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Notations :

- Options shown in **green** color and with  icon are correct.
- Options shown in **red** color and with  icon are incorrect.

Question Paper Name :

PC22184 Concerned Subject Junior Technical Assistant
NONGAZ2218

Subject Name :

PC22184 Concerned Subject Junior Technical Assistant NON
GAZ2218

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

Concerned Subject Junior Technical Assistant

Section type :

Online

Enable Mark as Answered Mark for Review and Clear Response :

Yes

Maximum Instruction Time :

0

Is Section Default? :





null

Question Number : 1 Question Id : 630680277368 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What was Darwin's method for estimating the age of the earth?

Options :

-  The study of the heat of the Sun
-  The study of the separation of the moon from the body of the earth
-  The study of the cooling of the earth
-  The study of the rate of accumulation of sodium in seawater

Question Number : 2 Question Id : 630680277369 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the correct order of the best-known hypothesis (given below) for the origin of the earth based on their chronological order.

- Gaseous hypothesis
- Binary star hypothesis
- Nebular hypothesis
- Gas dust cloud hypothesis
- Planetesimal hypothesis

Options :

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

Question Number : 3 Question Id : 630680277370 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is/are the difference(s) between dormant and extinct volcanoes?

- (A) Dormant volcanoes occur at divergent boundaries while extinct volcanoes occur at convergent boundaries.
(B) Dormant volcanoes show eruptions after long intervals of time while extinct volcanoes have not shown any volcanic activity for a very long time.
(C) Dormant volcanoes erupt frequently while extinct volcanoes have never shown any volcanic activity.
(D) Dormant and extinct volcanoes are the same.

Options :

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

Question Number : 4 Question Id : 630680277371 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the best sequence of volcanic gases that emanate after steam, when a volcano erupts.

Options :

1. ✖ Chlorine, sulphur dioxide, carbon dioxide and sulphur
2. ✖ Sulphur, carbon dioxide, chlorine and sulphur dioxide
3. ✔ Carbon dioxide, sulphur dioxide, sulphur and chlorine
4. ✖ Carbon monoxide, sulphur, chlorine and sulphur dioxide

Question Number : 5 Question Id : 630680277372 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the term used to describe solid rock fragments produced during volcanic eruptions?

Options :

1. ✖ Lavas
2. ✖ Craters
3. ✖ Calderas
4. ✔ Pyroclasts

Question Number : 6 Question Id : 630680277373 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the name of the point of origin of an earthquake within the earth's crust?

Options :

1. ✔ Focus
2. ✖ Epicentre
3. ✖ Isoseismal point
4. ✖ Apex

Question Number : 7 Question Id : 630680277374 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

On a Richter scale, a magnitude of 5.5 earthquake releases about _____ compared to a magnitude of 6.5 earthquake.

Options :

1. ✖ 100 times more energy
2. ✖ 20 times more energy
3. ✖ 10 times less energy

4. ✓ 30 times less energy

Question Number : 8 Question Id : 630680277375 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

According to Isostasy, if there is excess mass on the Earth's surface, what can be said about the density of the underlying rocks?

Options :

1. ✗ They are heavier than the rocks underlying oceanic depressions.
2. ✓ They are lighter than the rocks underlying mountains.
3. ✗ They are equally dense throughout the Earth's crust.
4. ✗ They are the same density as the rocks underlying oceanic depressions.

Question Number : 9 Question Id : 630680277376 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

- (A) According to the plate tectonic theory, spreading centres and subduction zones are the principal zones of volcanic activity.
(B) In convergent zones, the oceanic crust is subducted and melted. The andesitic magma that is formed rises and forms a volcanic arc adjacent to the trench.

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 : 10 Question Id : 630680277377 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a landform erosion cycle mentioned by geomorphic agents?

Options :

1. ✓ Volcanic cycle of erosion
2. ✗ Glacial cycle of erosion
3. ✗ Marine cycle of erosion
4. ✗ Fluvial cycle of erosion

Question Number : 11 Question Id : 630680277378 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

- (i) Rejuvenation is the term used to describe a young topography becoming mature.
(ii) An isolated table-land area with steep sides is called Mesa.
(iii) The escarpment is a steep slope resulting from differential weathering of rocks.

Options :

1. ✗ Only (i)
2. ✗ Only (iii)
3. ✗ (i) and (ii)
4. ✓ (ii) and (iii)

Question Number : 12 Question Id : 630680277379 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The continental rise is a prism of thicker sediments located beneath the surface of _____.

Options :

1. ✗ the continental shelf
2. ✓ the continental slope
3. ✗ the abyssal plain
4. ✗ the fringing reef

Question Number : 13 Question Id : 630680277380 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How are Aeolian deposits formed?

Options :

1. ✖ By volcanic eruptions
2. ✖ By tectonic activity
3. ✖ By water currents
4. ✔ By wind action

Question Number : 14 Question Id : 630680277381 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a characteristic of the abyssal plain?

Options :

1. ✔ Mountainous terrain
2. ✖ Covered in ooze-like sediment
3. ✖ Zone of the deep-sea floor
4. ✖ Contained mud-like deposit

Question Number : 15 Question Id : 630680277382 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Crag and tail are geological structures formed _____.

Options :

1. ✔ by a glacier passing over hard rock
2. ✖ due to tectonic plate movements
3. ✖ by the erosion caused by a river
4. ✖ by the deposition of clay sediment

Question Number : 16 Question Id : 630680277383 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

(A) The topography developed due to the action of wind flow is known as Karst topography.

(B) Basalt rock is most commonly associated with the formation of Karst valleys.

Options :

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

Question Number : 17 Question Id : 630680277384 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the correct pair from the following options.

Options :

1. ✖ A. Stages of erosion process by wind – Rill erosion and Gully erosion
B. Types of water erosion – Deflation erosion and Attrition erosion
2. ✔ A. Stages of erosion process by wind – Deflation erosion and Attrition erosion
B. Types of water erosion – Rill erosion and Gully erosion
3. ✖ A. Stages of erosion process by wind – Horn erosion and Nivation erosion
B. Types of water erosion – Nunatak erosion and crevasses erosion
4. ✖ A. Stages of erosion process by wind – Nunatak erosion and crevasses erosion
B. Types of water erosion – Horn erosion and Nivation erosion

Question Number : 18 Question Id : 630680277385 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is the most suitable role of weathering in erosion?

Options :

1. ✖ It has no effect on erosion.
2. ✖ It slows down erosion by creating new channels for water and wind to flow.
3. ✔ It weakens the rock surfaces and makes them more susceptible to erosion.
4. ✖ It prevents erosion by strengthening the rock surfaces.

Question Number : 19 Question Id : 630680277386 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the best correct pair from the following options.

Options :

1. ✖ (i) Secondary Structures – Lava pillow
(ii) Primary Structures – Foliation
2. ✖ (i) Secondary Structures – Beds and laminae
(ii) Primary Structures – Folds and Fractures
3. ✔ (i) Secondary Structures – Metamorphic rocks
(ii) Primary Structures – Igneous rocks
4. ✖ (i) Secondary Structures – Igneous rocks
(ii) Primary Structures – Sandstone rocks

Question Number : 20 Question Id : 630680277387 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the dip angle of a rock surface is 90° , what type of rock surface is it?

Options :

1. ✖ Flat bed
2. ✔ Vertical bed
3. ✖ Horizontal bed
4. ✖ S-shaped bed

Question Number : 21 Question Id : 630680277388 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) is/are NOT correct?

- (i) The strike of the bed is dependent of its amount of dip.
- (ii) The direction of the dip and strike of any inclined bed must lie at right angles to each other.
- (iii) True dip is in the direction along perpendicular to the strike.

Options :

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

Question Number : 22 Question Id : 630680277389 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What does the term 'rake' refer to in the context of faults?

Options :

1. ✖ The amount of damage caused by the fault
2. ✖ The angle of inclination of a fault plane
3. ✔ The direction of fault motion with respect to the strike
4. ✖ The horizontal displacement of the fault

Question Number : 23 Question Id : 630680277390 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the Synform fold structure, what is the shape of the fold as seen in cross section?

Options :

1. ✖ Convex upwards
2. ✖ Pyramidal upwards
3. ✖ Spherical top flat
4. ✔ Concave upwards

Question Number : 24 Question Id : 630680277391 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is the most important for studying folds in structural geology?

Options :

1. ✔ They provide insights into the tectonic history and deformation of rocks
2. ✖ They are used to locate oil and gas
3. ✖ They can help to predict volcanic eruptions
4. ✖ They can be used to estimate the age of a rock

Question Number : 25 Question Id : 630680277392 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT considered a foliation in a rock?

Options :

1. ✖ Cleavage
2. ✔ Fractures
3. ✖ Gneissosity
4. ✖ Bedding

Question Number : 26 Question Id : 630680277393 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the dip angle of a fault is 15° , what is its Hade?

Options :

1. ✖ 30°
2. ✖ 45°
3. ✔ 75°
4. ✖ 90°

Question Number : 27 Question Id : 630680277394 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following unconformity is a consequence of marine regression?

Options :

1. ✖ Over-step
2. ✖ Over-lap
3. ✔ Off-lap
4. ✖ On-lap

Question Number : 28 Question Id : 630680277395 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) is/are true (or) false?

- (a) Outliers are limited areas where younger rocks are entirely surrounded by older rocks.
(b) Inliers are limited areas where older rocks are entirely surrounded by younger rocks.

Options :

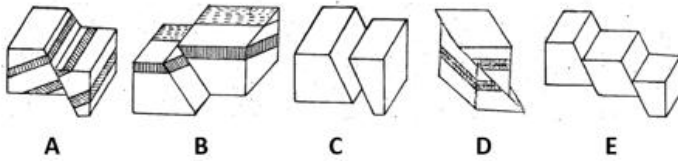
1. ✖ (a) is true and (b) is false
2. ✖ (a) is false and (b) is true
3. ✔ (a) and (b) are true
4. ✖ (a) and (b) are false

Question Number : 29 Question Id : 630680277396 Is Question Mandatory : No Calculator : None Response Time : N.A Think

Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the correct order of the names of the fault patterns given below.



Options :

A – Strike fault

B – Dip fault

C – Diagonal slip fault

D – Reverse fault

1. ✖ E – Step fault

A – Diagonal slip fault

B – Reverse fault

C – Strike fault

D – Dip fault

2. ✔ E – Step fault

A – Step fault

B – Strike fault

C – Diagonal slip fault

D – Dip fault

3. ✖ E – Reverse fault

A – Dip fault

B – Strike fault

C – Step fault

D – Reverse fault

4. ✖ E – Diagonal slip fault

Question Number : 30 Question Id : 630680277397 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the reason for the better chance of fossilisation of hard parts of organisms?

Options :

1. ✖ They are too small to fossilise.

2. ✔ They are not eaten by scavengers and decay more slowly.

3. ✖ They decay more quickly than soft parts.

4. ✖ They are too fragile to fossilise.

Question Number : 31 Question Id : 630680277398 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the key difference between petrification and carbonisation in the fossilisation process?

Options :

1. ✔ The former involves the transformation of organic structures into minerals while the latter involves enriching carbon.

2. ✖ The former only preserves hard parts while the latter preserves delicate structures as well.

3. ✖ The former involves the removal of all organic materials while the latter preserves it including nitrogen and oxygen.

4. ✖ The former is a fast process while the latter is a slow process.

Question Number : 32 Question Id : 630680277399 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which type of invertebrate animal remains occur characteristically in the rocks of the lower-palaeozoic age?

Options :

1. ☒ Trilobites
2. ☐ Jellyfish
3. ☐ Crustaceans
4. ☐ Ammonites

Question Number : 33 Question Id : 630680277400 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How can we establish the equivalence in age of rocks in different areas?

Options :

1. ☐ By counting the number of fossils in each rock
2. ☐ By examining their weight
3. ☐ By comparing their colour and texture
4. ☒ By comparing the fossils found in them

Question Number : 34 Question Id : 630680277401 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify whether the given statement(s) is/are true (or) false.

- (a) In the Tertiary period of rocks, Brachiopodas are seen only occasionally.
(b) In the Jurassic geological period, the Brachiopodas reached their peak development.

Options :

1. ☒ (a) is true and (b) is false
2. ☐ (a) is false and (b) is true
3. ☐ (a) and (b) are true
4. ☐ (a) and (b) are false

Question Number : 35 Question Id : 630680277402 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the time range for the Gondwana flora in India?

Options :

1. ☐ Lower Carboniferous to Upper Cretaceous
2. ☐ Lower Cretaceous to Upper Carboniferous
3. ☒ Upper Carboniferous to Lower Cretaceous
4. ☐ Upper Cretaceous to Lower Carboniferous

Question Number : 36 Question Id : 630680277403 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the geological age of Halysites coral?

Options :

1. ☒ Palaeozoic era
2. ☐ Ordovician era
3. ☐ Jurassic era
4. ☐ Middle Devonian era

Question Number : 37 Question Id : 630680277404 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following main class species with its subclass.

Main class species	Subclass
(a) Anthozoa	(i) Redlichiida
(b) Trilobites	(ii) Tabulate
(c) Echinodermata	(iii) Ammonoidea
(d) Cephalopods	(iv) Asteroidea

Options :

- ✓ a – ii, b – i, c – iv, d – iii
- ✗ a – iv, b – i, c – ii, d – iii
- ✗ a – ii, b – iii, c – iv, d – i
- ✗ a – iv, b – iii, c – ii, d – i

Question Number : 38 Question Id : 630680277405 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following pairs represents the type of gastropods?

Options :

- ✗ Favosites and Halysites
- ✗ Olenus and Illaenus
- ✗ Clidaris and Holaster
- ✓ Discidal and Turbinate

Question Number : 39 Question Id : 630680277406 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following options arranges the names of geological time scale in descending order.

(i) Proterozoic (ii) Mesozoic (iii) Quaternary (iv) Archean

Options :

- ✗ (ii), (iv), (i) and (iii)
- ✓ (iv), (i), (ii) and (iii)
- ✗ (iii), (ii), (iv) and (i)
- ✗ (i), (iv), (iii) and (ii)

Question Number : 40 Question Id : 630680277407 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

- The entire skeleton of a simple coral is called a corallum.
- In compound corals, the skeleton of each individual number of a colony is known as a corallite.
- The body of a coral has a spherical shape.

Options :

- ✓ Only (a) and (b)
- ✗ Only (b) and (c)
- ✗ Only (b)
- ✗ Only (c)

Question Number : 41 Question Id : 630680277408 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How does a stratigrapher determine the climate and environment during rock deposition?

Options :

- ✗ By studying the volcanoes

2. ✖ By studying the minerals in the rock-beds
3. ✖ By studying the tectonic activities
4. ✔ By studying the lithological characteristics of the rock-beds

Question Number : 42 Question Id : 630680277409 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT an objective of stratigraphy?

- (i) Studying the present geographical time zone of the earth
- (ii) Understanding the nature of organisms in the geologic past
- (iii) Understanding the chronological order of rock formation
- (iv) Determining the climate and environment during rock deposition

Options :

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

Question Number : 43 Question Id : 630680277410 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the nature of the given statements and select the most appropriate option.

- (i) One of the principles of stratigraphy is the law of superposition.
- (ii) Under normal conditions, the law of superposition states that an overlying bed or lamina is younger than that underlying it.

Options :

1. ✖ Statement (i) is correct and (ii) is incorrect
2. ✖ Statement (i) is incorrect and (ii) is correct
3. ✔ Statements (i) and (ii) are correct
4. ✖ Statements (i) and (ii) are incorrect

Question Number : 44 Question Id : 630680277411 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the largest grouping of periods of geological time?

Options :

1. ✖ Age
2. ✔ Eon
3. ✖ Decade
4. ✖ Epoch

Question Number : 45 Question Id : 630680277412 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the age of the Indo-Gangetic alluvial plains?

Options :

1. ✔ Quaternary era
2. ✖ Mesozoic age
3. ✖ Archaean and Precambrian age
4. ✖ Paleozoic age

Question Number : 46 Question Id : 630680277413 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The two distinct formation of Pre-Cambrian rocks in India are _____.

Options :

1. ✖ Kurnool and Gondwana System
2. ✔ Cuddapah and Vindhyan System
3. ✖ Limestone and Dolomite System

4. ✖ Jurassic and Tertiary System

Question Number : 47 Question Id : 630680277414 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How have the schistose rocks in south India been folded?

Options :

1. ✖ Vertical fold
2. ✖ Horizontal fold
3. ✖ Anticlinal fold
4. ✔ Isoclinal fold

Question Number : 48 Question Id : 630680277415 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the correct pair from the following options.

Options :

1. ✔ Dharwarian rocks of South Bombay – Lowest grade of Metamorphism
Dharwarian rocks of Southern Mysore – Highest grade of Metamorphism
2. ✖ Dharwarian rocks of South Bombay – Highest grade of metamorphism
Dharwarian rocks of Southern Mysore – Lowest grade of metamorphism
3. ✖ Dharwarian rocks of South Bombay – Contact metamorphism
Dharwarian rocks of Southern Mysore – Thermal metamorphism
4. ✖ Dharwarian rocks of South Bombay – Thermal metamorphism
Dharwarian rocks of Southern Mysore – Contact metamorphism

Question Number : 49 Question Id : 630680277416 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the best classification of the Vindhyan super group system from the following options.

Options :

1. ✖ (i) Kistna group (ii) Nallamalai group (iii) Cheyair group (iv) Papaghani group
2. ✖ (i) Ganpur group (ii) Kolhan group (iii) Dhanjori group (iv) Singhbhum group
3. ✔ (i) Bhandar group (ii) Rewa group (iii) Kaimur group (iv) Semri group
4. ✖ (i) Aravalli group (ii) Champanar group (iii) Raialo group (iv) Gwalior group

Question Number : 50 Question Id : 630680277417 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following rock systems in India with their famous ores:

Rock System	Famous for
(i) Gondwana	(a) Copper ore
(ii) Dharwar	(b) Precious stones and building materials
(iii) Cuddapah	(c) Coal
(iv) Vindhyan	(d) Rich Iron ore

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 : 51 Question Id : 630680277418 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the option that lists the location of the following rock formations in India in the order of rocks given below.

(i) Gondwana (ii) Dharwar (iii) Cuddapah (iv) Upper Vindhyan

Options :

1. ✖ (i) Karnataka (ii) Andhra Pradesh (iii) Son valley (iv) Damodar valley
2. ✖ (i) Andhra Pradesh (ii) Damodar valley (iii) Son valley (iv) Karnataka
3. ✖ (i) Karnataka (ii) Damodar valley (iii) Son valley (iv) Andhra Pradesh
4. ✔ (i) Damodar valley (ii) Karnataka (iii) Andhra Pradesh (iv) Son valley

Question Number : 52 Question Id : 630680277419 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following minerals has no cleavage at all?

Options :

1. ✖ Mica
2. ✖ Fluorite
3. ✖ Calcite
4. ✔ Quartz

Question Number : 53 Question Id : 630680277420 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following mineral group with their example.

Mineral Groups	Examples
(a) Sulphate	(i) Galena
(b) Carbonate	(ii) Dolomite
(c) Oxide	(iii) Gypsum
(d) Sulphide	(iv) Quartz

Options :

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

Question Number : 54 Question Id : 630680277421 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the option that arranges the following minerals in their descending order based on the Mohs scale of hardness.

(a) Calcite (b) Gypsum (c) Quartz (d) Apatite (e) Topaz

Options :

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

Question Number : 55 Question Id : 630680277422 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify whether the given statement(s) related to physical properties of the minerals is/are true/false.

- (a) The minerals, which may be cut with a knife, but slices that are not malleable are called Sectile.
- (b) The minerals that are powdery and have little or no cohesion are called pulverulent.

Options :

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

4. ✖ (a) and (b) are false

Question Number : 56 Question Id : 630680277423 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is true about pseudomorphs?

Options :

1. ✔ The chemical composition of a pseudomorph belongs to one mineral species whereas the crystal form corresponds to another.
2. ✖ The crystal structure and chemical composition of pseudomorph correspond to one mineral species and its external form is not preserved.
3. ✖ Pseudomorph is an original mineral species with its own chemical composition and structure.
4. ✖ The chemical composition and structure of a pseudomorph corresponds to another mineral species.

Question Number : 57 Question Id : 630680277424 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following mineral pairs are polymorphs?

Options :

1. ✔ Calcite and aragonite
2. ✖ Gypsum and halite
3. ✖ Quartz and feldspar
4. ✖ Hematite and magnetite

Question Number : 58 Question Id : 630680277425 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following classification of silicate minerals is/are correct?

- (a) In tectosilicate minerals, the ratio of Si : O is 1 : 2.
- (b) In sorosilicate minerals, the ratio of Si : O is 2 : 7.
- (c) In phyllosilicate minerals, the ratio of Si : O is 2 : 5.

Options :

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

Question Number : 59 Question Id : 630680277426 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

One of the varieties of mica is muscovite. The most abundant mineral in it among the ones listed below is _____.

Options :

1. ✖ Silver
2. ✔ Aluminium
3. ✖ Tin
4. ✖ Strontium

Question Number : 60 Question Id : 630680277427 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pyroxenes have the general formula of XYSi_2O_6 . X and Y are the most appropriate for which of the following pairs of elements?

Options :

1. ✖ X = Ar or Ne; Y = Xe or Kr
2. ✖ X = He or Ne; Y = Rn or Kr
3. ✖ X = Se or Te; Y = Cl or S
4. ✔ X = Ca or Na; Y = Mg or Cr

Question Number : 61 Question Id : 630680277428 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the names of the minerals in the olivine family listed below in decreasing order of magnesium (Mg) compositional value from 100% to 0%.

(i) Forsterite, (ii) Chrysolite, (iii) Hortonolite, (iv) Ferrorhortonolite, (v) Fayalite

Options :

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

Question Number : 62 Question Id : 630680277429 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the crystal structure of the quartz mineral 'opal'?

Options :

1. ✔ Amorphous
2. ✖ Cubic
3. ✖ Hexagonal
4. ✖ Tetragonal

Question Number : 63 Question Id : 630680277430 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the approximate percentage of feldspar content of the earth's crust?

Options :

1. ✖ 10%
2. ✖ 30%
3. ✔ 60%
4. ✖ 90%

Question Number : 64 Question Id : 630680277431 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A mineral can be identified as a crystal based on which of the following characteristics?

Options :

1. ✖ Its hardness
2. ✔ Its arrangement of atoms in the system
3. ✖ Its texture
4. ✖ Its transparency

Question Number : 65 Question Id : 630680277432 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is/are a/the characteristic(s) of amorphous solids?

- (a) They can be identified by their structure like crystals.
- (b) They break into even pieces with smooth edges, and they have a well-defined geometric shape.

Options :

1. ✖ (a) is correct, and (b) is incorrect.
2. ✖ (a) is incorrect, and (b) is correct.
3. ✖ (a) and (b) are correct.
4. ✔ (a) and (b) are incorrect.

Question Number : 66 Question Id : 630680277433 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the crystal system called where three mutually perpendicular axes of equal length intersect at right angles with each other?

Options :

1. ✖ Monoclinic
2. ✖ Triclinic

3. ✓ Isometric

4. ✗ Trigonal

Question Number : 67 Question Id : 630680277434 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following crystal systems with their number of symmetry classes.

Crystal systems	Number of classes
(a) Tetragonal	(i) 2
(b) Hexagonal	(ii) 3
(c) Monoclinic	(iii) 7
(d) Triclinic	(iv) 12

Options :

1. ✓ (a)-(iii); (b)-(iv); (c)-(ii); (d)-(i)

2. ✗ (a)-(i); (b)-(ii); (c)-(iv); (d)-(iii)

3. ✗ (a)-(ii); (b)-(iii); (c)-(i); (d)-(iv)

4. ✗ (a)-(iv); (b)-(i); (c)-(iii); (d)-(ii)

Question Number : 68 Question Id : 630680277435 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What happens to the Miller index as the corresponding Weiss parameter becomes larger?

Options :

1. ✗ The Miller index becomes negative.

2. ✗ The Miller index becomes larger.

3. ✓ The Miller index becomes smaller.

4. ✗ The Miller index remains the same.

Question Number : 69 Question Id : 630680277436 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Weiss parameters of planes that are parallel to the 'a' and 'b' axes and intersect the c-axis is _____.

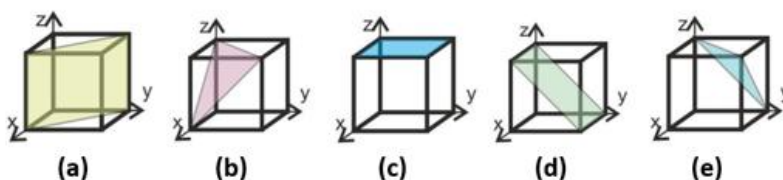
Options :

1. ✗ $1 : 1 : \infty$ 2. ✗ $1 : \infty : \infty$ 3. ✓ $\infty : \infty : 1$ 4. ✗ $\infty : 1 : \infty$

Question Number : 70 Question Id : 630680277437 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the most appropriate order of the Miller indices of the plane patterns depicted in the images below.



Options :

$$(a) \rightarrow (011)$$

$$(b) \rightarrow (\bar{1}11)$$

$$(c) \rightarrow (001)$$

$$(d) \rightarrow (110)$$

1. ✖ $(e) \rightarrow (11\bar{1})$

$$(a) \rightarrow (110)$$

$$(b) \rightarrow (11\bar{1})$$

$$(c) \rightarrow (010)$$

$$(d) \rightarrow (101)$$

2. ✖ $(e) \rightarrow (1\bar{1}1)$

$$(a) \rightarrow (110)$$

$$(b) \rightarrow (1\bar{1}1)$$

$$(c) \rightarrow (001)$$

$$(d) \rightarrow (011)$$

3. ✔ $(e) \rightarrow (\bar{1}11)$

$$(a) \rightarrow (110)$$

$$(b) \rightarrow (\bar{1}1\bar{1})$$

$$(c) \rightarrow (001)$$

$$(d) \rightarrow (011)$$

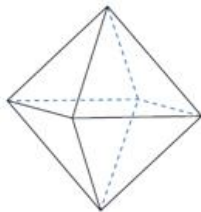
4. ✖ $(e) \rightarrow (1\bar{1}1)$

Question Number : 71 Question Id : 630680277438 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

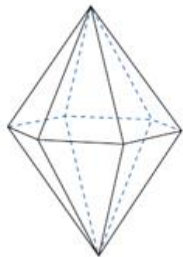
Correct Marks : 1 Wrong Marks : 0

Which of the following depicted structural forms corresponds to the isometric crystal system?

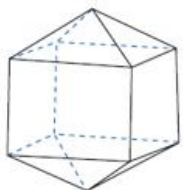
Options :



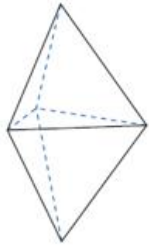
1. ✔



2. ✖



3. ✖



4. ✖

Question Number : 72 Question Id : 630680277439 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following crystal systems does NOT use $\{0\ 0\ 1\}$ as the form index for the basal pinacoid?

Options :

1. ✖ Triclinic
2. ✔ Hexagonal
3. ✖ Tetragonal
4. ✖ Monoclinic

Question Number : 73 Question Id : 630680277440 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

- (i) Pyritohedron is one of the forms of pyrite, and it is composed of 12 pentagonal faces.
- (ii) The positive and negative pyritohedrons together form 48 faces of the tetrahexahedron of the normal class.

Options :

1. ✔ Statement (i) is correct and (ii) is incorrect.
2. ✖ Statement (i) is incorrect and (ii) is correct.
3. ✖ Statements (i) and (ii) are incorrect.
4. ✖ Statements (i) and (ii) are correct.

Question Number : 74 Question Id : 630680277441 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) is/are INCORRECT?

- (a) One of the most common crystal forms in the triclinic crystal system is the pedion.
- (b) Topaz minerals are typically found in monoclinic crystal form.
- (c) Zincite minerals commonly exhibit hexagonal dipyrmaid crystal form.

Options :

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

Question Number : 75 Question Id : 630680277442 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Arrange the basic crystal structures presented below in the ascending order of the number of symmetry planes.

- (i) Tetragonal, (ii) Hexagonal, (iii) Cubic, (iv) Orthorhombic, (v) Monoclinic

Options :

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

Question Number : 76 Question Id : 630680277443 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When magma is cooled and solidified, what type of rock is formed?

Options :

1. ✖ Metamorphic
2. ✖ Sedimentary
3. ✔ Igneous
4. ✖ Sandstone

Question Number : 77 Question Id : 630680277444 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following elements is NOT abundantly found in magma?

Options :

1. ✖ Iron
2. ✖ Potassium
3. ✖ Sodium
4. ✔ Phosphorus

Question Number : 78 Question Id : 630680277445 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following igneous rock groups according to the amount of silica they contain.

Rock Groups	Percentage of Silica
(a) Ultrabasic Rocks	(i) More than 65%
(b) Basic Rocks	(ii) Between 45% and 55%
(c) Intermediate Rocks	(iii) Less than 45%
(d) Acid Rocks	(iv) Between 55% and 65%

Options :

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

Question Number : 79 Question Id : 630680277446 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following rocks is chemically equivalent to plutonic Gabbro rock?

Options :

1. ✔ Basalt
2. ✖ Granite
3. ✖ Sandstone
4. ✖ Limestone

Question Number : 80 Question Id : 630680277447 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify whether the following statements are true or false.

- (i) Quartz is typically not found in great quantities in gabbro rocks.
- (ii) Fossils are not usually found in igneous rocks.

Options :

1. ✖ (i) is true and (ii) is false.
2. ✖ (i) is false and (ii) is true.
3. ✔ (i) and (ii) are true.

4. ✖ (i) and (ii) are false.

Question Number : 81 Question Id : 630680277448 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) about the texture of igneous rocks is/are true?

- (i) The texture of igneous rocks is a function of the degree of crystallisation.
- (ii) The degree of crystallisation is independent of the viscosity of the magma.
- (iii) The grains of igneous rocks are called euhedral.

Options :

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

Question Number : 82 Question Id : 630680277449 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the result of the inclusion of xenoliths into magma?

Options :

- 1. ✖ Homogeneity in the texture of igneous rocks
- 2. ✔ Heterogeneity in the texture of igneous rocks
- 3. ✖ Solidification of the magma
- 4. ✖ Formation of gas cavities

Question Number : 83 Question Id : 630680277450 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The chemical composition of magma is given below. Rearrange the chemical composition of magma in the descending order of oxide percentage.

(a) MgO, (b) CaO, (c) CO₂, (d) SiO₂, (e) H₂O

Options :

- 1. ✔ (d) → (b) → (a) → (e) → (c)
- 2. ✖ (d) → (a) → (c) → (b) → (e)
- 3. ✖ (a) → (d) → (e) → (c) → (b)
- 4. ✖ (a) → (d) → (b) → (c) → (e)

Question Number : 84 Question Id : 630680277451 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the process called when sediment deposition builds up and overburden pressure rises?

Options :

- 1. ✖ Weathering
- 2. ✖ Precipitation
- 3. ✔ Lithification
- 4. ✖ Saturation

Question Number : 85 Question Id : 630680277452 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the most appropriate pairs for the diagenetic changes that occur in rock formation from the following options.

Options :

- 1. ✔ (i) The most common cementing materials - Silica and calcium carbonate
(ii) The rocks consolidated by recrystallization - Dolomites and Limestone
- 2. ✖ (i) The most common cementing materials - Phyllites and Schists
(ii) The rocks consolidated by recrystallization - Granites and Khondalite
- 3. ✖ (i) The most common cementing materials - Granites and Khondalite
(ii) The rocks consolidated by recrystallization - Phyllites and Schists
- 4. ✖ (i) The most common cementing materials - Kodurite and Limestone

(ii) The rocks consolidated by recrystallization - Charnockite and Gondite

Question Number : 86 Question Id : 630680277453 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Sort the following in the ascending order of their grain size.

(a) Sand, (b) Clay, (c) Gravel, (d) Silt

Options :

1. ✖ (d) → (b) → (c) → (a)
2. ✖ (d) → (b) → (a) → (c)
3. ✖ (b) → (d) → (c) → (a)
4. ✔ (b) → (d) → (a) → (c)

Question Number : 87 Question Id : 630680277454 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Argillaceous rocks are composed of _____.

Options :

1. ✖ sand particles
2. ✔ clay particles
3. ✖ ice particles
4. ✖ dust-like sediment particles

Question Number : 88 Question Id : 630680277455 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following rocks are formed solely by non-biological, chemical precipitation?

Options :

1. ✖ Limestone rocks
2. ✔ Ferruginous rocks
3. ✖ Coquina rocks
4. ✖ Chert rocks

Question Number : 89 Question Id : 630680277456 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) regarding sedimentary rocks is/are INCORRECT?

- (i) The hydrological system forms sedimentary rocks at the earth's surface.
- (ii) Weathering of pre-existing rocks is required for the creation of sedimentary rocks.
- (iii) Fossils cannot be found in sedimentary rocks.
- (iv) Sedimentary rocks are usually found in strata.

Options :

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

Question Number : 90 Question Id : 630680277457 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following types of rocks with the percentage of calcite in them.

Types of Rocks	Percentage of Calcite
(a) Dolomites	(i) 90%–50% calcite
(b) Limestones	(ii) Less than 10% calcite
(c) Dolomitic limestones	(iii) 10%–50% calcite
(d) Calcite dolomites	(iv) More than 90% calcite

Options :

- ✗ (a) – (iv), (b) – (ii), (c) – (iii), (d) – (i)
- ✗ (a) – (iv), (b) – (iii), (c) – (ii), (d) – (i)
- ✗ (a) – (i), (b) – (iii), (c) – (iv), (d) – (ii)
- ✓ (a) – (ii), (b) – (iv), (c) – (i), (d) – (iii)

Question Number : 91 Question Id : 630680277458 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How can one differentiate breccia and conglomerate if they are far away from their source rock?

Options :

- ✗ By the colour of the particles
- ✓ By the shape of the particles
- ✗ By the density of the particles
- ✗ By the hardness of the particles

Question Number : 92 Question Id : 630680277459 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify whether the following statements are true or false.

- Breccia is a non-clastic sedimentary rock.
- Greywacke is a variety of argillaceous sandstone that is highly indurated and poorly sorted.

Options :

- ✗ (a) is true and (b) is false.
- ✓ (a) is false and (b) is true.
- ✗ (a) and (b) are true.
- ✗ (a) and (b) are false.

Question Number : 93 Question Id : 630680277460 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify whether the following statements are true or false.

- A sandstone with abundant rock fragments and clay minerals is a litharenite.
- A feldspar-rich sandstone is called a shale.

Options :

- ✓ (a) is true and (b) is false.
- ✗ (a) is false and (b) is true.
- ✗ (a) and (b) are true.
- ✗ (a) and (b) are false.

Question Number : 94 Question Id : 630680277461 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the correct order of the steps of sedimentary rock formation.

- Precipitation, (ii) Lithification, (iii) Erosion, (iv) Dissolution, (v) Weathering

Options :

1. ✖ (ii) → (iv) → (v) → (i) → (iii)
2. ✖ (iv) → (ii) → (i) → (iii) → (v)
3. ✔ (iii) → (v) → (iv) → (i) → (ii)
4. ✖ (v) → (iii) → (ii) → (iv) → (i)

Question Number : 95 Question Id : 630680277462 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is a common way in which metamorphic rocks form from older rocks?

Options :

1. ✔ From increased temperature, pressure and shearing stresses
2. ✖ From volcanic activity
3. ✖ From water erosion
4. ✖ From sedimentation and cementation

Question Number : 96 Question Id : 630680277463 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the nature of the given statements and select the correct option.

- (a) Contact metamorphism is triggered by the intrusion of hot igneous bodies nearby, which causes the local heating of rocks.
- (b) Heat's primary purpose in contact metamorphism is to induce rock recrystallisation.

Options :

1. ✖ Statement (a) is correct and (b) is incorrect.
2. ✖ Statement (a) is incorrect and (b) is correct.
3. ✔ Statements (a) and (b) are correct.
4. ✖ Statements (a) and (b) are incorrect.

Question Number : 97 Question Id : 630680277464 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a metamorphic zone?

Options :

1. ✖ Katazone
2. ✔ Netrozone
3. ✖ Epizone
4. ✖ Mesozone

Question Number : 98 Question Id : 630680277465 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the nature of the given statements and select the correct option.

- (a) High-grade metamorphism occurs at a depth, and temperature ranges from 500°C to 650°C at very low pressure.
- (b) Medium-grade metamorphism occurs at a depth, and temperature ranges from 300°C to 500°C at very high pressure.

Options :

1. ✖ Statement (a) is correct and (b) is incorrect.
2. ✖ Statement (a) is incorrect and (b) is correct.
3. ✖ Statements (a) and (b) are correct.
4. ✔ Statements (a) and (b) are incorrect.

Question Number : 99 Question Id : 630680277466 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the correct order of the following index mineral appearance from low-grade to high-grade metamorphism.

- (i) Chlorite, (ii) Biotite, (iii) Almandine, (iv) Staurolite and (v) Sillimanite

Options :

1. ✔ (i) → (ii) → (iii) → (iv) → (v)
2. ✖ (v) → (iv) → (iii) → (ii) → (i)

3. ✖ (iii) → (i) → (ii) → (v) → (iv)

4. ✖ (iv) → (v) → (ii) → (i) → (iii)

Question Number : 100 Question Id : 630680277467 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the highest-grade metamorphic rock?

Options :

1. ✖ Schist

2. ✖ Basalt

3. ✔ Gneiss

4. ✖ Quartzite

Question Number : 101 Question Id : 630680277468 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following metamorphic facies with their mineral assemblages.

Metamorphic facies	Mineral assemblages
(a) Visible minerals found in gneiss	(i) Lowest grade of metamorphism
(b) Green Schist Facies	(ii) Garnet and plagioclase
(c) Granulite Facies	(iii) Chlorite and albite
(d) Zeolite Facies	(iv) Quartz and feldspar

Options :

1. ✖ (a) – (i); (b) – (ii); (c) – (iii); (d) – (iv)

2. ✖ (a) – (ii); (b) – (iv); (c) – (i); (d) – (iii)

3. ✔ (a) – (iv); (b) – (iii); (c) – (ii); (d) – (i)

4. ✖ (a) – (iii); (b) – (iv); (c) – (i); (d) – (ii)

Question Number : 102 Question Id : 630680277469 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

(i) A marble is a crystalline calcareous metamorphic rock having granular texture.

(ii) The slate rock has no cleavage.

(iii) The phyllite rock is a fine-grained, foliated lustrous rock.

Options :

1. ✖ (i) and (ii)

2. ✖ (ii) and (iii)

3. ✔ (i) and (iii)

4. ✖ Only (i)

Question Number : 103 Question Id : 630680277470 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What causes a spotted appearance in a maculose structure rock?

Options :

1. ✔ Formation of large-sized crystals called porphyroblasts

2. ✖ Formation of volcanic ash

3. ✖ Formation of large air pockets

4. ✖ Formation of mineral layers

Question Number : 104 Question Id : 630680277471 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Sort the regional metamorphism facies listed below in the ascending order of formation temperature.

(i) Zeolite facies, (ii) Eclogite facies, (iii) Granulite facies, (iv) Green-schist facies, (v) Glaucophanite-schist facies

Options :

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

Question Number : 105 Question Id : 630680277472 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the definition of fixed carbon in coal?

Options :

1. ✖ The percentage of carbon that is released during combustion
2. ✔ The percentage of carbon that remains after subtracting moisture, volatile matter and ash
3. ✖ The percentage of carbon that remains after removing all impurities
4. ✖ The percentage of carbon that cannot be burned

Question Number : 106 Question Id : 630680277473 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What term is used to describe a mineral deposit that formed much later than the rocks that enclose it?

Options :

1. ✔ Epigenetic deposit
2. ✖ Vein deposit
3. ✖ Syngenetic deposit
4. ✖ Hydrothermal deposit

Question Number : 107 Question Id : 630680277474 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

- (a) In India, deposits of manganese ore occur in abundance in Madhya Pradesh and Bihar.
- (b) In India, deposits over 40% of chromium ore are obtained from Karnataka.
- (c) In India, deposits of petroleum and natural gas are associated with the belt of tertiary rocks in Assam.

Options :

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

Question Number : 108 Question Id : 630680277475 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The principle ore of thorium is _____.

Options :

1. ✖ Niobate
2. ✖ Tantalate
3. ✖ Kyanite
4. ✔ Monazite

Question Number : 109 Question Id : 630680277476 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the acceptable range of volatile matter in coking coals?

Options :

1. ✔ Between 18% and 40%
2. ✖ Between 10% and 18%

- 3. ✖ Between 40% and 60%
- 4. ✖ Less than 10%

Question Number : 110 Question Id : 630680277477 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) is/are INCORRECT?

- (a) In some parts of India, radioactive materials are extracted from beach sand.
- (b) The minerals sillimanite and kyanite have the same chemical composition and differ in their crystallographic characteristics.
- (c) Moissan's volcanic theory related to the origin of the formation of metamorphic rock.

Options :

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

Question Number : 111 Question Id : 630680277478 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Choose the correct pairs from the following options.

Options :

- 1. ✖ (i) Magnesium ore -- Gypsite and Satin-spar
(ii) Zinc ore -- Spinel and Carnalite
- 2. ✖ (i) Magnesium ore -- Biotite and Zinnwaldite
(ii) Zinc ore -- Muscovite and Lepidodite
- 3. ✔ (i) Magnesium ore -- Olivine and Dolomite
(ii) Zinc ore -- Hemimorphite and Sphalerite
- 4. ✖ (i) Magnesium ore -- Muscovite and Lepidodite
(ii) Zinc ore -- Biotite and Zinnwaldite

Question Number : 112 Question Id : 630680277479 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify whether the following statements are true or false.

- (a) Chromite is the only mineral of chromium.
- (b) Pyrolusite is the major ore of aluminium.

Options :

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

Question Number : 113 Question Id : 630680277480 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is the most important ore of lead?

Options :

- 1. ✔ Galena
- 2. ✖ Bauxite
- 3. ✖ Gibbsite
- 4. ✖ Muscovite

Question Number : 114 Question Id : 630680277481 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following minerals to their most suitable economic uses.

Mineral Name	Economic Use
(a) Lead	(i) Galvanising iron
(b) Aluminium	(ii) Pigment in glass making
(c) Zinc	(iii) Insulating material
(d) Mica	(iv) Utensils

Options :

- ✗ (a) – (iv); (b) – (iii); (c) – (i); (d) – (ii)
- ✗ (a) – (i); (b) – (ii); (c) – (iv); (d) – (iii)
- ✗ (a) – (iii); (b) – (i); (c) – (ii); (d) – (iv)
- ✓ (a) – (ii); (b) – (iv); (c) – (i); (d) – (iii)

Question Number : 115 Question Id : 630680277482 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Arrange the following iron ores in the descending order of their iron content.

(a) Goethite, (b) Hematite, (c) Pyrite, (d) Magnetite

Options :

- ✗ (a) → (d) → (b) → (c)
- ✓ (d) → (b) → (a) → (c)
- ✗ (a) → (b) → (c) → (d)
- ✗ (b) → (c) → (a) → (d)

Question Number : 116 Question Id : 630680277483 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify whether the following statements are true or false.

- The main gold ores contain gold in its natural state.
- Gold found in riverbeds, streambeds and floodplains is referred to as alluvial gold.

Options :

- ✗ (i) is true and (ii) is false.
- ✗ (i) is false and (ii) is true.
- ✓ (i) and (ii) are true.
- ✗ (i) and (ii) are false.

Question Number : 117 Question Id : 630680277484 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the definition of gangue?

Options :

- ✗ The percentage of the metal in the ore
- ✗ The metal content of an ore
- ✓ The useless material associated with ore minerals
- ✗ The country-rock in which the ore minerals occur

Question Number : 118 Question Id : 630680277485 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Arrange the following topics for studying vector spaces in the chronological order.

- Dimension
- Subspace
- basis

Options :

1. ✖ 1-2-3
2. ✖ 1-3-2
3. ✖ 3-2-1
4. ✔ 3-1-2

Question Number : 119 Question Id : 630680277486 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is/are correct?

- I. If two vectors are linearly dependent, then one of them is a non-zero scalar multiple of the other.
- II. The set of vectors $\{(1, 2, 2), (2, 1, 2), (2, 2, 1)\}$ is linearly dependent.
- III. The set of vectors $\{(1, 2, 2), (2, 1, 2), (2, 2, 1)\}$ is linearly independent.

Options :

1. ✔ I and III are true, and II is false.
2. ✖ I is true, and II and III are false.
3. ✖ All of the three statements I, II and III are true.
4. ✖ I and II are true, and III is false.

Question Number : 120 Question Id : 630680277487 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the given statements are true considering a linear transformation $T : \mathbb{R}^p \rightarrow \mathbb{R}^q$ defined by $Tx = Ax$, $x \in \mathbb{R}^p$.

- I. A is the matrix representation of T having order qp .
- II. A is invertible if T is invertible.

Options :

1. ✖ I is false, but II is true.
2. ✔ Both I and II are true.
3. ✖ I is true, but II is false.
4. ✖ Both I and II are false.

Question Number : 121 Question Id : 630680277488 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The kernel of a linear transformation $T : \mathbb{R}^2 \rightarrow \mathbb{R}^3$ is a subspace of:

Options :

1. ✖ $\mathbb{R}^{2 \times 3}$
2. ✖ \mathbb{R}^{2+3}
3. ✖ \mathbb{R}^3
4. ✔ \mathbb{R}^2

Question Number : 122 Question Id : 630680277489 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The correct arrangement of algebraic multiplicity and geometric multiplicity of an eigenvalue and rank of a linear transformation in the decreasing order is:

Options :

1. ✖ algebraic multiplicity \leq geometric multiplicity \leq rank
2. ✔ geometric multiplicity \leq algebraic multiplicity \leq rank

3. ✖ algebraic multiplicity \leq geometric multiplicity $<$ rank

4. ✖ geometric multiplicity \leq algebraic multiplicity $<$ rank

Question Number : 123 Question Id : 630680277490 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Given that the matrix $A = \begin{bmatrix} 1 & 2 & 2 \\ 0 & 2 & 1 \\ -1 & 2 & 2 \end{bmatrix}$ satisfies $A^3 - 5A^2 + 8A - 4I = 0$, which of the following statements is/are correct?

I. The matrix A is invertible.

II. The matrix A is one-to-one.

III. 0 is an eigenvalue of A .

Options :

1. ✖ I and II are false, while III is true.

2. ✖ I is true, while II and III are false.

3. ✖ All of the three statements I, II and III are true.

4. ✔ I and II are true, while III is false.

Question Number : 124 Question Id : 630680277491 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For any constant x , the rank of the matrix $\begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ x & -1 & 1 \end{bmatrix}$ is:

Options :

1. ✔ 3

2. ✖ 2

3. ✖ 1

4. ✖ 0

Question Number : 125 Question Id : 630680277492 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If A is a square matrix of order 3 such that $A(adj A) = 21I$, then $|adj A|$ is equal to:

Options :

1. ✖ 414

2. ✔ 441

3. ✖ 141

4. ✖ 144

Question Number : 126 Question Id : 630680277493 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let the following system of linear equations be consistent.

$$3x + 4y + 5z = \alpha$$

$$4x + 5y + 6z = \beta$$

$$5x + 6y + 7z = \gamma$$

Then:

Options :

1. ✔ $\beta = \frac{\alpha + \gamma}{2}$

2. ✖ $\beta = \frac{\alpha - \gamma}{2}$

3. ✖ $\beta = \alpha\gamma$

4. ✖ $\beta = \frac{\alpha + \gamma}{4}$

Question Number : 127 Question Id : 630680277494 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let $P = \{-3, 3, 9\}$ and $Q = \{x: x \in \mathbb{R} \text{ and } x^3 - 9x^2 - 9x + 81 = 0\}$. Then, the number of proper subsets of $P \cup Q$ is:

Options :

1. ✖ 13

2. ✖ 11

3. ✖ 9

4. ✔ 7

Question Number : 128 Question Id : 630680277495 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the correct pair.

Options :

1. ✔ a function $f: X \rightarrow Y$ that maps distinct elements of X to distinct elements in Y – injective function

2. ✖ a function $f: X \rightarrow Y$ that maps distinct elements of X to distinct elements in Y – surjective function

3. ✖ a function $f: X \rightarrow Y$ that maps distinct elements of X to distinct elements in Y – bijective function

4. ✖ a function $f: X \rightarrow Y$ that maps distinct elements of X to distinct elements in Y – symmetric relation

Question Number : 129 Question Id : 630680277496 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $f(x) = \frac{5x+3}{2x-1}$ and $g(y) = y - 1$, then the range of $g \circ f(x)$ is:

Options :

1. ✖ $\mathbb{R} - \left\{\frac{1}{3}\right\}$

2. ✔ $\mathbb{R} - \left\{\frac{3}{2}\right\}$

3. ✖ $\mathbb{R} - \left\{\frac{2}{3}\right\}$

4. ✖ \mathbb{R}

Question Number : 130 Question Id : 630680277497 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Solve $\lim_{x \rightarrow \infty} \left(\frac{7x^3 + 2x^2 + 7}{3x^3 - 7x} \right)$.

Options :

1. ✖ 0

2. ✖ $\frac{1}{3}$

3. ✖ -1

4. ✔ $\frac{7}{3}$

Question Number : 131 Question Id : 630680277498 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For what value of λ is the function $f(x) = \begin{cases} 12x + 3\lambda, & x \neq 1 \\ 0, & x = 1 \end{cases}$ continuous at $x = 1$?

Options :

1. ✔ -4

2. ✖ 4

3. ✖ 2

4. ✖ -2

Question Number : 132 Question Id : 630680277499 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $y = \sin^{-1} x$, then the value of $\frac{d^2y}{dx^2}$ is:

Options :

1. ✔ $\frac{x}{(1-x^2)\sqrt{1-x^2}}$

2. ✖ $-\frac{x}{(1-x^2)\sqrt{1-x^2}}$

3. ✖ $\frac{x}{\sqrt{1-x^2}}$

4. ✖ $-\frac{x}{\sqrt{1-x^2}}$

Question Number : 133 Question Id : 630680277500 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $y = 2 \ln(ex^2)$, then find the value of $\frac{dy}{dx}$.

Options :

1. ✖ $\frac{2}{ex}$

2. ✖ $\frac{2}{x}$

3. ✔ $\frac{4}{x}$

4. ✖ $\frac{e}{2x}$

Question Number : 134 Question Id : 630680277501 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The area between the curves $y = 3x^2 - x - 3$ and $y = -2x^2 + 4x + 7$ is (in sq. units):

Options :

1. ✖ $\frac{55}{2}$

2. ✔ $\frac{45}{2}$

3. ✖ $\frac{35}{2}$

4. ✖ $3(e^{\cos 2} + \sin^2 2)$

Question Number : 135 Question Id : 630680277502 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the mean of 5 observations x , $x + 2$, $x + 4$, $x + 6$ and $x + 8$ is 15, then the mean of the last three observations is:

Options :

1. ✖ 11

2. ✖ 13

3. ✖ 15

4. ✔ 17

Question Number : 136 Question Id : 630680277503 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Below are the marks of a student.

64, 65, 68, 72, 73, 68, 87, 68, 72

The value of mode is:

Options :

1. ✖ 73

2. ✖ 72

3. ✔ 68

4. ✖ 7

Question Number : 137 Question Id : 630680277504 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is correct?

Options :

1. ✖ The correlation coefficient of two independent events is -1 .
2. ✔ The correlation coefficient of two independent events is 0 .
3. ✖ The correlation coefficient of two independent events is $+1$.
4. ✖ The correlation coefficient of two independent events cannot be determined.

Question Number : 138 Question Id : 630680277505 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Suppose that a newly constructed building collapsed. Obtain the probability that it is due to faulty design, where it is given that the chance of the design being faulty is 0.05 . The probability that the building collapsed because the design is faulty is 0.9 and it is 0.55 otherwise.

Options :

1. ✖ 0.049
2. ✖ 0.059
3. ✖ 0.069
4. ✔ 0.079

Question Number : 139 Question Id : 630680277506 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is/are correct for a function $f : X \rightarrow Y$.

I. If $f'(c) = 0$ and $f''(c) > 0$, then $x = c$ is a point of local maxima.

II. If $f'(c) = 0$ and $f''(c) < 0$, then $x = c$ is a point of local minima.

Options :

1. ✖ Both I and II are true.
2. ✔ Both I and II are false.
3. ✖ I is true, but II is false.
4. ✖ I is false, but II is true.

Question Number : 140 Question Id : 630680277507 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is/are true?

I. $\int_{-2}^2 \frac{\operatorname{cosec} x}{e^{\sec x} + \tan^2 x} dx = 0$

II. $\int_{-2}^2 \frac{\sec x}{e^{\sec x} + \tan^2 x} dx = 2 \int_0^2 \frac{\sec x}{e^{\sec x} + \tan^2 x} dx$

Options :

1. ✔ Both I and II are true.
2. ✖ I is false, but II is true.
3. ✖ I is true, but II is false.
4. ✖ Both I and II are false.

Question Number : 141 Question Id : 630680277508 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $f(x) = \int_1^x \tan^{-1}(e^t) dt$, which of the following is/are true?

I. $f'(0) = \frac{p}{4}$

II. $f'(1) = p$

Options :

1. ✖ Both I and II are true.
2. ✖ I is false, but II is true.
3. ✔ I is true, but II is false.
4. ✖ Both I and II are false.

Question Number : 142 Question Id : 630680277509 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is/are true?

I. For any two events A and B , if $A \subset B$, then $P(A^c) \geq P(B^c)$.

II. Two events are independent if $P(A \cap B) = P(A) P(B)$.

Options :

1. ✖ I is true, but II is false.
2. ✖ I is false, but II is true.
3. ✔ Both I and II are true.
4. ✖ Both I and II are false.

Question Number : 143 Question Id : 630680277510 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) is/are true?

I. Every continuous function is differentiable.

II. Every differential function not necessarily continuous.

III. Every continuous function has a tangent at some point on it.

Options :

1. ✖ I and III are true, but II is false.
2. ✖ I and III are false, but II is true.
3. ✖ I, II and III are true.
4. ✔ I, II and III are false.

Question Number : 144 Question Id : 630680277511 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) is/are true?

I. Mean and mode are the first two results of a central tendency test.

II. Central tendency test involves only three steps-addition, subtraction and division.

III. Mode will change if you rearrange the scores in any order.

Options :

1. ✔ I and II are true, but III is false.
2. ✖ I and III are true, but II is false.
3. ✖ I, II and III are true.
4. ✖ I, II and II are false.

Question Number : 145 Question Id : 630680277512 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following columns:

Column I	Column II
(A) $\frac{1}{2} \int_{-1}^1 \frac{1}{1+x^2} dx$	(P) 0
(B) $\int_0^1 \frac{1}{\sqrt{1-x^2}} dx$	(Q) $\frac{\pi}{4}$
(C) $\int_1^2 \frac{1}{x\sqrt{x^2-1}} dx$	(R) $\frac{\pi}{2}$
(D) $\int_{-1}^1 (\tan x + x) dx$	(S) $\frac{\pi}{3}$

Options :

1. ✖ (A)→(R), (B)→(Q), (C)→(P), (D)→(S)
2. ✖ (A)→(S), (B)→(R), (C)→(Q), (D)→(P)
3. ✔ (A)→(Q), (B)→(R), (C)→(S), (D)→(P)
4. ✖ (A)→(R), (B)→(Q), (C)→(S), (D)→(P)

Question Number : 146 Question Id : 630680277513 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Consider the following function.

$$f(x) = -\frac{3}{4}x^4 - 8x^3 - \frac{45}{2}x^2 + 105$$

Which of the following statements is/are true?

Options :

1. ✔ the point $x = 0$ – point of local maxima
2. ✖ the point $x = -3$ – point of local maxima
3. ✖ the point $x = -5$ – point of local minima
4. ✖ the point $x = 0$ – point of local minima

Question Number : 147 Question Id : 630680277514 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the correct pair.

Options :

1. ✖ Correlation analysis – multivariate analysis
2. ✔ Correlation analysis – univariate analysis
3. ✖ Values of two variables move in the same direction – correlation is said to be negative
4. ✖ The values of two variables move in the opposite direction – correlation is said to be positive

Question Number : 148 Question Id : 630680277515 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Select the decreasing order of the values of the following definite integrals.

$$(A) \int_0^3 [x] dx; (B) \int_{-1}^1 x^5 dx; (C) \int_{-1}^1 |x| dx$$

Options :

1. ✓ A, C, B
2. ✗ A, B, C
3. ✗ B, C, A
4. ✗ C, A, B

Question Number : 149 Question Id : 630680277516 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A bag contains 3 red, 4 black and 8 white balls. A ball is drawn from the bag at random.

Let

p_1 : probability that the ball drawn is red;

p_2 : probability that the ball drawn is red or black;

p_3 : probability that the ball drawn is white.

Then:

Options :

1. ✗ $P_1 > P_2 > P_3$
2. ✗ $P_2 < P_1 < P_3$
3. ✓ $P_1 < P_2 < P_3$
4. ✗ $P_1 < P_3 < P_2$

Question Number : 150 Question Id : 630680277517 Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Arrange the following topics for studying probability theory in the most appropriate chronological order.

I. Probability axioms

II. Sample space

III. Random variables

Options :

1. ✗ I-II-III
2. ✗ I-III-II
3. ✓ II-I-III
4. ✗ III-I-II