APPSC
TA
Previous Year Paper
(Geophysics) Paper-II
27 Sept, 2023

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Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Paper II Geophysics Technical Assistant
Subject Name :	Paper II Geophysics Technical Assistant
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Paper II Geophysics Technical Assistant

Section type :	Online
Section Negative Marks :	0.33
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 630680390254 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the term for a geologic formation that can absorb water but cannot transmit significant amounts?

Options :

1. ✖ Aquifuge
2. ✖ Aquitard
3. ✔ Aquiclude
4. ✖ Aquiferous

Question Number : 2 Question Id : 630680390255 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If a well is drilled into a confined aquifer, what happens to the water level in the well?

Options :

1. ✔ It rises to the same level as the piezometric surface
2. ✖ It rises to the same level as the recharge source
3. ✖ It stays the same level as the water table
4. ✖ It falls to the bottom of the well

Question Number : 3 Question Id : 630680390256 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following main method(s) for removing water from a leaky aquifer via a well is/are used?

(i) Horizontal flow within the aquifer
(ii) Vertical flow through the aquitard into the aquifer.
(iii) Horizontal flow within the aquitard

Options :

1. ✖ only (iii)
2. ✔ (i) and (ii)
3. ✖ (ii) and (iii)
4. ✖ (i) and (iii)

Question Number : 4 Question Id : 630680390257 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A semi-confined aquifer is also known as a/an _____.

Options :

1. ✖ unconfined aquifer
2. ✖ phreatic aquifer
3. ✖ perched aquifer
4. ✔ leaky aquifer

Question Number : 5 Question Id : 630680390258 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following properties of aquifers quantifies the ease with which water can move through the rock?

(a) Permeability
(b) Porosity
(c) Specific yield
(d) Specific retention

Options :

1. ✔ Only (a)
2. ✖ Both (a) and (d)
3. ✖ Both (b) and (c)
4. ✖ (b), (c) and (d)

Question Number : 6 Question Id : 630680390259 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Choose the best correct pairs from the following options.

Options :

1. ✖ (a) Primary porosity - Porosity that is present due to weathering
(b) Secondary porosity - Porosity that is present in metamorphic rocks
2. ✖ (a) Primary porosity - Porosity that is present in the rock after the formation of the rock
(b) Secondary porosity - Porosity that is present due to weathering
3. ✔ (a) Primary porosity - Porosity that is present in the rock right from its formation
(b) Secondary porosity - Porosity that is present in the rock after the formation of the rock
4. ✖ (a) Primary porosity - Porosity that is present in metamorphic rocks
(b) Secondary porosity - Porosity that is present in the rock right from its formation

Question Number : 7 Question Id : 630680390260 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Assertion (A): Some of the vesicular basalts are highly porous but less permeable.
Reason (R): The vesicles in basalts are not interconnected.

Based on the above assertion and reason, choose the correct answer from the options given below.

Options :

1. ✖ A is true but R is false

2. ✖ A is false but R is true
3. ✖ Both A and R are false
4. ✔ Both A and R are true

Question Number : 8 Question Id : 630680390261 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The specific yield of an alluvial aquifer is 0.15, and the aquifer's effective porosity is 0.35. The soil's specific retention in that aquifer is _____.

Options :

1. ✖ 0.5
2. ✖ 5.25
3. ✔ 0.2
4. ✖ 2.33

Question Number : 9 Question Id : 630680390262 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The storage coefficient of the aquifer is the same as the _____ in the case of an unconfined aquifer.

Options :

1. ✔ specific yield
2. ✖ specific retention
3. ✖ transmissibility
4. ✖ porosity

Question Number : 10 Question Id : 630680390263 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements is True according to Darcy's law?

Options :

1. ✖ Velocity of flow is directly proportional to the square of the viscosity
2. ✖ Velocity of flow is inversely proportional to the hydraulic gradient
3. ✔ Velocity of flow is directly proportional to the hydraulic gradient
4. ✖ Velocity of flow is independent of the hydraulic gradient

Question Number : 11 Question Id : 630680390264 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statement(s) is/are correct regarding pellicular water?

(a) It is water that occurs above a suitable aquiclude or aquifuge within the zone of aeration
(b) It is water that sticks to the sides of fractures or to the surface of openings in rocks
(c) It is water that moves down under the influence of gravity

Options :

1. ✖ Only (c)
2. ✔ Only (b)
3. ✖ Both (a) and (b)
4. ✖ Both (b) and (c)

Question Number : 12 Question Id : 630680390265 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What are the most important factors that influence ground water potential?

Options :

1. ✖ Topography, vegetation, air pressure
2. ✖ Soil type, wind direction, temperature
3. ✖ Human population, animal migration, ocean currents
4. ✔ Lithology, Geological structures and occurrence of surface water bodies

Question Number : 13 Question Id : 630680390266 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following does NOT form a part of the geological investigation for a specific area's ground water exploration?

Options :

1. ✔ Study of electric resistivity of rocks
2. ✖ Study of geological structures
3. ✖ Study of intrusive rocks
4. ✖ Study of weathering

Question Number : 14 Question Id : 630680390267 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Choose the BEST correct pair from the following options.

Options :

1. ✔ (a) Water table generally found at a shallow depth - Indo-Gangetic alluvial plains
(b) Water table generally found at a great depth - Deccan trap region
2. ✖ (a) Water table generally found at a shallow depth - Sedimentary rocks region
(b) Water table generally found at a great depth - Precambrian rocks region
3. ✖ (a) Water table generally found at a shallow depth - Deccan trap region
(b) Water table generally found at a great depth - Indo-Gangetic alluvial plains
4. ✖ (a) Water table generally found at a shallow depth - Precambrian rocks region
(b) Water table generally found at a great depth - Sedimentary rocks region

Question Number : 15 Question Id : 630680390268 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is the best example of an aquiclude?

(a) A layer of impermeable shale
(b) A limestone formation with many fractures
(c) A porous rock layer with good water transmission

Options :

1. ✖ Both (a) and (b)
2. ✖ Both (b) and (c)
3. ✖ only (b)
4. ✔ only (a)

Question Number : 16 Question Id : 630680390269 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The porosity (α) of a rock or soil can be expressed by _____ based on the mineral particle density (ρ_m) and bulk density (ρ_d).

Options :

1. ✖ $\alpha = (\rho_m - \rho_d)$
2. ✔ $\alpha = \left(1 - \frac{\rho_d}{\rho_m}\right)$
3. ✖ $\alpha = \left(\frac{\rho_d}{\rho_m}\right)$
4. ✖ $\alpha = \left(\frac{\rho_m}{\rho_d}\right)$

Question Number : 17 Question Id : 630680390270 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The unconfined aquifer has a volume of 50 million m^3 and a specific yield of 25%. In that aquifer, the volume of water drained is _____.

Options :

1. ✔ 12.5 million m^3
2. ✖ 2.0 million m^3
3. ✖ 20 million m^3
4. ✖ 37.5 million m^3

Question Number : 18 Question Id : 630680390271 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the unit of measurement for aquifer storativity?

Options :

1. ✖ Kilograms
2. ✖ Gallons
3. ✖ Cubic meters
4. ✔ It is a dimensionless quantity

Question Number : 19 Question Id : 630680390272 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When a rock material with area 'a' metre^2, length 'L' metre, and resistance 'r' ohm is subjected to an external current flow, its electrical resistivity 'ρ' is given by the _____ relation.

Options :

1. ✔ $\rho = ra\left(\frac{1}{L}\right) ohm - metre$
2. ✖ $\rho = \left(\frac{L}{ra}\right) ohm - metre$
3. ✖ $\rho = Lr\left(\frac{1}{a}\right) ohm - metre$
4. ✖ $\rho = \left(\frac{rL}{a}\right) ohm - metre$

Question Number : 20 Question Id : 630680390273 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the basic principle behind surface electrical resistivity surveying in groundwater exploration?

Options :

1. ✖ The distribution of electrical conductivity in the ground
2. ✖ The distribution of magnetic potential in the ground
3. ✔ The distribution of electrical potential in the ground
4. ✖ The distribution of heat potential in the ground

Question Number : 21 Question Id : 630680390274 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the nature of the primary currents within the borewell that causes the variations of the measured spontaneous potential?

Options :

1. ✖ Mechanical currents
2. ✖ Thermal currents
3. ✔ Electrochemical currents
4. ✖ Piezoelectric currents

Question Number : 22 Question Id : 630680390275 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is/are the applications of the spontaneous potential (SP) logging method?

(i) Identification of porous, permeable beds.
(ii) Determination of water resistivity.
(iii) Identification of possible hydrocarbon saturation in shaly sands.
(iv) Identification of the presence of a gas-oil contact.

Options :

1. ✖ Only (ii)
2. ✖ Only (ii) and (iii)
3. ✖ Only (i), (ii) and (iii)
4. ✔ (i), (ii), (iii) and (iv)

Question Number : 23 Question Id : 630680390276 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following minerals contain K^{40}?

Options :

1. ✖ Halite
2. ✔ Feldspar
3. ✖ Calcite
4. ✖ Quart

Question Number : 24 Question Id : 630680390277 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

How does the gamma-ray log differentiate between potential reservoir rocks and shales?

Options :

1. ✖ By the level of radiation, which is higher in potential reservoir rocks
2. ✖ By measuring fluid saturation
3. ✔ By the level of radiation, which is higher in shales
4. ✖ By calculating porosity

Question Number : 25 Question Id : 630680390278 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT a method of measuring gamma radiation in gamma-ray logging?

Options :

1. ✖ Ionization chambers
2. ✔ Organic scintillators
3. ✖ Scintillation counters
4. ✖ Geiger-Mueller counters

Question Number : 26 Question Id : 630680390279 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following rocks the neutron log count rate will be higher?

Options :

1. ✔ Low porosity rocks
2. ✖ High porosity rocks
3. ✖ Sandstone formations
4. ✖ Shale formations

Question Number : 27 Question Id : 630680390280 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What are the four phases of the life of neutrons that interact with atomic nuclei in the neutron log method?

Options :

1. ✖ Scattering, absorption, inelastic, and capture
2. ✖ Elastic, inelastic, capture, and fission
3. ✔ Fast, slowing down, diffusion, and capture
4. ✖ Fast, energetic, thermal, and capture

Question Number : 28 Question Id : 630680390281 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a neutron logging, the ratio of the concentration of hydrogen atoms per cm in the material, to that of pure water at 25 °C is called _____.

Options :

1. ✔ Hydrogen index
2. ✖ Bulk density
3. ✖ Electron density
4. ✖ Photoelectric Absorption Index

Question Number : 29 Question Id : 630680390282 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Why does the sonic tool have an apparent porosity greater than the effective porosity in a gas zone?

Options :

1. ✖ Because the gas is more dense than either water or oil
2. ✖ Because the sonic tool is not affected by the amount of hydrogen in the formation
3. ✔ Because the increased travel time of sound waves in gas causes an apparent increase in porosity
4. ✖ Because the sonic tool reads shale as high in porosity

Question Number : 30 Question Id : 630680390283 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the range of the electrical potential difference between an electrode in the borehole and a remote reference electrode on the surface in the spontaneous potential (SP) logging method?

Options :

1. ✖ Few hundreds of volts to thousands of volts
2. ✖ Few hundreds of volts
3. ✖ Few volts
4. ✔ Few millivolts to hundreds of microvolts

Question Number : 31 Question Id : 630680390284 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following makes the pulsed neutron capture log particularly desirable for measuring residual oil?

(a) It is highly affected by the borehole and casing
(b) It is one of the less complicated tools than the resistivity log
(c) It can be used through casing

Options :

1. ✖ Only (b)
2. ✔ Only (c)
3. ✖ (a) and (b)
4. ✖ (b) and (c)

Question Number : 32 Question Id : 630680390285 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When a rock is subjected to a magnetic field, the induced magnetic moment of the rock is proportional to _____.

Options :

1. ✖ magnetic remanence
2. ✔ magnetic susceptibility
3. ✖ magnetic permeability
4. ✖ magnetic hysteresis

Question Number : 33 Question Id : 630680390286 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statement(s) related to the potentials formed in the spontaneous potential log method is(are) CORRECT?

(i) Membrane potential is an e.m.f. developed when electrolytes of mud and formation water are separated by shale.
(ii) Liquid junction potential is an e.m.f. established at the contact of the mud filtrate and connate water in an invaded formation.
(iii) The origin of the electrochemical potential in the spontaneous potential log is the product of the membrane and liquid junction potentials.

Options :

1. ✖ Only (iii)
2. ✖ (ii) and (iii)
3. ✖ (i) and (iii)
4. ✔ (i) and (ii)

Question Number : 34 Question Id : 630680390287 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In the thermal neutron log method, as the neutron interacts with the nucleus of the material in the formation, what happens to the neutron and the nucleus?

Options :

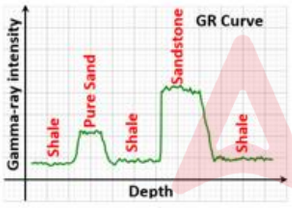
1. ✖ The neutron gains energy while the nucleus loses energy
2. ✔ The neutron loses energy while the nucleus gains energy
3. ✖ Both the neutron and the nucleus lose energy
4. ✖ Both the neutron and the nucleus gain energy

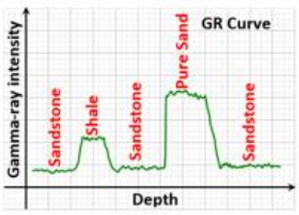
Question Number : 35 Question Id : 630680390288 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

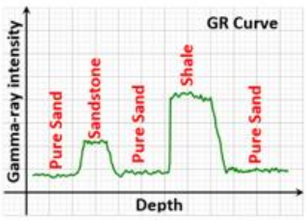
Correct Marks : 1 Wrong Marks : 0.33

A gamma-ray (GR) logging method is used to record the formation of a reservoir. Which of the following GR graphs exactly identifies the shale, sandstone, and pure sand?

Options :

1. ✖


2. ✖


3. ✔


4. ✖ 

Question Number : 36 Question Id : 630680390289 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following application(s) about the electrical resistivity approach in geophysical prospecting of ground water is/are CORRECT?

(A) Identifying potential locations for water wells
(B) Determining the natural groundwater flow paths

Options :

1. ✖ 'A' is correct and 'B' is incorrect
2. ✖ 'A' is incorrect and 'B' is correct
3. ✔ Both 'A' and 'B' are correct
4. ✖ Both 'A' and 'B' are incorrect

Question Number : 37 Question Id : 630680390290 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements about the salinity of groundwater is/are NOT CORRECT?

(i) The slower the movement of groundwater, the higher the salinity
(ii) The salinity is not affected by the movement of groundwater
(iii) The faster the movement of groundwater, the higher the salinity

Options :

1. ✖ only (i)
2. ✖ only (ii)
3. ✔ Both (ii) and (iii)
4. ✖ Both (i) and (iii)

Question Number : 38 Question Id : 630680390291 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the formation resistivity factor of rock?

Options :

1. ✖ A measure of the rock's ability to withstand pressure
2. ✔ A measure of the rock's ability to transmit electrical current
3. ✖ A measure of the rock's ability to absorb moisture
4. ✖ A measure of the rock's ability to transmit sound

Question Number : 39 Question Id : 630680390292 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is an accurate statement regarding the resistivity of ground water?

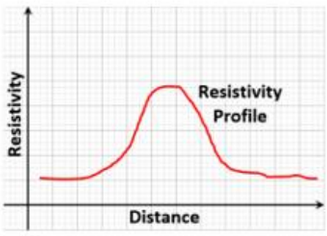
Options :

1. ✖ It is not affected by either salinity or temperature
2. ✖ It is only affected by salinity
3. ✖ It is only affected by temperature
4. ✔ It is affected by both salinity and temperature

Question Number : 40 Question Id : 630680390293 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The following resistivity profile is generated using the Wenner resistivity traversing survey. What does the rapid change in resistivity curvature in the profile indicate?



Options :

1. ✔ A hard object like a rock is located horizontally.
2. ✖ A shallow hole is located horizontally.
3. ✖ Horizontally the fresh water aquifer is located.
4. ✖ A pile of sand is located horizontally.

Question Number : 41 Question Id : 630680390294 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Choose the correct statement of electromagnetic induction logging system for determining hydro-geological properties of strata.

Options :

1. ✔ The electromagnetic method is particularly useful in areas where the surface rocks have low conductivity and resistivity methods cannot be used.
2. ✖ A nonconductive subsurface environment is essential to set up a secondary field measured with inductive electromagnetic methods.
3. ✖ The electromagnetic induction log actually measures the susceptibility of a formation rather than its resistivity.
4. ✖ Determining hydrogeological properties of strata by using electromagnetic techniques is less complicated than that of resistivity methods.

Question Number : 42 Question Id : 630680390295 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following minerals/rocks/fluids with their approximate dielectric constant range:

Minerals/rocks/fluids	Dielectric constantrange (relative to air)
(i) water	(a) 2.0 - 2.4
(ii) Shale	(b) 7.5 - 9.2
(iii) Petrol	(c) 56 - 80
(iv) Limestone	(d) 5 - 25

Options :

1. ✖ (i) – (a); (ii) – (b); (iii) – (c); (iv) – (d)
2. ✖ (i) – (d); (ii) – (a); (iii) – (b); (iv) – (c)
3. ✔ (i) – (c); (ii) – (d); (iii) – (a); (iv) – (b)
4. ✖ (i) – (b); (ii) – (a); (iii) – (d); (iv) – (c)

Question Number : 43 Question Id : 630680390296 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statement(s) related to thermal conductivity is/are true?

(a) The coefficient of thermal conductivity of rocks increases with increasing pressure.
(b) The coefficient of thermal conductivity for most of the rocks and mineral decreases with increasing temperature.

Options :

1. ✖ (a) is true and (b) is false
2. ✖ (a) is false and (b) is true
3. ✔ Both (a) and (b) are true
4. ✖ Both (a) and (b) are false

Question Number : 44 Question Id : 630680390297 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The _____ in rock is the ratio of force to tension under hydrostatic compression.

Options :

1. ✖ Poisson's ratio
2. ✖ Young's modulus
3. ✔ Elastic bulk modulus
4. ✖ Shear modulus

Question Number : 45 Question Id : 630680390298 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is/are the major natural sources of calcium concentration in ground water?

(i) Feldspars
(ii) Apatite
(iii) Aragonite
(iv) Pyrite

Options :

1. ✖ Only (iv)
2. ✔ Both (i) and (iii)
3. ✖ Both (ii) and (iv)
4. ✖ Both (i) and (ii)

Question Number : 46 Question Id : 630680390299 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The longitudinal wave velocity (V_L) of sound in elastic media of rock having Poisson's ratio (σ), Young's modulus (E) and bulk density (P_b) is _____.

Options :

1. ✔ $v_L = \sqrt{\frac{E}{\rho_b}\frac{(1-\sigma)}{(1+\sigma)(1-2\sigma)}}$
2. ✖ $v_L = \sqrt{\frac{E}{\rho_b}\frac{(1-2\sigma)}{(1+\sigma)}}$
3. ✖ $v_L = \sqrt{\frac{\rho_b}{E}\frac{(1-2\sigma)(1-\sigma)}{(1+\sigma)}}$
4. ✖ $v_L = \sqrt{\frac{\rho_b}{E}\frac{(1-2\sigma)}{(1-\sigma)(1+\sigma)}}$

Question Number : 47 Question Id : 630680390300 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following parameters of rock properties with their definition ratios.

Rock properties	Definition
(i) Poisson's ratio	(a) $\frac{Lateral\ Strain}{Longitudinal\ strain}$
(ii) Young's modulus	(b) $\frac{Applied\ uniaxial\ stress}{Normal\ strain}$
(iii) Shear Modulus	(c) $\frac{Applied\ stress}{Centre\ of\ twist\ strain}$
(iv) Bulk Compressibility	(d) $\frac{Volumetric\ deformation}{Hydrostatic\ pressure}$

Options :

1. ✔ (i) – (a); (ii) – (b); (iii) – (c); (iv) – (d)
2. ✖ (i) – (b); (ii) – (a); (iii) – (d); (iv) – (c)
3. ✖ (i) – (c); (ii) – (d); (iii) – (a); (iv) – (b)
4. ✖ (i) – (a); (ii) – (b); (iii) – (d); (iv) – (c)

Question Number : 48 Question Id : 630680390301 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following factors is/are the determining factor for the quantity of fluid contained in a rock?

(A) The shape of the grains
(B) The type of minerals present in the rock
(C) The porosity of the rock

Options :

1. ✖ Only (B)
2. ✔ Only (C)
3. ✖ Only (B) and (C)
4. ✖ All (A), (B) and (C)

Question Number : 49 Question Id : 630680390302 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is/are the applications of electrical resistivity logging studies?

(a) To determine the thickness of loose overburden or depth of the bedrock.
(b) To detect the fractured zones in the bedrock.
(c) To locate the places of leakage along canals or reservoirs.

Options :

1. ✖ Only (a)
2. ✖ Only (b)
3. ✖ Both (a) and (b)
4. ✔ All (a), (b) and (c)

Question Number : 50 Question Id : 630680390303 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What information can be acquired from the Vertical Electrical Sounding method used for the evaluation of the rock and its fluid content?

Options :

1. ✖ The magnetic susceptibility of subsurface layers
2. ✖ The compressive strength of subsurface layers
3. ✔ The resistivity values of various subsurface layers
4. ✖ The thermal conductivity of subsurface layers

Question Number : 51 Question Id : 630680390304 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When the size of water-transported sediments reaches 0.75 mm, what does the surface tension of the surrounding water film do in the grains of sediments?

Options :

1. ✖ It facilitates the collisions among the grains
2. ✖ It makes the water more viscous
3. ✖ It repels larger grains
4. ✔ It prevents actual contact between grains surrounded by thin films of water

Question Number : 52 Question Id : 630680390305 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is TRUE for limestone?

(A) They may have solution cavities and solution channels of varying magnitudes internally.
(B) They do not get corroded by carbon dioxide-bearing waters at any time.
(C) The range of porosity and permeability is unreasonably large in limestones.

Options :

1. ✖ Only (A)
2. ✖ Only (B)
3. ✔ Both (A) and (C)
4. ✖ Both (A) and (B)

Question Number : 53 Question Id : 630680390306 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the name given to the highly irregular and uneven topography formed in limestone regions?

Options :

1. ✔ Karst topography
2. ✖ Compact topography
3. ✖ Porous terrain
4. ✖ Massive terrain

Question Number : 54 Question Id : 630680390307 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Choose the correct pair of rocks with their main classes.

Options :

1. ✔ (i) Sedimentary - Dolomite
(ii) Igneous - Granite
(iii) Metamorphic - Schist
2. ✖ (i) Sedimentary - Granite
(ii) Igneous - Schist
(iii) Metamorphic - Dolomite
3. ✖ (i) Sedimentary - Schist
(ii) Igneous - Dolomite
(iii) Metamorphic - Granite
4. ✖ (i) Sedimentary - Schist
(ii) Igneous - Granite
(iii) Metamorphic - Dolomite

Question Number : 55 Question Id : 630680390308 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following minerals exclusively occur in metamorphic rocks?

Options :

1. ✖ Garnet
2. ✔ Andalusite
3. ✖ Epidote
4. ✖ Chlorite

Question Number : 56 Question Id : 630680390309 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following factors affects hydraulic conductivity of geological materials?

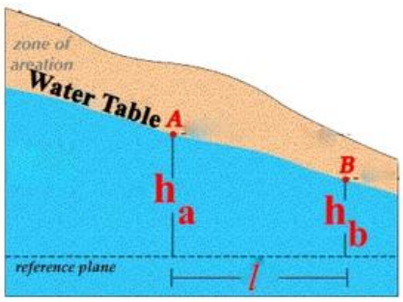
Options :

1. ✖ Only porosity
2. ✖ Only particle size
3. ✖ Porosity and particle arrangement only
4. ✔ Porosity, particle size and shape of the particle

Question Number : 57 Question Id : 630680390310 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

From the following diagram, h_a , h_b and l are 25 m, 9 m and 5 m respectively. The hydraulic gradient is _____



Options :

1. ✖ 39
2. ✖ 6.8
3. ✔ 3.2
4. ✖ 45

Question Number : 58 Question Id : 630680390311 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following grade of sediments with their grain size.

Sediments	Grain size (mm)
(a) Coarse sand	(i) 50 - 200
(b) Gravel	(ii) 2 - 10
(c) Silt	(iii) 0.5 - 1
(d) Cobbles	(iv) 0.01 - 0.1

Options :

1. ✖ (a) – (ii) ; (b) – (i) ; (c) – (iii) ; (d) – (iv)
2. ✔ (a) – (iii) ; (b) – (ii) ; (c) – (iv) ; (d) – (i)
3. ✖ (a) – (ii) ; (b) – (iii) ; (c) – (i) ; (d) – (iv)
4. ✖ (a) – (i) ; (b) – (ii) ; (c) – (iv) ; (d) – (iii)

Question Number : 59 Question Id : 630680390312 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

How does reduction or reversal of groundwater gradients contribute to saline water intrusion?

Options :

1. ✖ By reducing overall water usage
2. ✖ By increasing the natural hydrodynamic balance
3. ✔ By allowing denser saline water to displace freshwater
4. ✖ By allowing freshwater to displace denser saline water

Question Number : 60 Question Id : 630680390313 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Storativity describes the capacity of an aquifer to:

Options :

1. ✖ Increase hydraulic conductivity
2. ✔ Store or release water
3. ✖ Reduce the potential of contamination
4. ✖ Decrease overburden pressure

Question Number : 61 Question Id : 630680390314 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the main reason a buried valley may not have a visible surface expression?

Options :

1. ✔ It has been abandoned and buried by more recent sediment
2. ✖ It was destroyed by human activity
3. ✖ It was covered by vegetation
4. ✖ The sediment covering it is too thin

Question Number : 62 Question Id : 630680390315 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Assertion (A): Precipitation is the principal type of recharge found in buried valley aquifers.
Reason (R): Groundwater percolates through glacial tills and upper intertill aquifers in buried valley aquifers.

Based on the above assertion and reason, choose the correct answer from the options given below.

Options :

1. ✖ A is true but R is false
2. ✔ A is false but R is true
3. ✖ Both A and R are false
4. ✖ Both A and R are true

Question Number : 63 Question Id : 630680390316 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following activities can lead to the subsurface disposal of saline water?

(A) Waste repositories
(B) Open discharge into the sea
(C) Land filled with sand

Options :

1. ✖ Only (A)
2. ✖ Only (C)
3. ✔ Both (A) and (B)
4. ✖ Both (B) and (C)

Question Number : 64 Question Id : 630680390317 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is/are the factor that makes limestones either one of the best or worst aquifers in nature?

(i) The type of minerals present.
(ii) The unreasonably large range of porosity and permeability.
(iii) They are always compact with negligible porosity.

Options :

1. ✔ Only (ii)
2. ✖ Both (i) and (ii)
3. ✖ Both (i) and (iii)
4. ✖ Both (ii) and (iii)

Question Number : 65 Question Id : 630680390318 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which mechanism is responsible for the displacement of fresh water by denser saline water in coastal aquifers?

Options :

1. ✖ Construction of inland canals
2. ✖ Destruction of natural barriers
3. ✔ Reduction or reversal of groundwater gradients
4. ✖ Construction of coastal drainage canal

Question Number : 66 Question Id : 630680390319 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is an effect of salt-water intrusion in coastal areas underlain by porous materials?

Options :

1. ✔ The concentration of salt in the coastal groundwater wells increases.
2. ✖ Deeper wells can be dug to access fresher water.
3. ✖ Seawater becomes cleaner and more drinkable.
4. ✖ Freshwater becomes more abundant

Question Number : 67 Question Id : 630680390320 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When using a jet pump, what happens to the water pumped by the centrifugal pump?

Options :

1. ✔ It is returned to the nozzle-venturi below the water level
2. ✖ It is removed from the system
3. ✖ It is heated up
4. ✖ It is stored for later use

Question Number : 68 Question Id : 630680390321 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is NOT a main part of direct-use wells?

Options :

1. ✖ Surface casing
2. ✖ Production casing
3. ✔ Conductor casing
4. ✖ Inlet portion

Question Number : 69 Question Id : 630680390322 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the primary reason for placing grout in a well?

Options :

1. ✖ To increase water flow in the well
2. ✔ To protect aquifers from mixing with undesirable water sources
3. ✖ To provide air circulation to the well
4. ✖ Tomaintainhydraulic gradientof water source

Question Number : 70 Question Id : 630680390323 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the other name for open wells?

Options :

1. ✖ Brick wells
2. ✖ Underground wells
3. ✖ Capped wells

4. ✔ Dug wells

Question Number : 71 Question Id : 630680390324 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following disadvantages of tube well is/are correct?

(a) There is a possibility of missing fractures, fissures and joints in hard-rock regions, thereby resulting in many dry borewells.
(b) Rehabilitation of tubewells is generally very expensive and requires skilled workers.
(c) Cost of pumping is normally lesser than the open wells.

Options :

1. ✖ Only (c)
2. ✔ Both (a) and (b)
3. ✖ Both (b) and (c)
4. ✖ Both (a) and (c)

Question Number : 72 Question Id : 630680390325 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following information is important for efficient design of high-capacity wells?

Options :

1. ✖ The type of crops found in the surrounding area
2. ✖ The thickness of soil around the well site
3. ✔ Transmissivity values for the aquifer
4. ✖ Types of rocks and minerals present in the aquifer

Question Number : 73 Question Id : 630680390326 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is one of the most possible negative consequences of NOT considering water quality when designing high-capacity wells?

Options :

1. ✖ The well may not be deep enough
2. ✔ The water from the well may not be safe for drinking or irrigation purposes
3. ✖ The well may be too expensive to construct
4. ✖ The well may not be able to pump water fast enough

Question Number : 74 Question Id : 630680390327 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is well efficiency?

Options :

1. ✖ The depth of the well.
2. ✖ The rate at which water is pumped from the well.
3. ✖ The amount of water stored in the well.
4. ✔ The measure of how effectively the well pumps water.

Question Number : 75 Question Id : 630680390328 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following terms given in 'list A' with the relevant wells given in 'list B'.

List A	List B
(a) Drilling rigs	(i) Collector wells
(b) Alluvial tracts	(ii) Tubewells
(c) Tapping subsurface fractures	(iii) Borewells
(d) Thin aquifers	(iv) Infiltration gallery

Options :

1. ✔ (a) – (ii) ; (b) – (iii) ; (c) – (iv) ; (d) – (i)
2. ✖ (a) – (iii) ; (b) – (iv) ; (c) – (i) ; (d) – (ii)
3. ✖ (a) – (iv) ; (b) – (i) ; (c) – (ii) ; (d) – (iii)
4. ✖ (a) – (i) ; (b) – (ii) ; (c) – (iii) ; (d) – (iv)

Question Number : 76 Question Id : 630680390329 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Why don't submersible pumps have problems related to relative shaft elongation?

Options :

1. ✖ They use a different type of impeller.
2. ✖ They have a shorter shaft than lineshaft pumps.
3. ✔ The driver or electric motor is located below the pump itself.
4. ✖ They are not affected by temperature changes.

Question Number : 77 Question Id : 630680390330 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following correctly describes a geological formation that can store water and able to transmit it through its pore at a huge rate?

Options :

1. ✖ Aquiclude
2. ✔ Aquifer
3. ✖ Aquifuge
4. ✖ Aquitard

Question Number : 78 Question Id : 630680390331 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is correctly arranged in ascending order according to the permeability of the groundwater wells?

Options :

1. ✔ Aquifuge, Aquiclude, Aquitard, Aquifer
2. ✖ Aquifuge, Aquitard, Aquiclude, Aquifer
3. ✖ Aquifer, Aquitard, Aquiclude, Aquifuge
4. ✖ Aquifer, Aquiclude, Aquifuge, Aquitard

Question Number : 79 Question Id : 630680390332 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Bore wells have to be dug very deep in urban area compared to that of villages. This is because:

Options :

1. ✖ Villages have less area of open soil surfaces, which may help rainwater to percolate into the soil in large amount and recharge the groundwater.
2. ✔ Villages have large area of open soil surfaces, which may help rainwater to percolate into the soil in large amount and recharge the groundwater.
3. ✖ Urban areas have large amount of concrete roads, which make obstructions for borewell construction.
4. ✖ Urban areas have large area of open soil surface, which does not help to recharge groundwater.

Question Number : 80 Question Id : 630680390333 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following.

Name of Grains	Grain size (in mm)
A. Fine gravel	1. 0.06 to 0.125
B. Very fine sand	2. 4 to 8
C. Silt	3. 0.008 to 0.06
D. Pure clay	4. less than 0.002

Options :

1. ✔ A-2, B-1, C-3, D-4
2. ✖ A-2, B-3, C-1, D-4
3. ✖ A-3, B-1, C-4, D-3
4. ✖ A-1, B-3, C-2, D-4

Question Number : 81 Question Id : 630680390334 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The total groundwater discharge Q through a specific area of A can be expressed in terms of hydraulic gradient $\frac{dh}{dl}$ and hydraulic conductivity K as follows:

Options :

1. ✖ $Q = -\frac{KA}{\left(\frac{dh}{dl}\right)}$
2. ✖ $Q = -\frac{A\left(\frac{dh}{dl}\right)}{K}$
3. ✔ $Q = -AK\left(\frac{dh}{dl}\right)$
4. ✖ $Q = -\frac{K}{A}\left(\frac{dh}{dl}\right)$

Question Number : 82 Question Id : 630680390335 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following correctly narrates the completion of a cased hole?

Options :

1. ✖ the cementing of the well is not done
2. ✔ casings are run into the reservoir
3. ✖ casings are done only at the surface
4. ✖ the cementing of the well is done

Question Number : 83 Question Id : 630680390336 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Equipotential lines of flow nets are those set of lines which are:

Options :

1. ✖ connected points of unequal head of water
2. ✔ connected points of equal head of water
3. ✖ idealized paths followed by particles of water
4. ✖ connected paths followed by particles of water

Question Number : 84 Question Id : 630680390337 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In an isotropic aquifer flow lines are:

Options :

1. ✖ parallel to equipotential lines
2. ✖ at an angle 45° to equipotential lines
3. ✖ at an angle 60° to equipotential lines
4. ✔ perpendicular to equipotential lines

Question Number : 85 Question Id : 630680390338 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Under the natural hydraulic gradients, in large openings (like gravels), the flow of water particles are:

Options :

1. ✖ longitudinal laminar flow
2. ✖ rotational laminar flow
3. ✔ turbulent flow
4. ✖ irrotational laminar flow

Question Number : 86 Question Id : 630680390339 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following correctly narrates the relationship between the angles of refraction of flow lines θ_1 and θ_2 to their hydraulic conductivities K_1 and K_2, respectively?

Options :

1. ✖ $\frac{cot\theta_1}{cot\theta_2} = \frac{K_1}{K_2}$
2. ✔ $\frac{tan\theta_1}{tan\theta_2} = \frac{K_1}{K_2}$
3. ✖ $\frac{sin\theta_1}{sin\theta_2} = \frac{K_2}{K_1}$
4. ✖ $\frac{sin\theta_1}{sin\theta_2} = \frac{K_1}{K_2}$

Question Number : 87 Question Id : 630680390340 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A 4-hour unit hydrograph of a drainage basin is triangular in shape. If the peak ordinate of this graph is 50 m^3/s and the base period is 16 hours. The area of this basin is:

Options :

1. ✔ 144 km^2
2. ✖ 122 km^2
3. ✖ 244 km^2
4. ✖ 212 km^2

Question Number : 88 Question Id : 630680390341 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following laws are used for physically based mathematical groundwater models?

Options :

1. ✖ Darcy's Law and the law of conservation of momentum
2. ✖ Poiseuille's Law and the law of conservation of momentum

3. ✔ Darcy's law and the law of conservation of mass
4. ✖ Poiseuille's Law and the law of conservation of mass

Question Number : 89 Question Id : 630680390342 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following two forces are considered for unconfined saturated flow?

Options :

1. ✔ friction and gravity
2. ✖ friction and elastic force
3. ✖ pressure force and gravity force
4. ✖ inertia force and viscous force

Question Number : 90 Question Id : 630680390343 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following extensions of a file indicates that it is a backup copy?

Options :

1. ✔ .bak
2. ✖ .back
3. ✖ .com
4. ✖ .html

Question Number : 91 Question Id : 630680390344 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following can be a suitable numerical method to solve two-dimensional groundwater systems?

Options :

1. ✔ Finite difference method
2. ✖ Newton-Raphson method
3. ✖ Euler's Method
4. ✖ Runge-Kutta method

Question Number : 92 Question Id : 630680390345 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the followings is correctly describing the flowchart of ground water modeling?

Options :

1. ✖ 1. Model design 2. Calibration and Verification 3. Field data collection 4. Conceptualization of Model, 5. Post audit
2. ✔ 1. Field data collection 2. Conceptualization of Model 3. Model design 4. Calibration and Verification 5. Post audit
3. ✖ 1. Field data collection 2. Calibration and Verification 3. Conceptualization of Model 4. Model design 5. Post audit
4. ✖ 1. Calibration and Verification 2. Field data collection 3. Conceptualization of Model 4. Model design 5. Post audit

Question Number : 93 Question Id : 630680390346 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following is exactly describing the map of the groundwater flow?

Options :

1. ✔ Potentiometric map
2. ✖ Isocontour map
3. ✖ Isochore map
4. ✖ Isopach map

Question Number : 94 Question Id : 630680390347 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If an aquifer is artificially recharged by making it pass through an intervening layer of rock, then the aquifer will act as _____.

Options :

1. ✖ a cooling plant

2. ✔ a filter plant
3. ✖ a cooling agent
4. ✖ a hot chamber

Question Number : 95 Question Id : 630680390348 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following lists related to minimize ground water pollution:

List I	List II
A. Significant amount of unsaturated and organic materials	1. Pollutant Ground water
B. Areas of disposal far away of natural ground water discharge	2. Less Pollutant ground water
C. Organic substances broken down	3. Immiscible
D. Petroleum	4. Oxidation

Options :

1. ✖ A-1, B-3, C-4, D-2
2. ✖ A-4, B-3, C-1, D-2
3. ✔ A-2, B-1, C-4, D-3
4. ✖ A-2, B-3, C-1, D-4

Question Number : 96 Question Id : 630680390349 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following can be used to obtain a unit hydrograph from an S-hydrograph?

Options :

1. ✖ only shorter duration from longer duration
2. ✖ only longer duration from shorter duration
3. ✔ shorter duration from longer duration and vice versa
4. ✖ unit hydrograph cannot be obtained from an S-hydrograph

Question Number : 97 Question Id : 630680390350 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

If the area of a catchment basin is 256 mm^2 and its axial length is 16 mm. Then the form factor will be:

Options :

1. ✖ 0.05
2. ✖ 0.1
3. ✔ 1.0
4. ✖ 2.0

Question Number : 98 Question Id : 630680390351 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following affect the recession limb of a hydrograph?

Options :

1. ✖ basin characteristics only
2. ✖ storm characteristics only
3. ✔ both basin and storm characteristics
4. ✖ independent of both basin and storm characteristics

Question Number : 99 Question Id : 630680390352 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A hydrograph is a representation of :

Options :

1. ✖ ground water flow and time
2. ✖ amount of rainfall and time
3. ✔ stream discharge and time
4. ✖ surface runoff and time

Question Number : 100 Question Id : 630680390353 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In which of the following places groundwater is a source of trouble?

Options :

1. ✔ Slopes
2. ✖ Plains
3. ✖ Rivers
4. ✖ Brooks

Question Number : 101 Question Id : 630680390354 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following commands does one need to use in MS-DOS if one tries to duplicate the entire disk?

Options :

1. ✖ chkdsk
2. ✖ copydisk
3. ✔ diskcopy
4. ✖ format

Question Number : 102 Question Id : 630680390355 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following commands does one need to use in MS-DOS if one wants to display filenames and extensions in wide format?

Options :

1. ✖ dir/a
2. ✖ dir/wide
3. ✔ dir/w
4. ✖ dir/b

Question Number : 103 Question Id : 630680390356 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following correctly describes what is UNIX?

Options :

1. ✖ a programming language
2. ✔ an operating system
3. ✖ a software program
4. ✖ a text editor

Question Number : 104 Question Id : 630680390357 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following UNIX operating system commands with their descriptions:

Command	Description
1. cd	A. listing files in a directory
2. ls	B. change directory
3. pwd	C. show the contents of a file
4. cat	D. printing current directory

Options :

1. ✖ 1-C, 2-D, 3-A, 4-B

2. ✖ 1-B, 2-D, 3-C, 4-A
3. ✖ 1-A, 2-D, 3-B, 4-C
4. ✔ 1-B, 2-A, 3-D, 4-C

Question Number : 105 Question Id : 630680390358 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following is used to copy text in windows operating system?

Options :

1. ✖ ctrl + v
2. ✖ ctrl + z
3. ✔ ctrl + c
4. ✖ ctrl + y

Question Number : 106 Question Id : 630680390359 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following spreads through software programs (like MS word, excel etc.) and infects data files and documents?

Options :

1. ✖ Micro virus
2. ✔ Macro virus
3. ✖ Boot virus
4. ✖ Cluster virus

Question Number : 107 Question Id : 630680390360 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following Windows operating system icons with their names.

Windows operating system icon	Name of the icon
1. 	A. Error Icon
2. 	B. Help Icon
3. 	C. Warning Icon
4. 	D. Information icon

Options :

1. ✖ 1-B, 2-D, 3-C, 4-A
2. ✖ 1-C, 2-A, 3-B, 4-D
3. ✖ 1-A, 2-D, 3-C, 4-B
4. ✔ 1-C, 2-D, 3-B, 4-A

Question Number : 108 Question Id : 630680390361 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Infiltration is the process by which _____.

Options :

1. ✖ water flows to the river from the mountains
2. ✖ water flows to the lakes from the mountains
3. ✔ water flows into the ground through the soil surfaces
4. ✖ water flows to the sea from the mountains

Question Number : 109 Question Id : 630680390362 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Suppose in a catchment area, the infiltration capacity of the soil is less than the intensity of the rainfall. Which of the following is true for infiltration rate?

Options :

1. ✖ It is equal to rate of rainfall
2. ✖ It is less than infiltration capacity
3. ✔ It is equal to infiltration capacity
4. ✖ It is more than rate of rainfall

Question Number : 110 Question Id : 630680390363 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

In a rainy season, a catchment area with phi index of 0.45 cm/hour got a total rainfall of 2.6cm at a uniform rate for 6 hrs. Then the runoff depth in the catchment area in cm is :

Options :

1. ✔ 0
2. ✖ 0.45
3. ✖ 0.1
4. ✖ 0.9

Question Number : 111 Question Id : 630680390364 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following instruments with their proper function:

Instrument	Function
1. Anemometer	A. Infiltration capacity
2. Atmometer	B. Hydraulic conductivity
3. Rainfall simulator	C. Evaporation
4. Permeameter	D. Wind velocity

Options :

1. ✔ 1-D, 2-C, 3-A, 4-B
2. ✖ 1-B, 2-C, 3-A, 4-D
3. ✖ 1-D, 2-A, 3-C, 4-B
4. ✖ 1-A, 2-B, 3-C, 4-D

Question Number : 112 Question Id : 630680390365 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following is true about the contour maps of groundwater levels?

Options :

1. ✔ Convex and concave contours indicate regions of groundwater recharge and discharge, respectively
2. ✖ Convex and concave contours indicate regions of groundwater discharge and recharge, respectively
3. ✖ both the recharge and discharge regions are indicated by concave contours
4. ✖ both the recharge and discharge regions are indicated by convex contours

Question Number : 113 Question Id : 630680390366 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following is related to flow lines in the basin is correct?

Options :

1. ✖ flow lines sketched parallel to the contour lines show the direction of movement of groundwater in the wells within a basin
2. ✔ flow lines sketched perpendicular to the contour lines show the direction of movement of groundwater in the wells within a basin
3. ✖ flow lines sketched 45° to the contour lines show the direction of movement of groundwater in the wells within a basin
4. ✖ flow lines sketched 60° to the contour lines show the direction of movement of groundwater in the wells within a basin

Question Number : 114 Question Id : 630680390367 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the following statements related to the relation between seismic velocities and porosity:
A. Elastic properties of rocks are highly influenced by porosity.
B. Highly porous material is more compressible than material of lower porosity.
C. Seismic velocities are influenced by porosity.
Which one of the above is correct?

Options :

1. ✖ Only A and B
2. ✖ Only B and C
3. ✖ Only A and C
4. ✔ All A, B, and C

Question Number : 115 Question Id : 630680390368 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the following statements related to seismic waves:
A. There are two families of elastic waves: body waves and interface waves.
B. Body waves are capable to traverse and probe all depth levels of the subsurface.
C. Interface waves exist only near the boundary of layers such as the earth's surface.
Which one of the above statement(s) is(are) correct?

Options :

1. ✖ Only A and C
2. ✖ Only A and B
3. ✖ Only B and C
4. ✔ All A, B, and C

Question Number : 116 Question Id : 630680390369 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following equations is true for the angular directions θ_1 and θ_2 of the arriving and emerging waves of seismic P-waves, respectively, to the propagation velocities v_1 and v_2?

Options :

1. ✖ $\frac{\sin(\theta_1)}{\sin(\theta_2)} = \frac{v_2}{v_1}$
2. ✔ $\frac{\sin(\theta_2)}{\sin(\theta_1)} = \frac{v_2}{v_1}$
3. ✖ $\sin(\theta_1)\sin(\theta_2) = \frac{v_2}{v_1}$
4. ✖ $\sin(\theta_1)\sin(\theta_2) = v_1 v_2$

Question Number : 117 Question Id : 630680390370 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following statements related to the seismic method.

List I	List II
A. Seismic reflection measurements	1. Fresnel zones
B. Seismic refraction measurements	2. Zero offset image
C. Seismic refraction tomography	3. Moving source points
D. Common midpoint method	4. Heterogeneous velocity fields

Options :

1. ✔ A-2, B-1, C-4, D-3
2. ✖ A-1, B-2, C-4, D-3
3. ✖ A-2, B-1, C-3, D-4
4. ✖ A-4, B-3, C-2, D-1

Question Number : 118 Question Id : 630680390371 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the following statements related to gravity method:
A. The Bouguer anomaly at a station reflects gravity anomalies due to inhomogeneous conductivity below the gravity station.
B. The Bouguer plots are plotted as profiles oras contour maps.
Which one of the above statement(s) is(are) true?

Options :

1. ✖ Only A is true
2. ✔ Only B is true
3. ✖ Both A and B are true
4. ✖ Both A and B are false

Question Number : 119 Question Id : 630680390372 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Gravity as a function of geodetic latitude φ can be expressed as:

(gravity at the equator = γ_e, gravity flattening = β_1, earth's flattening factor = β_2)

Options :

1. ✖ $\gamma = \gamma_e[1 + \beta_1 sin^2\varphi + \beta_2 sin^2 2\varphi]$
2. ✔ $\gamma = \gamma_e[1 + \beta_1 sin^2\varphi - \beta_2 sin^2 2\varphi]$
3. ✖ $\gamma = \gamma_e[1 - \beta_1 sin^2\varphi + \beta_2 sin^2 2\varphi]$
4. ✖ $\gamma = \gamma_e[1 - \beta_1 sin^2\varphi - \beta_2 sin^2 2\varphi]$

Question Number : 120 Question Id : 630680390373 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Diamagnetic minerals like quartz and calcite have:

Options :

1. ✖ Positive susceptibility of the order of 10^{-5}
2. ✔ Negative susceptibility of the order of 10^{-5}
3. ✖ Positive susceptibility of the order of 10^{+5}
4. ✖ Negative susceptibility of the order of 10^{+5}

Question Number : 121 Question Id : 630680390374 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Magnetic field measurements are carried out by:

Options :

1. ✖ Voltmeter
2. ✖ Ammeter
3. ✔ Magnetometer
4. ✖ Galvanometer

Question Number : 122 Question Id : 630680390375 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the followings related to magnetic method measurements:

List I	List II
A. Gradiometer	1. Isomagnetic chart
B. Feldspars or Micas	2. Gradient of magnetic field
C. Magnetic data	3. Paramagnetic
D. Nuclear magnetic resonance	4. Magnetic susceptibility

Options :

1. ✔ A-2, B-3, C-1, D-4
2. ✖ A-2, B-3, C-4, D-1
3. ✖ A-3, B-2, C-1, D-4
4. ✖ A-1, B-3, C-2, D-4

Question Number : 123 Question Id : 630680390376 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The four basic quantities related to geothermics are:

Options :

1. ✖ internal energy, heat, heat transfer, entropy
2. ✖ internal energy, temperature, heat transfer, entropy
3. ✔ temperature, heat, heat storage and heat transfer
4. ✖ enthalpy, temperature, heat transfer, entropy

Question Number : 124 Question Id : 630680390377 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following sequence correctly describes the susceptibility of the rocks in the ascending order?

Options :

1. ✖ basic volcanic rocks < sedimentary rocks < metamorphic rocks < basic plutonic rocks
2. ✖ basic plutonic rocks < sedimentary rocks < metamorphic rocks < basic volcanic rocks
3. ✖ sedimentary rocks < basic plutonic rocks < metamorphic rocks < basic volcanic rocks
4. ✔ sedimentary rocks < metamorphic rocks < basic plutonic rocks < basic volcanic rocks

Question Number : 125 Question Id : 630680390378 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the following statements related to Geothermal method:
A. Temperature increases with increasing depth in the boreholes or in mining, and the gradient is roughly 0.03 K/m.
B. Terrestrial heat flow is also known as the vertical component of the heat flow density.
Which one of the above statement(s) is(are) true?

Options :

1. ✖ Only A is true
2. ✖ Only B is true
3. ✖ Both A and B are false
4. ✔ Both A and B are true

Question Number : 126 Question Id : 630680390379 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the following statements related to Geothermal method:
A. Geothermal infrared measurements are generally performed at the earth's surface.
B. Thermometer measurements are carried out in deep boreholes (20 - 40 m deep).
C. Resistance thermometers based on temperature-sensitive metallic and semiconductor resistors (thermistors) are used as temperature probes to measure borehole temperatures.
Which one of the above statements are true?

Options :

1. ✖ Only A and B

2. ✖ Only B and C
3. ✔ Only A and C
4. ✖ All A, B, and C

Question Number : 127 Question Id : 630680390380 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Compared to metals, thermal conductivity of rocks is:

Options :

1. ✖ very high
2. ✖ high
3. ✔ low
4. ✖ zero

Question Number : 128 Question Id : 630680390381 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following statement is true related to thermal conductivity of rocks?

Options :

1. ✖ Thermal conductivity of rocks does not depend on porosity, water content and texture
2. ✔ Thermal conductivity of rocks strongly depends on porosity, water content and texture
3. ✖ Thermal conductivity of rocks shows weaker dependence on porosity, water content and texture
4. ✖ Thermal conductivity of rocks shows weaker dependence on porosity, and water content, but does not depends on the texture.

Question Number : 129 Question Id : 630680390382 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following is correctly describes the unit of hydraulic diffusivity?

Options :

1. ✖ m/s
2. ✔ M^2/s
3. ✖ m^3/s
4. ✖ m/s^2

Question Number : 130 Question Id : 630680390383 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following is correctly describes the unit of hydraulic transmissivity?

Options :

1. ✖ m/day
2. ✔ m^2/day
3. ✖ m^3/day
4. ✖ m/day^2

Question Number : 131 Question Id : 630680390384 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

A confined aquifer is overlapped by an aquitard that is also overlaid by an unconfined aquifer. The approximate recharge rate from the unconfined aquifer to the confined aquifer is 1.095 m/year and the piezometric head of the confined aquifer is 8.6 m below the water table of the unconfined aquifer. If the average thickness of the aquitard is 4.3 m, then the vertical conductivity of the aquitard is:

Options :

1. ✖ 3×10^{-3} m/day
2. ✖ 3×10^{-4} m/day
3. ✔ 1.5×10^{-3} m/day
4. ✖ 1.5×10^{-4} m/day

Question Number : 132 Question Id : 630680390385 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the following statements related to hydraulic conductivity of geologic materials:
A. The hydraulic conductivity of a soil or rock does not depend on the porosity, particle size, and shape of particles.
B. For unconsolidated porous media, hydraulic conductivity varies with particle size.
C. Clay materials show low values of hydraulic conductivity, whereas sands and gravels show high values.
Which of the above statements are correct?

Options :

1. ✖ Only A and B
2. ✖ Only A and C
3. ✔ Only B and C
4. ✖ All A, B, and C

Question Number : 133 Question Id : 630680390386 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following related to the measurement techniques of hydraulic conductivity:

List I	List II
A. Tracer test	1. Most reliable method
B. Auger Hole test	2. Change in water level after removal of a volume of water
C. Pumping test of wells	3. Permeameter
D. Laboratory method	4. Time interval for a water tracer

Options :

1. ✔ A-4, B-2, C-1, D-3
2. ✖ A-2, B-3, C-1, D-4
3. ✖ A-1, B-2, C-4, D-3
4. ✖ A-2, B-3, C-4, D-1

Question Number : 134 Question Id : 630680390387 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the following statements related to different zones:
A. The porosity and permeability of the soil zone is higher than those of the underlying material.
B. The unsaturated zone is mainly divided into three parts: the soil zone, the intermediate zone, and the upper part of the capillary fringe.
Which one of the above statement(s) is(are) true?

Options :

1. ✖ Only A is true
2. ✖ Only B is true
3. ✔ Both A and B are true
4. ✖ Both A and B are false

Question Number : 135 Question Id : 630680390388 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following zone has the highest permeability?

Options :

1. ✖ Intermediate zone
2. ✔ Soil zone
3. ✖ Upper part of capillary fringe zone
4. ✖ Both the soil zone and intermediate zone

Question Number : 136 Question Id : 630680390389 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following statements related to formation factor is/are true?
A. Alow value for the formation factor indicates particles have a small diameter and low hydraulic conductivity values.
B. A high formation factor value suggests large diameter particles and high hydraulic conductivity.

Options :

1. ✖ Only A is true
2. ✖ Only B is true
3. ✔ Both A and B are true
4. ✖ Both A and B are false

Question Number : 137 Question Id : 630680390390 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

The water table is the saturated zone level at which the hydraulic pressure is _____ the atmospheric pressure.

Options :

1. ✖ slightly greater than
2. ✖ less than
3. ✔ equal to
4. ✖ much higher than

Question Number : 138 Question Id : 630680390391 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Below the water table, the hydraulic pressure _____ with increasing depth.

Options :

1. ✖ decreases
2. ✔ increases
3. ✖ does not change
4. ✖ drops abruptly to zero

Question Number : 139 Question Id : 630680390392 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

How much percentage (approximately) of the Earth's surface is covered by water?

Options :

1. ✖ 31%
2. ✖ 51%
3. ✔ 71%
4. ✖ 91%

Question Number : 140 Question Id : 630680390393 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Why water is considered as a universal solvent?

Options :

1. ✖ It has a neutral PH
2. ✖ It dissolves all substances completely
3. ✔ It dissolves a wide range of substances
4. ✖ It is a conductor of electricity

Question Number : 141 Question Id : 630680390394 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following describes a sublimation process?

Options :

1. ✖ snow changing into water directly
2. ✔ snow changing into water vapour directly
3. ✖ changing of water into ice
4. ✖ changing of water into vapour

Question Number : 142 Question Id : 630680390395 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

When Sun rays increase the temperature of water, the kinetic energy of the water molecules _____.

Options :

1. ✔ increases
2. ✖ decreases
3. ✖ does not change at all
4. ✖ reaches zero

Question Number : 143 Question Id : 630680390396 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is the melting point of ice?

Options :

1. ✖ 173.15 K
2. ✔ 223.15 K
3. ✖ 273.15 K
4. ✖ 323.15 K

Question Number : 144 Question Id : 630680390397 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following statements related to evaporation is/are correct?
A. Evaporation is a surface phenomenon.
B. The rate of evaporation increases with an increase of temperature.
C. The rate of evaporation increases with an increase in humidity.

Options :

1. ✔ Only A and B
2. ✖ Only A and C
3. ✖ Only B and C
4. ✖ All A, B, C

Question Number : 145 Question Id : 630680390398 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Match the following related to evaporation phenomena:

List I	List II
A. An increase in wind speed	1. Decrease in evaporation
B. A decrease in surface area	2. Occur with high kinetic energy
C. Evaporation of surface particles	3. Cool the hot surface
D. Vaporization of water	4. Increase in evaporation

Options :

1. ✖ A-2, B-1, C-3, D-4
2. ✖ A-1, B-2, C-3, D-4
3. ✖ A-4, B-2, C-1, D-3
4. ✔ A-4, B-1, C-2, D-3

Question Number : 146 Question Id : 630680390399 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which of the following correctly depicts the sequence of a water cycle in the Earth-atmosphere system?

Options :

1. ✖ condensation, precipitation, transpiration, evaporation

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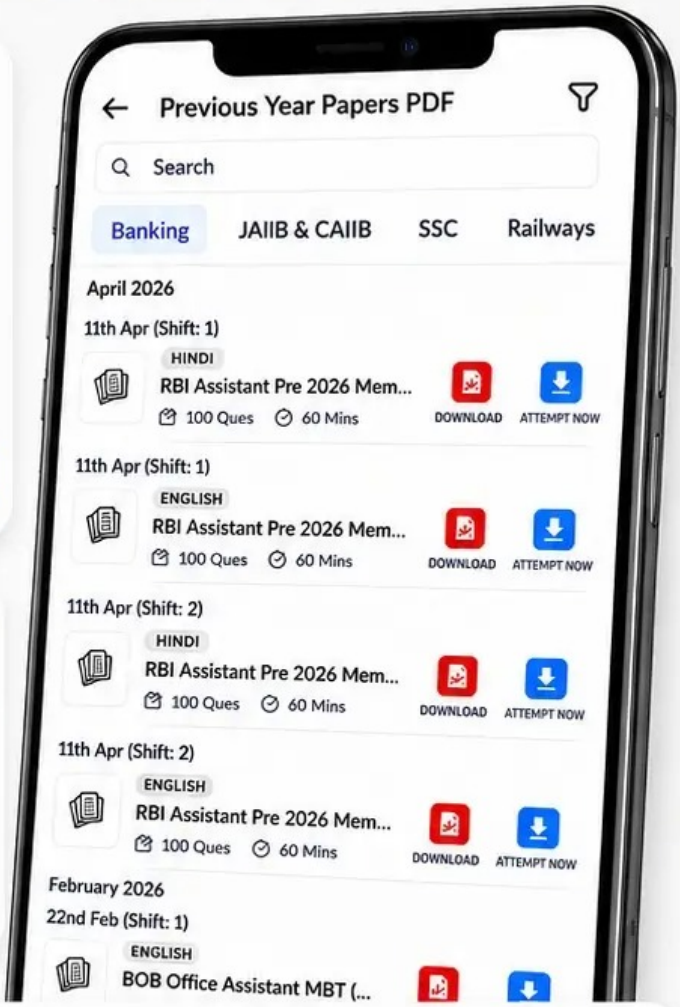
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2. ✔ evaporation, transpiration, condensation, precipitation
3. ✖ transpiration, evaporation, condensation, precipitation
4. ✖ transpiration, evaporation, precipitation, condensation

Question Number : 147 Question Id : 630680390400 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following is formed with the help of condensation?

Options :

1. ✖ Air
2. ✔ Cloud
3. ✖ Sun
4. ✖ Earth

Question Number : 148 Question Id : 630680390401 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Read the following statements related to condensation:
A. Condensation is the reverse action of evaporation.
B. Condensation happens when the air is cooled to its dew point.
Which one of the above statement(s) is (are) true?

Options :

1. ✖ Only A is true
2. ✖ Only B is true
3. ✔ Both A and B are true
4. ✖ Both A and B are false

Question Number : 149 Question Id : 630680390402 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

Which one of the following statement(s) related to water cycle is/are true?
A. Our earth is like a terrarium. The same water that existed centuries ago still exists today.
B. In a water cycle, we can only see two forms of water in the liquid and gaseous form.

Options :

1. ✔ Only A is true
2. ✖ only B is true
3. ✖ Both A and B are true
4. ✖ Both A and B are false

Question Number : 150 Question Id : 630680390403 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0.33

What is a hyetograph?

Options :

1. ✖ It is a plot of discharge vs time
2. ✖ It is a plot of recharge vs time
3. ✔ It is a plot of rainfall intensity vs time
4. ✖ It is a plot of rainfall depth vs time