraulic conductivity (in m/day).

(GATE GG 2012)

a) 0.4 b) 0.8 c) 1.2 d) 1.6

27) A sandstone bed dipping 30° has an outcrop width of 20 m in a flat terrain. What is the true thickness (in m) of the bed?

(GATE GG 2012)

a) 5 b) 10 c) 20 d) 30

28) Calculate the concentration (in ppm) of Ni in olivine that crystallizes from a basaltic magma containing 20 ppm Ni. The partition coefficient (solid/melt) of nickel is 5.

(GATE GG 2012)

a) 4 b) 20 c) 100 d) 500

29) An analysis of augite yields 3 silicon atoms calculated on the basis of 12 oxygen atoms. If only Al replaces Si, calculate the number of tetrahedral-Al in the mineral.

(GATE GG 2012)

a) 1 b) 2 c) 3 d) 4

30) Calculate the degree(s) of freedom of the assemblage orthopyroxene + clinopyroxene + plagioclase + hornblende + quartz + fluid in the chemical system CaOâFeOâMgOâAl_2O_3âSiO_2âH_2O with pressure and temperature as physical variables.

(GATE GG 2012)

a) 0 b) 1 c) 2 d) 3

31) Ca-montmorillonite is formed by the chemical weathering of

(GATE GG 2012)

a) calcite b) augite c) orthoclase d) forsterite

32) In which of the following crystal systems, the characteristic symmetry elements "a two-fold axis of rotation and at least two planes of symmetry" are possible?

(GATE GG 2012)

a) Tetragonal
b) Hexagonal
c) Orthorhombic
d) Monoclinic

33) Determine the correctness or otherwise of the following Assertion ([a]) and Reason ([r]).
Assertion: Biaxial minerals can be pleochroic in three shades.
Reason: Biaxial minerals have three refractive indices.

(GATE GG 2012)

a) Both [a] and [r] are true and [r] is the correct reason for [a]
b) [*a*] is true but [r] is false
c) [*a*] is false but [r] is true
d) Both [a] and [r] are true but [r] is not the correct reason for [a]

34) The correct sequence of metamorphic facies with increasing depth in a subduction zone is

(GATE GG 2012)

a) greenschist, blueschist, eclogite
b) greenschist, eclogite, blueschist
c) blueschist, greenschist, eclogite
d) blueschist, eclogite, greenschist

35) Which one of the following basins is producing petroleum from the coal-rich reservoir rocks?

(GATE GG 2012)

a) Rajasthan Basin
b) Cambay Basin
c) Cauvery Basin
d) Krishna - Godavari Basin

36) A major thrust in the Himalayas has resulted in intense shearing of a zone about 0.5 km wide on either side of the thrust leading to landslides. Which GIS function can be used to display the shear zone?

(GATE GG 2012)

a) Contiguity (adjacency)
b) Spread
c) Proximity (buffer)
d) Search

37) Vertical exaggeration commonly occurs during stereo-viewing of aerial photographs. Where does it occur?

(GATE GG 2012)

a) In the photographs
b) In the terrain
c) In the stereoscope
d) In the perceptor's mind

38) A potassic ultrabasic hybrid igneous rock containing macrocrysts of olivine, Cr-rich diopside, phlogopite and pyrope in a groundmass of serpentine, carbonate and perovskite can be named as

(GATE GG 2012)

a) kimberlite
b) ijolite
c) melilitolite
d) harzburgite

39) Herringbone structure is generally formed in which of the following environments?
(GATE GG 2012)

a) Fluvial b) Aeolian c) Lacustrine d) Tidal

40) In a typical coal mine area affected by acid mine drainage, which one of the following acids will be dominant?
(GATE GG 2012)

a) Nitric acid b) Sulphuric acid c) Hydrochloric acid d) Hydrofluoric acid

41) Match the items in Group I with those in Group II.
(GATE GG 2012)

Group I	**Group II**
P. Theca	1. Trilobite
Q. Midrib	2. Brachiopod
R. Deltidium	3. Glossopteris
S. Pygidium	4. Graptolite
	5. Diatoms

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

42) Arrange the following formations sequentially from older to younger:
a) Sargur Schist
b) Kajrahat Limestone
c) Cuddalore Sandstone
d) Umia Ammonite Bed
(GATE GG 2012)

a) P, S, Q, R
b) P, Q, R, S
c) P, Q, S, R
d) Q, S, P, R

43) Which of the following statements is true?
(GATE GG 2012)

a) Transposition foliation is an indication of superposed folding
b) Stratigraphic information is retained in transposition structures
c) Transposition foliation develops parallel to axial plane of tight folds
d) Fold closures can be well identified in transposition structures

44) Match the items in Group I with those in Group II.
(GATE GG 2012)

Group I	**Group II**
P. Churching	1. Concrete gravity dam
Q. Curtain grouting	2. Tunnelling
R. Piping	3. Cement
S. Pozzolan	4. Earth dam

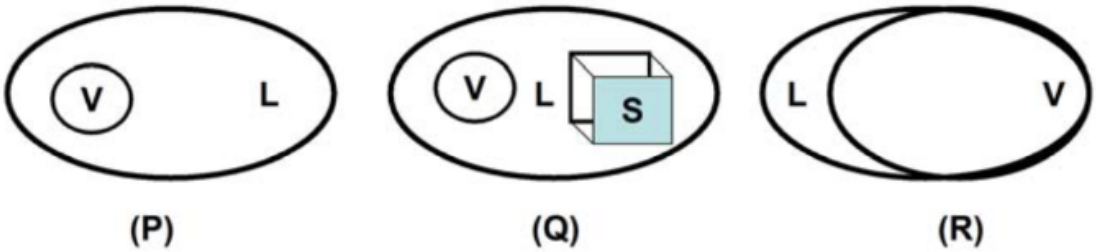
a) P-2, Q-1, R-4, S-3
b) P-4, Q-1, R-2, S-3
c) P-2, Q-3, R-1, S-4
d) P-1, Q-2, R-3, S-4

45) A horizontally bedded sandstone outcrop exhibits planar cross-beds at a number of places. The dip directions of the foresets of cross-beds at these locations are: N350°, N17°, N355°, N355°, N15°, N360°, N350°, N13°, N350°, N355°. Find the mean palaeocurrent direction.

(GATE GG 2012)

a) N15° b) N350° c) N355° d) N360°

46) Salinity of three different fluid inclusions in H_2O-NaCl system is to be determined by ”heatingâfreezing” experiments. The phase proportions of inclusions at room temperature are shown below:



V : Vapour; L : Liquid (H_2O); S : Solid (Halite)

Fig. 46

The salinity can be determined by

(GATE GG 2012)

a) heating of P, freezing of Q
b) heating of Q, freezing of R
c) freezing of P, heating of R
d) heating of all P, Q and R

47) Study the map below showing elevation of selected locations and outcrops of sedimentary beds.

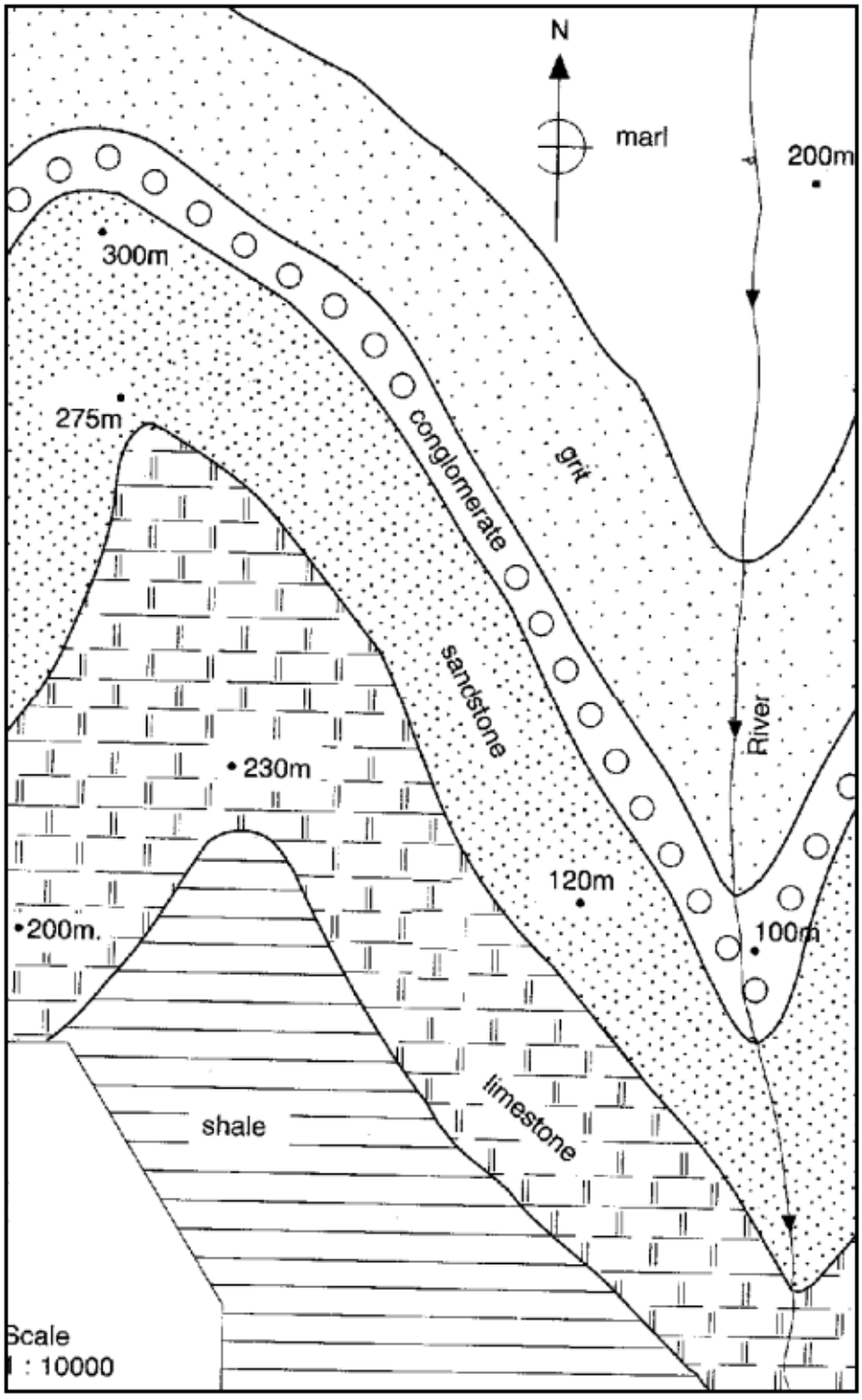


Fig. 47

Which of the following statements is correct?

(GATE GG 2012)

a) The beds dip easterly
b) The beds dip westerly
c) The beds dip southerly
d) The beds are folded

Common Data for Questions 48 and 49:
The figures P and Q represent schematic binary phase diagrams for solidâmelt and subsolidus relations in temperature (T)âcomposition (X) space.

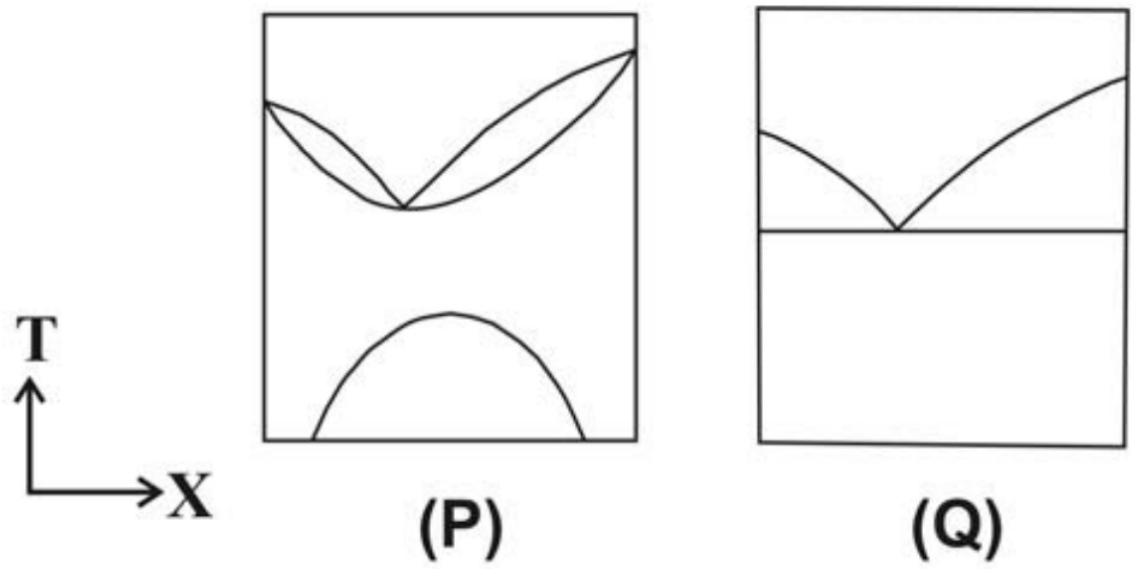


Fig. 47

48) Which of the following statements is true?

(GATE GG 2012)

a) P shows eutectic relation and Q shows high temperature limited solid solution
b) Both P and Q show high temperature limited solid solution
c) Both P and Q show eutectic relation
d) P shows high temperature limited solid solution and Q shows eutectic relation

49) Choose the correct statement?

(GATE GG 2012)

a) Solvus occurs in both P and Q
b) Solvus is absent in both P and Q
c) Solvus occurs in P but not in Q
d) Solvus occurs in Q but not in P

Common Data for Questions 50 and 51
The following figure gives Mohr envelope for a rock and Mohr circle in a particular stress condition. Fracturing occurs when the Mohr circle touches the Mohr envelope at B.

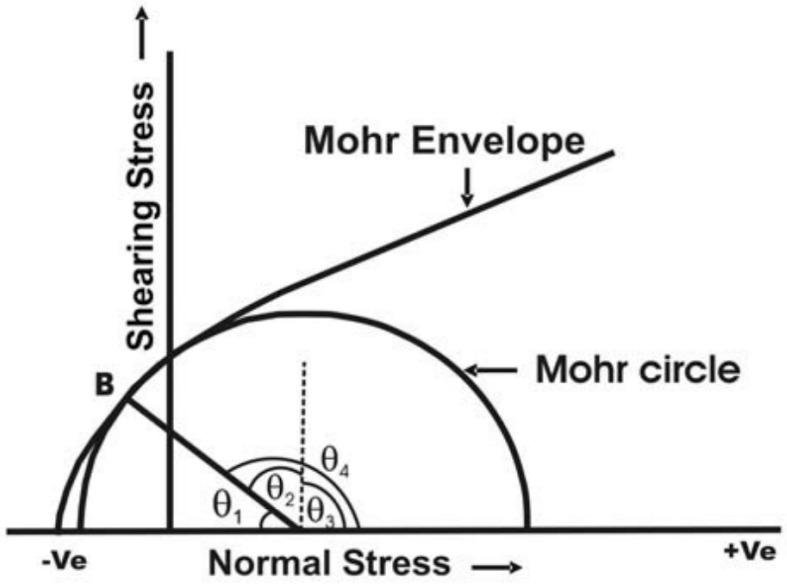


Fig. 49

50) What type of fractures will develop in the rock?

(GATE GG 2012)

a) Extension fractures
b) Conjugate shear fractures
c) Columnar fractures
d) Hybrid extension-shear fractures

51) What is the dihedral angle?

(GATE GG 2012)

a) θ_1 b) θ_2 c) θ_3 d) θ_4

Linked Answer Questions

Linked Answer Questions 52 and 53:

A thick section of clean sand is identified on a suite of geophysical logs. The deep laterolog reads 4 Ohm-m in the upper part of the section and 0.1 Ohm-m in the lower part of the section. The lower part is interpreted to be 100% water-saturated. The resistivity of formation water obtained from SP log is estimated to be 0.01 Ohm-m.

52) The formation resistivity factor of the clean sand section is

(GATE GG 2012)

a) 8 b) 10 c) 12 d) 14

53) Based on the above result, the water saturation in the top part of the sand formation is
(GATE GG 2012)

a) 0.125 b) 0.158 c) 0.165 d) 0.184

Statement for Linked Answer Questions 54 and 55:
Microfossils are widely used in palaeoceanographic studies.

54) Which of the following microfossil groups is generally found in deep sea below the Carbonate Compensation Depth?
(GATE GG 2012)

a) Foraminifera b) Radiolaria c) Cocoliths d) Ostracods

55) What is the test composition of the microfossil group identified above?
(GATE GG 2012)

a) Carbonate b) Phosphate c) Nitrate d) Siliceous

END OF SECTION 1 OF PART B

PART B (SECTION 2) FOR GEOPHYSICS CANDIDATES ONLY

26) The average magnetic susceptibility of dolerite is 1400. What is its magnetic permeability in h/m? (Give answer up to 5 decimal places)
(GATE GG 2012)

a) 0.00176 b) 0.00211 c) 0.00302 d) 0.00354

27) A small scale seismic reflection survey was conducted with a shot point located at the middle of a 500 m long geophone spread. The NMO-corrected travel times at the end of the spread were found to be 1.227 s and 1.255 s. If the average seismic wave velocity above the reflector is 2500 m/s, what is the dip of the reflector? (Give the value in degrees in nearest integer)
(GATE GG 2012)

a) 4 b) 6 c) 8 d) 10

28) The S-wave velocity in the lower continental crust is 6800 m/s and its density is 3380 kg/m^3. Find its rigidity in GPa. (Give answer up to 2 decimal places)
(GATE GG 2012)

a) 156.29 b) 160.21 c) 162.34 d) 164.11

29) Given the frequency of an electromagnetic wave to be 1 kHz and ground conductivity to be 10 S/m, calculate the skin depth. (Give answer in nearest integer, in meters)
(GATE GG 2012)

a) 2 b) 3 c) 5 d) 8

30) Based on acoustic log of a well, the transit time in a water-bearing sandstone zone is found to be 75 μs/ft. The transit time of acoustic wave through the sandstone matrix and water are 50 μs/ft and 200 μs/ft, respectively. Determine the porosity of the sandstone. (Give answer up to 2 decimal places)
(GATE GG 2012)

a) 0.05 b) 0.10 c) 0.12 d) 0.17

31) In frequency domain IP method, frequency effect is defined as
(GATE GG 2012)

a) $\frac{\rho_{ac} - \rho_{dc}}{\rho_{dc}}$
b) $\frac{\rho_{ac} - \rho_{dc}}{\rho_{ac}}$
c) $\frac{\rho_{dc} - \rho_{ac}}{\rho_{dc}}$
d) $\frac{\rho_{dc} - \rho_{ac}}{\rho_{ac}}$

32) The bright spot on a seismic reflection section in a sandâshale sequence can be seen over
(GATE GG 2012)

a) fresh water-bearing sand b) saline water-bearing sand c) oil pool d) gas pool

33) The line joining the north and south magnetic dip poles misses the Earthâs centre by about (in km)
(GATE GG 2012)

a) 1000 b) 1100 c) 1200 d) 1300

34) For a three-layered earth with resistivities ρ_1, ρ_2, and ρ_3, and corresponding thicknesses h_1, h_2, and h_3 respectively, the quantity $(h_1/\rho_1) + (h_2/\rho_2) + (h_3/\rho_3)$ stands for
(GATE GG 2012)

a) longitudinal conductance b) transverse resistance c) apparent conductance d) apparent resistance

35) The distance between the centre of the Earth and the barycentre (i.e. centre of mass of the EarthâMoon system) is (in km)
(GATE GG 2012)

a) 4510 b) 4670 c) 4810 d) 4860

36) The change in gravity caused by Earthâs tides on the land surface in a complete tidal cycle is in the range of (in milligal)
(GATE GG 2012)

a) 0.1 to 0.2
b) 0.2 to 0.3
c) 0.3 to 0.4
d) 0.4 to 0.5

37) Terrestrial heat flow is the product of
(GATE GG 2012)

a) thermal diffusivity and temperature
b) thermal conductivity and temperature
c) thermal diffusivity and temperature gradient
d) thermal conductivity and temperature gradient

38) According to Archie's equation, the electrical resistivity of porous sandstone doesn't depend on:
(GATE GG 2012)

a) porosity
b) nature of interstitial fluid
c) tortuosity of pores
d) solid matrix

39) Match the items in Group I with those in Group II.

Group I	Group II
P. Magnetic susceptibility	1. Gyromagnetic ratio
Q. Airborne magnetic survey	2. Axial dipole
R. Geomagnetic field	3. Diamagnetism
S. Proton precession magnetometer	4. Total field intensity
	5. Poisson's relation

(GATE GG 2012)

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

40) The NMO of a diffraction hyperbola as compared to that of a reflection hyperbola is
(GATE GG 2012)

a) always greater
b) always smaller
c) random
d) same

41) Which one of the following can be determined from the NMR log against sandstone?
(GATE GG 2012)

a) Clay content of sandstone
b) Total porosity
c) Water-filled porosity
d) Structured water

42) The peak in the response curves obtained from a geophone exhibits
(GATE GG 2012)

a) shift to lower frequency with increasing damping coefficient
b) shift to higher frequency with increasing damping coefficient
c) no shift in frequency with increasing damping coefficient
d) increase in amplitude with increasing damping coefficient

43) The solution to the purely under-determined problem $Gm = d$ is given by
(GATE GG 2012)

a) $(G^T G)^{-1} G^T d$
b) $(G^T G)^{-1} G\, d^T$
c) $G^T (G G^T)^{-1} d$
d) $G^T d\, (G G^T)^{-1}$

44) Given the following matrix equation:
$A_{m\times n}\, X_{x\times 1} = b_{m\times 1}$, the nature of this system of equation is
(GATE GG 2012)

a) over-determined if $m > n$
b) under-determined if $m < n$
c) even-determined if $m = n$
d) determined by the rank of the matrix A

45) Match the items in Group I with those in Group II.

Group I	Group II
P. 10^{-4} to 1 Hz	1. VLF
Q. 400 to 2000 Hz	2. GPR
R. 20 kHz to 25 kHz	3. MT
S. 25 MHz to 1.2 GHz	4. Slingram

(GATE GG 2012)

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

46) Gamma-gamma log applied for estimation of formation density uses incident rays with energy in the range of 0.5 MeV to 2.0 MeV. The interaction of such gamma rays with rocks is governed by

(GATE GG 2012)

a) photoelectric absorption
b) Compton scattering
c) pair production
d) secondary emission of gamma rays

47) Determine the correctness or otherwise of the following Assertion (a) and Reason (r).
Assertion: In a well-log survey using fresh-water drilling mud, an oil-bearing sandstone zone can be identified by electrical resistivity and SP logs.
Reason: Oil has high electrical resistivity and the porous nature of sandstone is indicated by negative SP.

(GATE GG 2012)

a) [*a*] is true but [r] is false
b) [*a*] is false but [r] is true
c) both [a] and [r] are true but [r] is not the correct reason for [a]
d) both [a] and [r] are true and [r] is the correct reason for [a]

Common Data Questions

Common Data for Questions 48 and 49:

A signal having duration of 10 seconds is sampled at a rate of 1000 samples per second. The maximum frequency of the sampled signal is 475 Hz.

48) If the signal has been under-sampled, the maximum frequency (in Hz) of the original signal would have been

(GATE GG 2012)

a) 475
b) 500
c) 525
d) 550

49) What is the frequency interval (in Hz) at which the spectrum of the above signal is evaluated?

(GATE GG 2012)

a) 0.08
b) 0.10
c) 0.12
d) 0.14

Common Data for Questions 50 and 51:

In a sequence of equally thick layers in the subsurface, normally incident reflection coefficients at the three interfaces are: 0.10, 0.15 and 0.18.

50) The amplitude of primary reflection from the deepest interface is

(GATE GG 2012)

a) 0.184 b) 0.174 c) 0.165 d) 0.156

51) The amplitude of the surface multiple that arrives along with the reflection from the deepest interface is

(GATE GG 2012)

a) 0.008 b) 0.005 c) 0.003 d) 0.001

Linked Answer Questions

Statement for Linked Answer Questions 52 and 53:

A thick section of clean sand is identified on a suite of geophysical logs. The deep laterolog reads 4 Ohm-m in the upper part of the section and 0.1 Ohm-m in the lower part of the section. The lower part is interpreted to be 100% water-saturated. The resistivity of formation water obtained from SP log is estimated to be 0.01 Ohm-m.

52) The formation resistivity factor of the clean sand section is

(GATE GG 2012)

a) 8 b) 10 c) 12 d) 14

53) Based on the above result, the water saturation in the top part of the sand formation is

(GATE GG 2012)

a) 0.125 b) 0.158 c) 0.165 d) 0.184

Statement for Linked Answer Questions 54 and 55:

The seismic slip of a fault after an earthquake is measured to be 0.5 m and the fault area is estimated to be 250 km^2. The rigidity of the medium surrounding the fault is 30 GPa.

54) The seismic moment (in Nm) of the earthquake is

(GATE GG 2012)

a) 3.75×10^{18}
b) 3.75×10^{16}
c) 3.75×10^{14}
d) 3.75×10^{12}

55) Based on the above, the moment magnitude of the earthquake is

(GATE GG 2012)

a) 5.15 b) 5.36 c) 6.35 d) 7.25

END OF SECTION 2 OF PART B

General Aptitude (GA) Questions

Q. 56 – Q. 60 carry one mark each.

56) Which one of the following options is the closest in meaning to the word given below?
Pacify

(GATE GG 2012)

a) Excite b) Soothe c) Deplete d) Tire

57) Choose the most appropriate pair of words from the options given below to complete the following sentence:
The high level of ___ of the questions in the test was ___ by an increase in the period of time allotted for answering them.

(GATE GG 2012)

a) difficulty, compensated
b) exactitude, magnified
c) aptitude, decreased
d) attitude, mitigated

58) Choose the grammatically **CORRECT** sentence:

(GATE GG 2012)

a) He laid in bed till 8 oâclock in the morning.
b) He layed in bed till 8 oâclock in the morning.
c) He lain in bed till 8 oâclock in the morning.
d) He lay in bed till 8 oâclock in the morning.

59) Which one of the parts (A, B, C, D) in the sentence contains an ERROR?
No sooner had the doctor seen the results of the blood test, than he suggested the patient to see the specialist.

(GATE GG 2012)

a) no sooner had
b) results of the blood test
c) suggested the patient
d) see the specialist

60) Ten teams participate in a tournament. Every team plays each of the other teams twice. The total number of matches to be played is

(GATE GG 2012)

a) 20 b) 45 c) 60 d) 90

Q. 61 – Q. 65 carry two marks each.

61) A value of x that satisfies the equation $\log x + \log(x-7) = \log(x+11) + \log 2$ is

(GATE GG 2012)

a) 1 b) 2 c) 7 d) 11

62) Let $f(x) = x - [x]$, where $x \geq 0$ and $[x]$ is the greatest integer not larger than x. Then $f(x)$ is a

(GATE GG 2012)

a) monotonically increasing function
b) monotonically decreasing function
c) linearly increasing function between two integers
d) linearly decreasing function between two integers

63) Ravi is taller than Arun but shorter than Iqbal. Sam is shorter than Ravi. Mohan is shorter than Arun. Balu is taller than Mohan and Sam. The tallest person can be

(GATE GG 2012)

a) Mohan b) Ravi c) Balu d) Arun

64) A smuggler has 10 capsules in which five are filled with narcotic drugs and the rest contain the original medicine. All the 10 capsules are mixed in a single box, from which the customs officials picked two capsules at random and tested for the presence of narcotic drugs. The probability that the smuggler will be caught is

(GATE GG 2012)

a) 0.50 b) 0.67 c) 0.78 d) 0.82

65) The documents expose the cynicism of the government officials â and yet as the media website reflects, not a single newspaper has reported on their existence.
Which one of the following inferences may be drawn with the greatest accuracy from the above passage?

(GATE GG 2012)

a) Nobody other than the government officials knew about the existence of the documents.
b) Newspapers did report about the documents but nobody cared.
c) Media reports did not show the existence of the documents.
d) The documents reveal the attitude of the government officials.

END OF THE QUESTION PAPER