

# Telangana State Council Higher Education

## Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

<b>Question Paper Name :</b>	Geo Engineering and Geo Informatics 10th June 2024 Shift 1
<b>Subject Name :</b>	Geo Engineering and Geo Informatics
<b>Creation Date :</b>	2024-06-11 14:22:06
<b>Duration :</b>	120
<b>Total Marks :</b>	120
<b>Display Marks:</b>	Yes
<b>Share Answer Key With Delivery Engine :</b>	Yes
<b>Actual Answer Key :</b>	Yes
<b>Change Font Color :</b>	No
<b>Change Background Color :</b>	No
<b>Change Theme :</b>	No
<b>Help Button :</b>	No
<b>Show Reports :</b>	No
<b>Show Progress Bar :</b>	No

## Geo Engineering and Geo Informatics

<b>Group Number :</b>	1
<b>Group Id :</b>	38382329
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	120
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	120

## Mathematics

<b>Section Id :</b>	38382390
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory

Number of Questions :	10
Number of Questions to be attempted :	10
Section Marks :	10
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	38382390
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 3838234321 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes

Correct Marks : 1

Let  $A = \begin{bmatrix} 1 & -5 & 2 \\ 7 & 0 & 6 \\ 5 & -3 & 7 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & 6 & 7 \\ 3 & 8 & 4 \\ 7 & 6 & 1 \end{bmatrix}$ . If C and D are two  $3 \times 3$  matrices such that

$A + C$  is symmetric,  $A - C$  is skew-symmetric and B is transpose of D, then  $(C - D^T)^T =$

Options :

1. ✘  $\begin{bmatrix} 0 & -11 & -5 \\ 4 & -8 & 2 \\ -2 & -9 & 8 \end{bmatrix}$

2. ✘  $\begin{bmatrix} 0 & -22 & -11 \\ 49 & 78 & 55 \\ 45 & 48 & 30 \end{bmatrix}$

3. ✘  $\begin{bmatrix} 2 & 13 & 12 \\ -2 & 8 & 1 \\ 9 & 12 & 8 \end{bmatrix}$

4. ✔  $\begin{bmatrix} 0 & -8 & -5 \\ 1 & -8 & 0 \\ -2 & -7 & 6 \end{bmatrix}$

Question Number : 2 Question Id : 3838234322 Question Type : MCQ Option Shuffling : Yes  
 Display Question Number : Yes

Correct Marks : 1

If  $\overline{X}_1$  and  $\overline{X}_2$  are any two eigen vectors corresponding to eigen values  $\lambda_1$  and  $\lambda_2$  respectively, then

**Options :**

1. ✖  $\exists$  a constant K such that  $\overline{X}_1 = K\overline{X}_2$ , whenever  $\lambda_1 \neq \lambda_2$
2. ✔  $\exists$  no constant K such that  $\overline{X}_1 = K\overline{X}_2$ , whenever  $\lambda_1 \neq \lambda_2$
3. ✖  $\exists$  no constant K such that  $\overline{X}_1 = K\overline{X}_2$ , whenever  $\lambda_1 = \lambda_2$
4. ✖  $\overline{X}_1 = \overline{X}_2$  whenever  $\lambda_1 = \lambda_2$

**Question Number : 3 Question Id : 3838234323 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The equations  $a_1x + b_1y + c_1z = d_1$ ,  $a_2x + b_2y + c_2z = d_2$  and  $a_3x + b_3y + c_3z = d_3$

( $d_1d_2d_3 \neq 0$ ) represents three planes and  $\frac{a_i}{a_j} \neq \frac{b_i}{b_j} \neq \frac{c_i}{c_j}$  ( $i, j = 1, 2, 3$  &  $i \neq j$ ).

Let  $A = \begin{bmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{bmatrix}$ ,  $B = \begin{bmatrix} d_1 \\ d_2 \\ d_3 \end{bmatrix}$ . If rank of A = rank of  $[A : B] = 2$ , then the planes

are such that

**Options :**

1. ✖ line of intersection of any two is parallel to the third plane
2. ✖ line of intersection of any two planes cuts the third plane
3. ✔ line of intersection of any two planes lies on the third plane
4. ✖ the three planes are adjacent faces of a box

**Question Number : 4 Question Id : 3838234324 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

If  $|Z| > 2$  and the coefficients of  $Z^{12}$  and  $\frac{1}{Z^{12}}$  in the Laurent's series expansion of

$\frac{1}{(1-Z)(2-Z)}$  are A and B respectively, then  $2024 - A =$

**Options :**

1. ✖ B + 23

2. ✔ B - 23

3. ✖ B - 1

4. ✖ B + 1

**Question Number : 5 Question Id : 3838234325 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Given  $\oint_C \frac{f(z)}{z-a} dz = 0$ , where  $C: |z| = K$ . Consider the following conclusions

I.  $K < |a|$  and  $f(z)$  is analytic inside and on C.

II.  $f(z) = (z-a)^n g(z)$  ( $n \in \mathbb{N}$ ) and  $g(z)$  is analytic inside and on C.

Which of the following is true

**Options :**

1. ✖ I alone is true

2. ✔ II alone is true

3. ✖ Both I and II are true

4. ✖ Neither I nor II is true

**Question Number : 6 Question Id : 3838234326 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Three students A, B and C write an entrance exam. The chance that at least one of them pass that exam is  $\frac{3}{4}$ . If probability that A, C pass that exam are respectively

$\frac{1}{2}$ ,  $\frac{1}{4}$  then the probability that B do not pass that exam is

**Options :**

1. ✘  $\frac{1}{3}$

2. ✔  $\frac{2}{3}$

3. ✘  $\frac{1}{4}$

4. ✘  $\frac{3}{4}$

**Question Number : 7 Question Id : 3838234327 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

If the mean of a random variable which follows exponential distribution is  $\frac{1}{3}$ , then the

probability that the random variable X takes the values more than r is greater than  $\frac{1}{e^5}$ ,

then

**Options :**

1. ✘  $r > \frac{5}{3}$

2. ✔  $r < \frac{5}{3}$

3. ✘  $r > \frac{1}{6}$

4. ✘  $r < \frac{1}{6}$

Question Number : 8 Question Id : 3838234328 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes

Correct Marks : 1

$\bar{F}$  is an irrotational vector function. If C is the closed curve which is boundary of an open surface S, then  $\oint_C \bar{F} \cdot d\bar{R} =$

Options :

1. ✘  $\iint_E \left( \frac{\partial^2 \phi}{\partial x^2} - \frac{\partial^2 \phi}{\partial y^2} \right) dx dy$ ,  $\phi$  is a scalar function and E is region of C

2. ✘  $\int_S \text{div } \bar{F} dv$

3. ✔  $\int_C (\text{grad } \phi) \cdot d\bar{R} = 0$  for some scalar function  $\phi$

4. ✘ divergence of  $\bar{F}$

Question Number : 9 Question Id : 3838234329 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes

Correct Marks : 1

If  $x + y + z = 45$  and maximum value of  $x^4 y^6 z^5$  exists at  $x = \alpha$ ,  $y = \beta$  and  $z = \gamma$ , then

$$\frac{\alpha + \beta}{\gamma} =$$

Options :

1. ✔ 2

2. ✘ 1

3. ✘ 3

4. ✘ 4

Question Number : 10 Question Id : 3838234330 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes

Correct Marks : 1

If it is known that  $\int_0^{\infty} \frac{e^{ix}}{x} dx = \frac{\pi i}{2}$ , then  $\int_0^{\infty} \frac{\sin 5x}{x} dx =$

Options :

1. ✘  $\frac{\pi}{10}$
2. ✘  $\frac{5\pi}{2}$
3. ✔  $\frac{\pi}{2}$
4. ✘  $\frac{\pi}{2} + 5$

## Geo Engineering and Geo Informatics

Section Id :	38382391
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	38382391
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 3838234331 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes

Correct Marks : 1

In which of the following stages of a river, the meanders are formed commonly?

Options :

1. ✘ youthful age
2. ✔ mature age
3. ✘ old age

4. ✘ both mature and youthful age

**Question Number : 12 Question Id : 3838234332 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

An elongated sandy deposit that extends out into open water in the direction of a longshore current is called

**Options :**

1. ✘ fore reef

2. ✘ tombolo

3. ✔ spit

4. ✘ rip-rap

**Question Number : 13 Question Id : 3838234333 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Size of the landform on the surface of the earth is

**Options :**

1. ✘ smallest part

2. ✔ small to medium part

3. ✘ medium part

4. ✘ medium to largest part

**Question Number : 14 Question Id : 3838234334 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The point bars which form in the concave side of meanders of large rivers consists of

**Options :**

1. ✘ pure clayey deposits



2. ✘ pure sandy deposits
3. ✘ coarse sized deposits
4. ✔ mixed size of sediments

**Question Number : 15 Question Id : 3838234335 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is not the basic aspects of applied geomorphology?

**Options :**

1. ✘ mapping of landforms
2. ✘ interpretation of aerial photographs and images
3. ✔ assessing the causes of sustainable changes
4. ✘ monitoring the environmental changes

**Question Number : 16 Question Id : 3838234336 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Approximate mass of the earth is

**Options :**

1. ✔  $5.97 \times 10^{24}$  kg
2. ✘  $5.97 \times 10^{24}$  tonnes
3. ✘  $5.97 \times 10^{24}$  N
4. ✘  $5.97 \times 10^{24}$  kN

**Question Number : 17 Question Id : 3838234337 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The average thickness of Ozone layer in India is

**Options :**

1. ✘ 100 Dobson
2. ✘ 200 Dobson
3. ✔ 300 Dobson
4. ✘ 400 Dobson

**Question Number : 18 Question Id : 3838234338 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

When viewed from above the Northern Hemisphere, the earth orbits the sun at an average distance of

**Options :**

1. ✔ 149.60 million km in a counterclockwise direction
2. ✘ 149.60 million km in a clockwise direction
3. ✘ 149.60 billion km in a counterclockwise direction
4. ✘ 149.60 billion km in a clockwise direction

**Question Number : 19 Question Id : 3838234339 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

For an observer at a northern latitude, when the north pole is tilted towards the Sun, the day lasts

**Options :**

1. ✘ longer and the Sun appears lower in the sky
2. ✘ shorter and the Sun appears higher in the sky
3. ✔ longer and the Sun appears higher in the sky
4. ✘ shorter and the Sun appears lower in the sky

**Question Number : 20 Question Id : 3838234340 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The average depth of the Indian Oceans basin is

**Options :**

1. ✘ 1.7 km
2. ✘ 2.7 km
3. ✘ 3.7 km
4. ✔ 4.7 km

**Question Number : 21 Question Id : 3838234341 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Indian Ocean basin surface water salinity varies between

**Options :**

1. ✔ 32 and 37 parts per thousand
2. ✘ 22 and 27 parts per thousand
3. ✘ 12 and 17 parts per thousand
4. ✘ 2 and 7 parts per thousand

**Question Number : 22 Question Id : 3838234342 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

A mountain with pointed summits which rises from the sea floor that does not reach the surface of the ocean is called as

**Options :**

1. ✘ submarine canyons
2. ✔ seamount

3. ✘ atoll

4. ✘ guyots

**Question Number : 23 Question Id : 3838234343 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is the cleavage of Galena mineral?

**Options :**

1. ✘ octahedral

2. ✔ cubic

3. ✘ irregular fracture surface

4. ✘ regular fracture surface

**Question Number : 24 Question Id : 3838234344 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The luster and crystal system of a Topaz mineral respectively are

**Options :**

1. ✘ metallic and triclinic

2. ✘ greasy and tetragonal

3. ✘ dull and monocline

4. ✔ vitreous and orthorhombic

**Question Number : 25 Question Id : 3838234345 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The diaphaneity of Gypsum mineral is

**Options :**

1. ✘ opaque
2. ✔ transparent to translucent
3. ✘ Opaque to translucent
4. ✘ translucent

**Question Number : 26 Question Id : 3838234346 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

If  $Q$  = depth of runoff in inches,  $P$  = depth of rainfall in inches,  $I_a$  = initial abstraction in inches and  $S$  = maximum potential retention in inches, then which of the following is the correct equation for the curve number runoff?

**Options :**

1. ✔  $Q = \frac{(P - I_a)^2}{((P - I_a) + S)}$
2. ✘  $Q = \frac{(P + I_a)^2}{((P - I_a) - S)}$
3. ✘  $Q = \frac{(P - I_a)^2}{((P + I_a) + S)}$
4. ✘  $Q = \frac{(P - I_a)^2}{((P - I_a) - S)}$

**Question Number : 27 Question Id : 3838234347 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

For any time step, when the effective precipitation ( $P_E$ ) exceeds infiltration ( $I$ ), the total rainfall excess (TRE) can be computed as

**Options :**

1. ✔  $TRE = (P_E - I)$
2. ✘  $TRE = (P_E + I)$
3. ✘  $TRE = (P_E - I)^2$

4. ✘  $TRE = (P_E + I)^2$

**Question Number : 28 Question Id : 3838234348 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The boundary between the unsaturated and saturated water zones in the underground is called

**Options :**

1. ✘ vadose zone
2. ✔ ground water table
3. ✘ phreatic line
4. ✘ capillary zone

**Question Number : 29 Question Id : 3838234349 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following doesn't come under scope of environment?

**Options :**

1. ✘ nature and natural resources
2. ✘ biological diversity
3. ✘ pollution
4. ✔ stabilization of soil

**Question Number : 30 Question Id : 3838234350 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The component of environment which deals with soil and rock is known as

**Options :**

1. ✔ Lithosphere

2. ✘ Biosphere
3. ✘ Atmosphere
4. ✘ Hydrosphere

**Question Number : 31 Question Id : 3838234351 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following exactly belongs to the abiotic component of the environment?

**Options :**

1. ✘ animals and water
2. ✘ plants and soil
3. ✔ water and soil
4. ✘ microorganisms and water

**Question Number : 32 Question Id : 3838234352 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Out of the available fresh water on the earth, the approximate percentage of ground water is about

**Options :**

1. ✘ 3.0
2. ✔ 30
3. ✘ 7.0
4. ✘ 70

**Question Number : 33 Question Id : 3838234353 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following soils have high permeability

**Options :**

1. ✘ clay
2. ✘ silt
3. ✔ loose sand
4. ✘ dense sand

**Question Number : 34 Question Id : 3838234354 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

A soil has void ratio 0.50, then its porosity is

**Options :**

1. ✘ 3
2. ✔  $1/3$
3. ✘ 2
4. ✘  $1/2$

**Question Number : 35 Question Id : 3838234355 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The size of coarse sand ranges between

**Options :**

1. ✘ 20 mm and 80 mm
2. ✘ 4.75 mm and 20 mm
3. ✔ 2.0 mm and 4.75 mm
4. ✘ 0.425 mm to 2.0 mm



**Question Number : 36 Question Id : 3838234356 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

The structure formed after the formation of host rock is called

**Options :**

1. ✘ geologic structure
2. ✘ tectonic structure
3. ✘ primary structure
4. ✔ secondary structure

**Question Number : 37 Question Id : 3838234357 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

In an angular unconformity, the younger strata are oriented as

**Options :**

1. ✘ dipping  $45^\circ$
2. ✘ dipping  $60^\circ$
3. ✘ inclined
4. ✔ horizontal

**Question Number : 38 Question Id : 3838234358 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

When denser sand sinks into less dense wet mud, the bulges which are formed in the bottom of a sandstone bed are called as

**Options :**

1. ✘ slump structures
2. ✘ mud cracks

3. ✓ load structures

4. ✗ convolute lamination

**Question Number : 39 Question Id : 3838234359 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The line of maximum curvature on a folded surface is known as

**Options :**

1. ✓ hinge line

2. ✗ plunge line

3. ✗ angle line

4. ✗ fold line

**Question Number : 40 Question Id : 3838234360 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Thrusts are characterized by

**Options :**

1. ✗ transporting younger rocks on top of older ones over a long distance

2. ✗ transporting older rocks on top of younger ones over a short distance

3. ✗ transporting younger rocks on top of older ones over a short distance

4. ✓ transporting older rocks on top of younger ones over a long distance

**Question Number : 41 Question Id : 3838234361 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

In which type of rock generally, the rock cleavage can be noticed?

**Options :**

1. ✓ fine grained rock

2. ✘ coarse grained rock
3. ✘ both fine and coarse-grained rocks
4. ✘ acidic rocks

**Question Number : 42 Question Id : 3838234362 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The lineations which are formed due to shearing of rocks during asymmetric deformation of a rock mass are known as

**Options :**

1. ✘ intersection lineations
2. ✘ crenulation lineations
3. ✘ mineral lineations
4. ✔ stretching lineations

**Question Number : 43 Question Id : 3838234363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which portion of the spherical projection, a mineralogist will use for crystallographic analysis?

**Options :**

1. ✘ bottom half
2. ✔ top half
3. ✘ both top and bottom individually
4. ✘ whole spherical projection at a time

**Question Number : 44 Question Id : 3838234364 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Tectonites which allows the rock to split into plate-like sheets are called

**Options :**

1. ✘ L-tectonites
2. ✔ S-tectonics
3. ✘ LS – tectonites
4. ✘ SL - tectonites

**Question Number : 45 Question Id : 3838234365 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is not correct statements?

**Options :**

1. ✘ shear zones provide information about deformation
2. ✘ shear zones help us to determine amount of strain
3. ✔ shear zones help us to determine the cleavage
4. ✘ shear zones help us to determine amount of displacement

**Question Number : 46 Question Id : 3838234366 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

In which of the following shear zones, the physical break cannot be noticed?

**Options :**

1. ✘ brittle shear zone
2. ✔ ductile shear zone
3. ✘ semi brittle shear zone
4. ✘ ductile - brittle shear zone

Question Number : 47 Question Id : 3838234367 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes

Correct Marks : 1

The basement rocks are often

Options :

1. ✘ highly sedimentary and non-crystalline in nature
2. ✘ highly sedimentary but crystalline in nature
3. ✘ highly metamorphic and non-crystalline in nature
4. ✔ highly metamorphic and crystalline in nature

Question Number : 48 Question Id : 3838234368 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes

Correct Marks : 1

The ratio of silicon to oxygen in pyroxenes is

Options :

1. ✘ 1:1
2. ✘ 1:2
3. ✘ 3:1
4. ✔ 1:3

Question Number : 49 Question Id : 3838234369 Question Type : MCQ Option Shuffling : Yes  
Display Question Number : Yes

Correct Marks : 1

Olivine mineral chemical formula is

Options :

1. ✔  $(\text{Mg, Fe})_2 \text{SiO}_4$
2. ✘  $(\text{Mg, Fe})_3 \text{SiO}_4$

3. ✖  $(\text{Mg, Fe})_4 \text{SiO}_4$

4. ✖  $(\text{Mg, Fe})_5 \text{SiO}_4$

**Question Number : 50 Question Id : 3838234370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The absolute refractive index for a mineral is defined as the refraction relative to that in air. Then its value for different minerals ranges between

**Options :**

1. ✖ 1 and 1.2

2. ✔ 1.3 and 2

3. ✖ 2 and 3

4. ✖ 3 and 4.5

**Question Number : 51 Question Id : 3838234371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

In a Brazilian test, the rock specimen diameter shall preferably be

**Options :**

1. ✔ not less than NX core size (54 mm), or at least 10 times the average grain size

2. ✖ not less than NX core size (75 mm), or at least 10 times the average grain size

3. ✖ not less than NX core size (54 mm), or at least 20 times the average grain size

4. ✖ not less than NX core size (75 mm), or at least 20 times the average grain size

**Question Number : 52 Question Id : 3838234372 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The absorption value of stones is estimated corresponding to the saturation period of

**Options :**

1. ✘ 24 hours or until full saturation
2. ✘ 48 hours or until full saturation
3. ✔ 72 hours or until full saturation
4. ✘ 36 hours or until full saturation

**Question Number : 53 Question Id : 3838234373 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

For a stone to be used in road work, the coefficient of hardness as worked out from the hardness test should be

**Options :**

1. ✔ more than 17
2. ✘ 15 to 17
3. ✘ 9 to 15
4. ✘ Less than 9

**Question Number : 54 Question Id : 3838234374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following orientation of beds is most suitable for dam construction?

**Options :**

1. ✘ beds which are faulted
2. ✘ beds which are folded
3. ✔ beds with gently inclined in upstream direction
4. ✘ beds with steep upstream dip

**Question Number : 55 Question Id : 3838234375 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Which of the following minerals possesses more electrical resistivity?

**Options :**

1. ✓ quartz
2. ✗ granite
3. ✗ mica
4. ✗ basalt

**Question Number : 56 Question Id : 3838234376 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

For a fair rock, the Rock Quality Designation (RQD) in percentage varies from

**Options :**

1. ✗ 0 to 25
2. ✗ 25 to 50
3. ✓ 50 to 75
4. ✗ 75 to 90

**Question Number : 57 Question Id : 3838234377 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Which of the following materials is an example for aquitard?

**Options :**

1. ✗ sand and poorly fractured metamorphic rock
2. ✗ clay and highly fractured metamorphic rocks
3. ✗ till and highly fractured metamorphic rocks
4. ✓ poorly fractured metamorphic rock and clay



**Question Number : 58 Question Id : 3838234378 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

An earthquake with a hypocenter depth exceeding 300 km is known as

**Options :**

1. ✘ Shallow-focus earthquake
2. ✘ Intermediate-focus earthquake
3. ✔ Deep-focus earthquake
4. ✘ Surface-focus earthquake

**Question Number : 59 Question Id : 3838234379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is the ISO standard for water quality?

**Options :**

1. ✔ ISO 24512: 2007
2. ✘ ISO 9001: 2015
3. ✘ ISO 27001: 2013
4. ✘ ISO 14001: 2015

**Question Number : 60 Question Id : 3838234380 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is not the assumptions of Theis equation?

**Options :**

1. ✘ constant discharge of water
2. ✘ homogeneous and isotropic soil

3. ✓ partially penetrating well

4. ✗ water released immediately from aquifer storage

**Question Number : 61 Question Id : 3838234381 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The earth's equatorial and polar radius respectively are

**Options :**

1. ✗ 6357 km and 6378 km

2. ✓ 6378 km and 6357 km

3. ✗ 3189 km and 3178.5 km

4. ✗ 3178.5 km and 3189 km

**Question Number : 62 Question Id : 3838234382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The angle of inclination of the axis of rotation of earth is

**Options :**

1. ✗ 22.0 degrees

2. ✗ 22.5 degrees

3. ✗ 23.0 degrees

4. ✓ 23.5 degrees

**Question Number : 63 Question Id : 3838234383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

How many degrees of longitude, each time zone covers?

**Options :**

1. ✓ 15

2. ✘ 30

3. ✘ 60

4. ✘ 180

**Question Number : 64 Question Id : 3838234384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Gravitation potential is defined as

**Options :**

1. ✘ work done by the gravitational force per unit area
2. ✘ work done by the gravitational force per unit volume
3. ✔ work done by the gravitational force per unit mass
4. ✘ work done by the gravitational force per unit time

**Question Number : 65 Question Id : 3838234385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The unit of the acceleration due to gravity in Newtons (N) and kilograms (kg) is

**Options :**

1. ✔  $\text{Nkg}^{-1}$
2. ✘  $\text{kgN}^{-1}$
3. ✘  $\text{Nkg}$
4. ✘  $\text{N}^{-1}\text{kg}^{-1}$

**Question Number : 66 Question Id : 3838234386 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The point on the orbital of the earth which is nearest to the sun is called as

**Options :**

1. ✓ perihelion point
2. ✗ aphelion point
3. ✗ shortest distance point
4. ✗ highest distance point

**Question Number : 67 Question Id : 3838234387 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The geomagnetic field which is present on the earth protects our planet from

**Options :**

1. ✗ thermal power radiation hazards
2. ✗ nuclear radiation hazards
3. ✗ seismic radiation hazards
4. ✓ cosmic radiation hazards

**Question Number : 68 Question Id : 3838234388 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following minerals is a weak magnetic mineral?

**Options :**

1. ✗ magnetite
2. ✓ allanite
3. ✗ hematite
4. ✗ axinite

Question Number : 69 Question Id : 3838234389 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1

The most commonly available minerals in the oceanic crust are

Options :

1. ✓ clinopyroxene, orthopyroxene, olivine
2. ✗ quartz, feldspar, mica
3. ✗ clinopyroxene, quartz, feldspar, mica
4. ✗ orthopyroxene, feldspar, mica

Question Number : 70 Question Id : 3838234390 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1

The earth's circumference is nearly

Options :

1. ✗ 30075 km
2. ✗ 40075 km
3. ✓ 50075 km
4. ✗ 60075 km

Question Number : 71 Question Id : 3838234391 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1

Which of the following physical properties of the earth's mantle controls the transmission of geomagnetic signals from the core to the surface?

Options :

1. ✓ electrical conductivity
2. ✗ electrical voltage
3. ✗ electric rotational energy

4. ✘ electric current

**Question Number : 72 Question Id : 3838234392 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

The Gutenberg discontinuity is located at

**Options :**

1. ✘ boundary between the earth's crust and mantle
2. ✘ within the mantle zone
3. ✔ boundary between the earth's mantle and core
4. ✘ within the core zone

**Question Number : 73 Question Id : 3838234393 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

The earth's magnetic field approximately ranges between

**Options :**

1. ✘ 250 and 650 microteslas
2. ✔ 25 and 65 microteslas
3. ✘ 2.5 and 6.5 microteslas
4. ✘ 0.25 and 0.65 microteslas

**Question Number : 74 Question Id : 3838234394 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Which of the following natural calamities cannot be predicted in advance very accurately?

**Options :**

1. ✘ famine

2. ✘ flood
3. ✘ cyclone
4. ✔ earthquake

**Question Number : 75 Question Id : 3838234395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is used to quantify the energy that is released during an earthquake?

**Options :**

1. ✘ seismograph
2. ✘ seismogram
3. ✔ Richter scale
4. ✘ damper

**Question Number : 76 Question Id : 3838234396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following magnitude of an earthquake results in serious damage?

**Options :**

1. ✘ 5.5 to 6
2. ✔ 7.0 to 7.9
3. ✘ 6.1 to 6.9
4. ✘ 5.1 to 5.4

**Question Number : 77 Question Id : 3838234397 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The earthquake magnitude is the measure of

**Options :**

1. ✓ seismic wave amplitude
2. ✗ seismic wave velocity
3. ✗ seismic wave length
4. ✗ seismic wave period

**Question Number : 78 Question Id : 3838234398 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

If  $I_0$  is the intensity of an earthquake, which of the following expressions is the correct one as per the Gutenberg and Richter for local magnitude of an earthquake?

**Options :**

1. ✓  $M_L = (2/3) I_0 + 1$
2. ✗  $M_L = (3/2) I_0 + 1$
3. ✗  $M_L = (2/3) I_0$
4. ✗  $M_L = (3/2) I_0$

**Question Number : 79 Question Id : 3838234399 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Choose the correct options from the following in relation to occurrence of liquefaction of soil

**Options :**

1. ✗ High ground water table, static load and loose fine sand
2. ✗ High ground water table, static load and dense coarse sand
3. ✓ High ground water table, dynamic load and loose fine sand



4. ✘ High ground water table, dynamic load and dense coarse sand

**Question Number : 80 Question Id : 3838234400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

For which of the following seismic waves the velocity is directly proportional to the shear strength of the material through which they pass?

**Options :**

1. ✘ R-waves

2. ✘ L-waves

3. ✘ P- wave

4. ✔ S-waves

**Question Number : 81 Question Id : 3838234401 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is the correct relation between photographic scale (S) and focal length (f) of the camera lens?

**Options :**

1. ✔  $S \propto f$

2. ✘  $S \propto (1/f)$

3. ✘  $S \propto f^2$

4. ✘  $S \propto (1/f^2)$

**Question Number : 82 Question Id : 3838234402 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

For the medium scale aerial photographs, the scale ranges between

**Options :**

1. ✘ 1 : 10000 and 1 : 15000

2. ✘ 1 : 30000 and 1 : 50000

3. ✔ 1 : 15000 and 1:30000

4. ✘ 1 : 50000 and 1:10000

**Question Number : 83 Question Id : 3838234403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is the correct one as per the scale of aerial photograph and scale of map is concerned?

**Options :**

1. ✘ scale of aerial photograph is uniform throughout

2. ✔ scale of aerial photograph is non-uniform throughout

3. ✘ scale of map cannot be defined

4. ✘ scale of map is nonuniform throughout

**Question Number : 84 Question Id : 3838234404 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following objects reflect more energy?

**Options :**

1. ✘ smooth and moist object surfaces

2. ✘ rough and moist object surfaces

3. ✔ smooth and dry object surfaces

4. ✘ rough and dry object surfaces

**Question Number : 85 Question Id : 3838234405 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Colour signature on standard false colour composite of an earth surface feature such as turbid waterbody is

**Options :**

1. ✓ light blue
2. ✗ dark blue
3. ✗ light green
4. ✗ thick black

**Question Number : 86 Question Id : 3838234406 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Low earth orbit crosses the equator at

**Options :**

1. ✗  $45^\circ$
2. ✗  $60^\circ$
3. ✓  $90^\circ$
4. ✗  $105^\circ$

**Question Number : 87 Question Id : 3838234407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following airborne platforms measure the wind velocity?

**Options :**

1. ✓ Rawinsonde
2. ✗ Radiosonde
3. ✗ Balloons based airborne platform
4. ✗ Balloons based earth system

**Question Number : 88 Question Id : 3838234408 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The sensors which are used to measure the temperature and study of atmosphere are called as

**Options :**

1. ✘ scanning sensors
2. ✔ non imaging sensors
3. ✘ non scanning sensors
4. ✘ framing sensors

**Question Number : 89 Question Id : 3838234409 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following refers to the arrangement and frequency of tonal variation in particular areas of an image?

**Options :**

1. ✔ texture
2. ✘ shape
3. ✘ pattern
4. ✘ size

**Question Number : 90 Question Id : 3838234410 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following element is described as 'short' in image interpretation analysis?

**Options :**

1. ✘ size

2. ✘ shape
3. ✘ pattern
4. ✔ height

**Question Number : 91 Question Id : 3838234411 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following is correct as per the Stefan-Boltzmann law? (where,  $M$  = total radiant emitted from the surface of a material,  $\sigma$  = Stefan-Boltzmann constant and  $T$  = absolute temperature)

**Options :**

1. ✔  $M = \sigma T^4$
2. ✘  $M = \sigma T^3$
3. ✘  $M = \sigma T^2$
4. ✘  $M = \sigma T$

**Question Number : 92 Question Id : 3838234412 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The ratio of the total stream length cumulated for all orders in the basin to the total area of basin is called as

**Options :**

1. ✘ basin ratio
2. ✘ drainage pattern
3. ✔ drainage density
4. ✘ texture ratio

**Question Number : 93 Question Id : 3838234413 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

In GIS, the stored information either spatial data or associated tabular data can be retrieved with the help of language called

**Options :**

1. ✘ C language

2. ✘ Python

3. ✔ SQL

4. ✘ FORTRAN

**Question Number : 94 Question Id : 3838234414 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Which of the following data format for ArcView GIS that defines the geometry and attribute of geographically referenced objects by three specific files i.e., a main file, an index file, and a database table?

**Options :**

1. ✘ ArcInfo EOO

2. ✔ Shapefiles

3. ✘ ArcInfo Coverage

4. ✘ Computer Graphics Metafile

**Question Number : 95 Question Id : 3838234415 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Which of the following proprietary raster format the ESRI uses in its software products such as ArcInfo and ArcView GIS?

**Options :**

1. ✔ GRID

2. ✘ PNG

3. ✘ GIF

4. ✘ GeoTIFF

**Question Number : 96 Question Id : 3838234416 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The vector model is extremely useful for describing

**Options :**

1. ✘ continuously varying features

2. ✘ soil features

3. ✘ precipitation and temperature features

4. ✔ discrete features

**Question Number : 97 Question Id : 3838234417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

In a GPS system, if one of the receivers is in relative motion with respect to the other receiver, having been mounted either on a vehicle, ship or aircraft is called as

**Options :**

1. ✔ kinematic GPS

2. ✘ MDGPS

3. ✘ DGPS

4. ✘ Absolute GPS

**Question Number : 98 Question Id : 3838234418 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

A straight line between the last waypoint and the GOTO waypoint is known as

**Options :**

1. ✘ desired track (DTK)
2. ✘ tracklog
3. ✘ bearing (BRG)
4. ✔ active log

**Question Number : 99 Question Id : 3838234419 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The electric and magnetic fields of an electromagnetic waves are

**Options :**

1. ✔ perpendicular to each other
2. ✘ parallel to each other
3. ✘ 45° oblique each other
4. ✘ 30° oblique each other

**Question Number : 100 Question Id : 3838234420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Those areas of the frequency spectrum which are not severely influenced by atmospheric absorption and thus are extremely useful to remote sensors are called

**Options :**

1. ✘ remote sensing windows
2. ✔ atmospheric windows
3. ✘ ionosphere windows
4. ✘ remote sensing windows and atmospheric windows



**Question Number : 101 Question Id : 3838234421 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

The principle of working from whole to part is used in surveying because

**Options :**

1. ✘ plotting becomes easy
2. ✘ survey work can be completed quickly
3. ✔ accumulation of errors can be prevented
4. ✘ even in odd climate also surveying can be carried out

**Question Number : 102 Question Id : 3838234422 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

The smallest length that can be drawn on a map is

**Options :**

1. ✔ 0.2 mm
2. ✘ 0.5 mm
3. ✘ 10 mm
4. ✘ 15 mm

**Question Number : 103 Question Id : 3838234423 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

If the intercept on a vertical staff is observed as 0.5 m from a tacheometer, the horizontal distance between tacheometer and the staff station is (assume  $K=100$ ,  $C=0$ )

**Options :**

1. ✘ 5 m
2. ✘ 25 m

3. ✘ 75 m

4. ✔ 50 m

**Question Number : 104 Question Id : 3838234424 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

It is convenient to record the field notes for a closed traverse in the field book

**Options :**

1. ✔ from left to right

2. ✘ from right to left

3. ✘ from top to down

4. ✘ from down to top

**Question Number : 105 Question Id : 3838234425 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The height of the instrument is equal to

**Options :**

1. ✘ back sight + fore sight

2. ✘ RL of bench mark + fore sight

3. ✘ RL of bench mark + intermediate sight

4. ✔ RL of bench mark + back sight

**Question Number : 106 Question Id : 3838234426 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Surveys which are carried out to provide a national grid of control for preparation of accurate maps of large areas are known as

**Options :**

1. ✘ plane surveys
2. ✔ geodetic surveys
3. ✘ geographical surveys
4. ✘ topographical surveys

**Question Number : 107 Question Id : 3838234427 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The temporary adjustments of surveyor compass involve

**Options :**

1. ✘ centering only
2. ✘ levelling only
3. ✔ centering and levelling
4. ✘ centering, levelling and focusing the prism

**Question Number : 108 Question Id : 3838234428 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

If the altitude bubble is provided both on the index frame as well as on the telescope of a theodolite, then the instrument is levelled with reference to the

**Options :**

1. ✘ altitude bubble on the telescope
2. ✔ altitude bubble on the index frame, if it is to be used as a level
3. ✘ altitude bubble on the telescope, if it is to be used as a level
4. ✘ laser principle

**Question Number : 109 Question Id : 3838234429 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

With regard to the theodolite, which one of the following statements is correct?

**Options :**

1. ✘ the axis of the plate level should be parallel to the vertical axis
2. ✘ the axis of striding level must be parallel to the horizontal axis
3. ✘ the axis of the altitude level must be perpendicular to the line of collimation
4. ✔ the line of collimation must be perpendicular to the plate level axis

**Question Number : 110 Question Id : 3838234430 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

If  $n$  is the number of sides of a traverse, the theoretical sum of the interior included angles of a closed traverse is

**Options :**

1. ✔  $(2n - 4) \times 90^\circ$
2. ✘  $(2n + 4) \times 90^\circ$
3. ✘  $(2n \pm 4) \times 90^\circ$
4. ✘  $360^\circ$

**Question Number : 111 Question Id : 3838234431 Question Type : MCQ Option Shuffling : Yes**

**Display Question Number : Yes**

**Correct Marks : 1**

Overturning of vehicles on a curve can be avoided by using a

**Options :**

1. ✘ compound curve
2. ✘ vertical curve
3. ✘ reverse curve

4. ✓ transition curve

**Question Number : 112 Question Id : 3838234432 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The curve which deflects to the right of the direction of the progress of survey is called as

**Options :**

1. ✓ Right hand curve
2. ✗ Left hand curve
3. ✗ Eastward curve
4. ✗ Westward curve

**Question Number : 113 Question Id : 3838234433 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Transition curves are introduced at each end of a circular curve to obtain

**Options :**

1. ✗ gradual decrease of curvature from zero at the tangent point to a specified quantity at the junction of the transition curve with the main curve
2. ✓ gradual increase of super elevation from zero at the tangent point to a specified amount at the junction of the transition curve with the main curve
3. ✗ gradual change of gradient from zero at the tangent point to a specified amount at the junction of the transition curve with the main curve
4. ✗ gradual change of gradient from 1 in 6 at the tangent point to a specified amount at the junction of the transition curve with the main curve

**Question Number : 114 Question Id : 3838234434 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Perpendicular offset from the junction of a transition curve and circular curve to the tangent is equal to

**Options :**

1. ✘ 1 times shift
2. ✘ 0.5 times shift
3. ✘ 2 times shift
4. ✔ 4 times shift

**Question Number : 115 Question Id : 3838234435 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

In an external focusing telescope, the focusing of the objective is achieved by

**Options :**

1. ✘ movement of a negative concave lens
2. ✔ movement of objective
3. ✘ movement of cross-staff
4. ✘ double convex lens

**Question Number : 116 Question Id : 3838234436 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Which of the following options is the correct one as per the principle of barometric levelling

**Options :**

1. ✔ atmospheric pressure varies inversely with height
2. ✘ atmospheric pressure varies proportionately with height
3. ✘ atmospheric pressure varies constantly with height
4. ✘ atmospheric pressure is zero through out

**Question Number : 117 Question Id : 3838234437 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

In reciprocal levelling, the error which is not completely eliminated is due to

**Options :**

1. ✘ curvature
2. ✔ refraction
3. ✘ non-adjustment of line of collimation
4. ✘ parallax

**Question Number : 118 Question Id : 3838234438 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

Mathematical check for the computation of R.L. by rise and fall method is given by

**Options :**

1. ✘  $\Sigma FS - \Sigma BS = \text{RL of last station point} - \text{RL of first station point} = \Sigma \text{Fall} - \Sigma \text{Rise}$
2. ✘  $\Sigma BS - \Sigma FS = \text{RL of first station point} - \text{RL of last station point} = \Sigma \text{Fall} - \Sigma \text{Rise}$
3. ✔  $\Sigma BS - \Sigma FS = \text{RL of last station point} - \text{RL of first station point} = \Sigma \text{Rise} - \Sigma \text{Fall}$
4. ✘  $\Sigma BS - \Sigma FS = \text{RL of first station point} - \text{RL of last station point} = \Sigma \text{Rise} - \Sigma \text{Fall}$

**Question Number : 119 Question Id : 3838234439 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

The wave lengths used in various electronic distance measurement systems covers fairly the spectrum of range

**Options :**

1. ✘ 40 m to 450 m
2. ✘ 40 m to 450 mm

3. ✘ 40 m to 450  $\mu\text{m}$

4. ✔ 40 m to 450 nm

**Question Number : 120 Question Id : 3838234440 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes**

**Correct Marks : 1**

After subjecting the EDM systems to the meteorological corrections, the possible accuracy range expected in short range and long range EDM systems respectively is

**Options :**

1. ✘ 0.15 mm to 1 mm and 0.5 mm to 1.5 mm

2. ✔ 1.5 mm to 10 mm and 5 mm to 15 mm

3. ✘ 15 mm to 100 mm and 50 mm to 150 mm

4. ✘ 150 mm to 1000 mm and 500 mm to 1500 mm