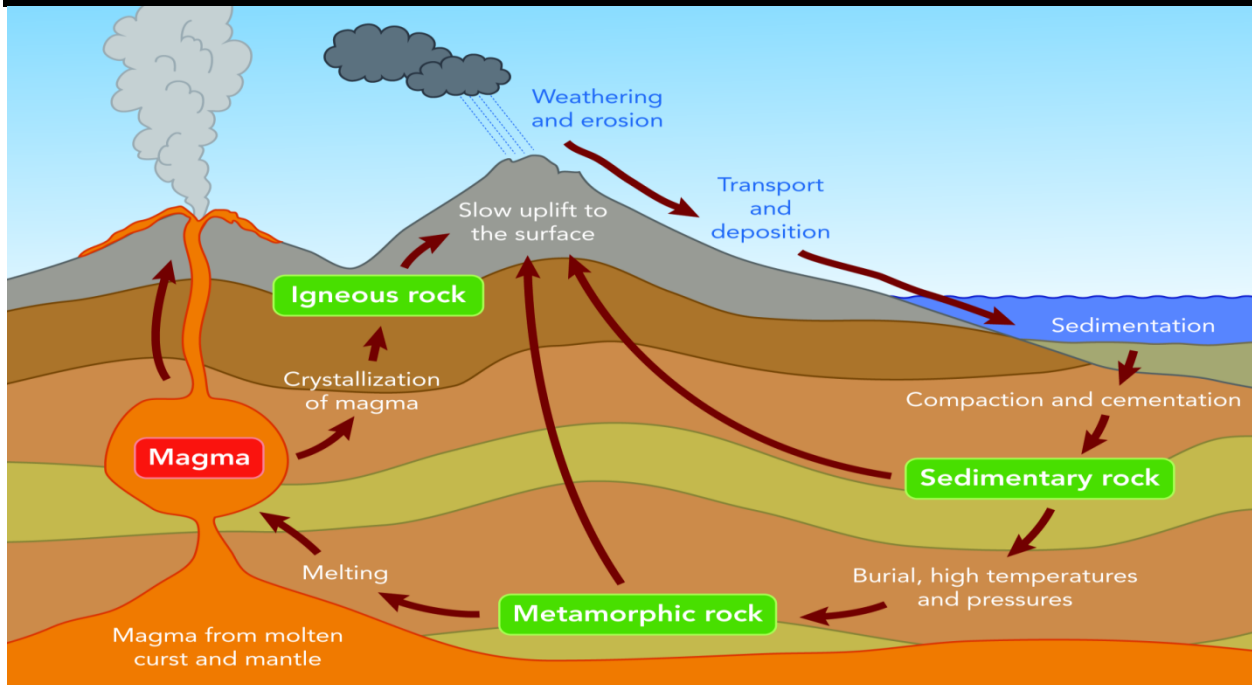


GENERAL KNOWLEDGE



Study Of Rock Geology

How Many Types Of Rocks ?

- Igneous Rock
- Sedimentary Rock
- Metamorphic Rock
- Igneous Rock Comes From The Latin Word "Ignis" Means Fire.
- Igneous Rock Divided Two Types
 - Extrusive Igneous Rocks (Volcanic) Example : Andesite, Rhyolite, Scoria, Basalt, Tuff, Obsidian etc..
 - Intrusive Igneous Rocks (Plutonic) Example: Syenite, Granite, Diorite, Pegmatite, Peridotite etc...

Igneous Rock:

- It Is Formed When Molten Rock(Magma Or Lava) Cool And Solidifies .
- Igneous Rock May Form With Or With Out Crystallization.
- Example → Granite, Basalt, Syenite, Batholith, Andesite, Granite, Rhyolite

Sedimentary Rock

- They Originate When Particles Settle Out Of Water Or Air Or By Precipitation Of Minerals From Water.
- They Accumulate In Layers
- For Examples--→ Sandstone, Limestone, Dolomite ,Conglomerate Etc...

Quartzose Sandstone(90%Quartzose)

Arkosic Sandstone(25% feldspar).

Sedimentary Rock, Several Minerals like Coal, Petroleum and some form of Iron Ore have been concentrated as a result of deposition accumulation and concentration of long periods under great heat and pressure.

Gondwana rocks contains nearly 98% of India's coal reserves .Gondwana rock system is named after the Gond people found in Madhya Pradesh and Odisha etc..the rock system was formed 250 million year ago.

Metamorphic Rock

Metamorphic Rock make form 12% Earth's land Surface

They Formed When Exiting Rocks Are Changed By Heat And Pressure Or Reactive Fluids,Such As Hot, Mineral-Laden Water.

For Example →Marble(form limestone) , Quartzite(form sand stone), Schist(form Shale) , Slate(form clay) ,Gneiss(form Granite)Graphite (form Coal) , Phyllite, Etc...

- ❖ **Marble** is a metamorphic rock formed form limestone.
- ❖ **Slate** is a metamorphic rock formed form SHALD AND MUDSTONE.
- ❖ **Gneiss** is a metamorphic rock formed form granite.
- ❖ **Graphite** is a metamorphic rock formed form coal.

ENGLISH LANGUAGE**CONCEPT-27****Kinds of Sentence:**

Sentences can be classified into five categories, according to their meaning or function.

They are:-

Assertive Sentence.

Interrogative Sentence.

Imperative Sentence.

Optative Sentence.

Exclamatory Sentence.

Assertive Sentence:

An assertive sentence is a simple/general statement or assertion, either affirmative or negative.

Example:

- English is an International Language. (Affirmative)
- We do not do bad things. (Negative)
- Everybody should know English. (Modal auxiliaries)

Interrogative Sentence:

An interrogative sentence asks question about a person or thing(s). It always ends with a note of interrogation a.k.a. question mark (?).

There are two ways to form an interrogative sentence.

I. Beginning with helping verbs (am, is, are, was, were, have, has, had) or modal auxiliaries (shall, should, will, would, can, could, may, might, etc.).

Example:

- Do you have your assignment ready?
- Does he speak English?
- Did she work abroad?
- Should I go there?
- Can you hear the sound?
- Don't you want any food? (Negative)

II. Beginning with some specific words like who, which, what, when, where, why, how, whom, how much, how many, etc. [These are known as 'WH' questions.]

Example:

- How is your business going on?
- Who fixed the computer?
- Whom do you support?
- What are you expecting from me?
- What time is it now?
- How many people have died there?

Imperative Sentence:

A sentence that expresses a request, command, order, advice, suggestion, etc. is an imperative sentence. In an imperative sentence, the subject is usually unexpressed; it is understood rather.

Pattern:

Subject (Invisible) + verb + object / where

Example:

- Take care of you.
- Give me the pen.
- Do it now.
- Be honest.
- Come here
- Never tell a lie
- Do not laugh at other's helplessness.
- Let him go there.

Optative Sentence:

Wish, desire, prayer, etc. are expressed by the Optative sentence.

Pattern:

May + Assertive

Example:

- May you live long.
- May Allah bless you.
- Wish you all the best.
- Long live Bangladesh. (Can be formed without 'may')

Exclamatory Sentence:

Exclamatory is a sentence which expresses strong/sudden feeling or emotion like surprise, pain, delight, anger, disgust, etc.

Pattern:

Alas/ Hurrah/ Bravo/ What/ How etc. + Others

Example:

- Hurrah! Our cricket team has won the series.
- Alas! He has failed the competition.
- Bravo! You have done a great job.
- What a talented girl she is!
- How sweetly the cuckoo sings!
- What a wonderful land Bangladesh is!
- Were I a Super Hero!
- What a pity!
- Fantastic!
- What an idea!
- Put that down now!
- Leave the package at the door.
- Walk softly, please.

Directions: Read the following sentences and say whether they are declarative, interrogative, exclamatory or imperative.

1. Open the door.
2. Take this book with you.
3. We do not allow smoking in the house.
4. The doctors could not save the injured man.
5. You needn't have called him a liar.
6. Where do they live?
7. What a brilliant performance it was!
8. Some fools have let the cat out.
9. How beautiful those memories are!
10. I will never forget this.

Answers

1. Open the door. (Imperative)
2. Take this book with you. (Imperative)
3. We do not allow smoking in the house. (Declarative)
4. The doctors could not save the injured man. (Declarative)
5. You needn't have called him a liar. (Declarative)
6. Where do they live? (Interrogative)
7. What a brilliant performance it was! (Exclamatory)
8. Some fools have let the cat out. (Declarative)
9. How beautiful those memories are! (Exclamatory)
10. I will never forget this. (Declarative)

REASONING

1. A numerical series is given in which a number is wrongly placed. You are asked to identify that particular wrong number.
2. A numerical series is given in which a specific number is missing. You are required to find out that missing number.
3. A complete numerical series is followed by an incomplete numerical series. You need to solve that incomplete numerical series in the same pattern in which the complete numerical series is given.

Different types of Number Series:

The most common patterns followed by number series are:

- **Series consisting of Perfect Squares:**

A series based on Perfect squares is most of the times based on the perfect squares of the numbers in a specific order & generally one of the numbers is missing in this type of series.

Example: 324, 361, 400, 441, ?

Sol: $324 = 18^2$, $361 = 19^2$, $400 = 20^2$, $441 = 21^2$, $484 = 22^2$

- **Perfect Cube Series:**

It is based on the cubes of numbers in a particular order and one of the numbers is missing in the series.

Example: 512, 729, 1000, ?

Sol: 8^3 , 9^3 , 10^3 , 11^3

- **Geometric Series:**

It is based on either descending or ascending order of numbers and each successive number is obtained by dividing or multiplying the previous number by a specific number.

Example: 4, 36, 324, 2916?

Sol: $4 \times 9 = 36$, $36 \times 9 = 324$, $324 \times 9 = 2916$, $2916 \times 9 = 26244$.

Must Read Series Number Sequence Articles

- **Arithmetic Series:**

It consists of a series in which the next term is obtained by adding/subtracting a constant number to its previous term. Example: 4, 9, 14, 19, 24, 29, 34 in which the number to be added to get the new number is 5.

- **Two-stage Type Series:**

In a two step Arithmetic series, the differences of consecutive numbers themselves form an arithmetic series.

Example: 1, 3, 6, 10, 15.....

Sol: $3 - 1 = 2$, $6 - 3 = 3$, $10 - 6 = 4$, $15 - 10 = 5$

Now, we get an arithmetic sequence 2, 3, 4, 5.....

Hence 6 will be added to the last number given, so answer would $15 + 6 = 21$

- **Mixed Series:**

This particular type of series may have more than one pattern arranged in a single series or it may have been created according to any of the unorthodox rules.

Example: 10, 22, 46, 94, 190, ?

Sol:

$10 \times 2 = 20 + 2 = 22$,

$$22 \times 2 = 44 + 2 = 46,$$

$$46 \times 2 = 92 + 2 = 94,$$

$$94 \times 2 = 188 + 2 = 190,$$

$$190 \times 2 = 380 + 2 = 382.$$

So the missing number is 382.

• **Arithmetico –Geometric Series :**

As the name suggests, Arithmetico –Geometric series is formed by a peculiar combination of Arithmetic and Geometric series. An important property of Arithmetico- Geometric series is that the differences of consecutive terms are in Geometric Sequence.

Example: 1, 4, 8, 11, 22, 25, ?

Sol : Series Type $+3, \times 2$ (i.e Arithmetic and Geometric Mixing)

$$1 + 3 = 4, 4 \times 2 = 8, 8 + 3 = 11, 11 \times 2 = 22, 22 + 3 = 25, 25 \times 2 = 50$$

Geometrico - Arithmetic Series is the reverse of Arithmetico - Geometric Series. The differences of successive terms are in Arithmetic Series.

Example: 1, 2, 6, 36, 44, 440, ?

Sol : Series Type $\times 2, +4, \times 6, +8, \times 10$

$$1 \times 2 = 2, 2 + 4 = 6, 6 \times 6 = 36, 36 + 8 = 44, 44 \times 10 = 440, 440 + 12 = 452$$

• **Twin/Alternate Series :**

As the name of the series specifies, this type of series may consist of two series combined into a single series. The alternating terms of this series may form an independent series in itself.

Example: 3, 4, 8, 10, 13, 16 ? ?

Sol: As we can see, there are two series formed

Series 1 : 3, 8, 13 with a common difference of 5

Series 2 : 4, 10, 16 with a common difference of 6

So, next two terms of the series should be 18 & 22 respectively.

1. Find the wrong number in the given series?

1,5,5,9,7,11,11,15,12,17

(A) 9 (B) 11 (C) 12 (D) 15

2. Find out the missing number in each of the following questions.

3,7,15,31,63,127,?

(A) 255 (B) 260 (C) 245 (D) 265

Directions (3-4) : Find the missing number from the given responses.

3. 8,24,48,80,?,168

(A) 120 (B) 108 (C) 96 (D) 72

4. 2,65,7,59,12,53,?,?

(A) 15,42 (B) 17,45 (C) 17,47 (D) 18,48

5. Find the missing number from the given alternatives

1 4 2 3 2 ?
 (A) 2 (B) 5 (C) 3 (D) 4

EXPLANATIONS

1. C; The given sequence is a combination of two series.

I. 1,5,7,11,12

II. 5,9,11,15,17

The pattern is both 1 and 11 is $\Rightarrow +4, +2, +4, +2, \dots$

So, 12 is wrong and must be replaced by 13.

2. A; here on adding 1 to the double of the first term, we get the next term.

As required,

$$3 \times 2 + 1 = 7$$

$$7 \times 2 + 1 = 15$$

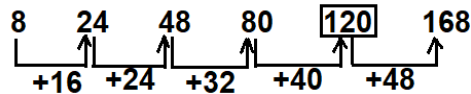
$$15 \times 2 + 1 = 31$$

$$31 \times 2 + 1 = 63$$

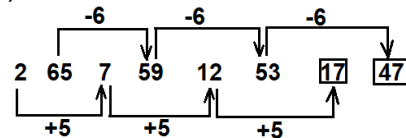
$$63 \times 2 + 1 = 127$$

$$127 \times 2 + 1 = 255$$

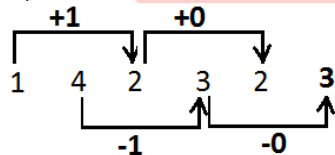
3. A;



4. C;



5. C;



MATH

Concept of boat and stream:

A boat is said to go downstream if it is moving along the direction of the stream. The net speed of the boat in this case is called downstream speed.

A boat is said to go upstream if it is moving in the direction opposite to the direction of the stream. The net speed of the boat in this case is called upstream speed.

Let the speed of the boat in still water is 'b' km/hr and the speed of the stream is 'w' km/hr. When the boat goes downstream then the speed will be $(b + w)$ km/hr as in this case the water will take the boat along with it.

When the boat goes upstream then the speed will be $(b - w)$ km/hr as in this case the water will offer resistance to the boat.

Examples:

1)

A boat can travel with a speed of 13 km/hr in still water. If the speed of the stream is 4 km/hr, find the time taken by the boat to go 68 km downstream.

Explanation:

Speed downstream = $(13 + 4)$ km/hr = 17 km/hr.

Time taken to travel 68 km downstream = $\left(\frac{68}{17}\right)$ hrs = 4 hrs.

2)

A man's speed with the current is 15 km/hr and the speed of the current is 2.5 km/hr. The man's speed against the current is:

Explanation:

Man's rate in still water = $(15 - 2.5)$ km/hr = 12.5 km/hr.

Man's rate against the current = $(12.5 - 2.5)$ km/hr = 10 km/hr.

3)

A boat running upstream takes 8 hours 48 minutes to cover a certain distance, while it takes 4 hours to cover the same distance running downstream. What is the ratio between the speed of the boat and speed of the water current respectively?

Explanation:

Let the man's rate upstream be x kmph and that downstream be y kmph.

Then, distance covered upstream in 8 hrs 48 min = Distance covered downstream in 4 hrs.

$$\Rightarrow \left(x \times 8\frac{4}{5} \right) = (y \times 4)$$

$$\Rightarrow \frac{44}{5}x = 4y$$

$$\Rightarrow y = \frac{11}{5}x.$$

$$\therefore \text{Required ratio} = \left(\frac{y+x}{2} \right) : \left(\frac{y-x}{2} \right)$$

$$= \left(\frac{16x}{5} \times \frac{1}{2} \right) : \left(\frac{6x}{5} \times \frac{1}{2} \right)$$

$$= \frac{8}{5} : \frac{3}{5}$$

$$= 8 : 3.$$

4)

A motorboat, whose speed in 15 km/hr in still water goes 30 km downstream and comes back in a total of 4 hours 30 minutes. The speed of the stream (in km/hr) is:

Explanation:

Let the speed of the stream be x km/hr. Then,

Speed downstream = $(15 + x)$ km/hr,

Speed upstream = $(15 - x)$ km/hr.

$$\therefore \frac{30}{(15+x)} + \frac{30}{(15-x)} = 4\frac{1}{2}$$

$$\Rightarrow \frac{900}{225-x^2} = \frac{9}{2}$$

$$\Rightarrow 9x^2 = 225$$

$$\Rightarrow x^2 = 25$$

$$\Rightarrow x = 5 \text{ km/hr.}$$

5)

In one hour, a boat goes 11 km/hr along the stream and 5 km/hr against the stream. The speed of the boat in still water (in km/hr) is:

Explanation:

Speed in still water = $\frac{1}{2}(11 + 5)$ kmph = 8 kmph

ODIA LANGUAGE

ବାକ୍ୟର ଅର୍ଥଗତ ଶ୍ରେଣୀବିଭାଗ

• **ବିବୃତ୍ତକ:**

ଯେଉଁ ବାକ୍ୟରେ କୌଣସି ବିଷୟରେ ବକ୍ତବ୍ୟ/ବିବୃତ୍ତି ରହିଥାଏ, ତାକୁ ବିବୃତ୍ତିପୂର୍ଣ୍ଣ ବାକ୍ୟ କୁହାଯାଏ ।

ଗୁଣୁ କେଲୁଚରଣ ଜଣେ ଶ୍ରେଷ୍ଠ ଓଡ଼ିଶା ନୃତ୍ୟଶିଳ୍ପୀ ଥିଲେ ।

ଫକୀରମୋହନ ଗାନ୍ଧିକମାନଙ୍କ ଶାନ୍ତିପୂର୍ଣ୍ଣ ସହାବସ୍ଥାନ ଗଢ଼େ ।

• **ଆଦେଶ ମୂଳକ :**

ଏ ପ୍ରକାର ବାକ୍ୟରେ ଶ୍ରେଣୀ ପ୍ରତି କିଛି ନିର୍ଦ୍ଦେଶ ରହିଥାଏ ।

ଏଠାରେ ବସ । ନୀରବ ରୁହ ।

ଅନୁଜ୍ଞା / ଅନୁରୋଧପୂରକ :

ଦୟାକରି ମୋତେ ସାହାଯ୍ୟ କରିବ ।

ଭଗବାନ୍ ତୁମର ମଙ୍ଗଳ କରନ୍ତୁ ।

ପ୍ରଶ୍ନପୂରକ :

ଏଥିରେ କୌଣସି ପ୍ରଶ୍ନ ପଚରାଯାଇଥାଏ ।

ତୁମ ନାମ କ'ଣ ? ତମ ବାପା କ'ଣ କରନ୍ତି ? ସେ କିଏ ?

ବିସ୍ମୟପୂରକ :

ଏଥିରେ ଆଶ୍ଚର୍ଯ୍ୟ / ବିସ୍ମୟ ଭାବ ପ୍ରକାଶ ପାଇଥାଏ ।

ଓଃ କି ଭୟଙ୍କର ଦୃଶ୍ୟ ! ସେ କେତେ ସୁନ୍ଦର !

ଚଳିକାର ଦୃଶ୍ୟ କି ମନୋହର ।

ଅସ୍ତ୍ରପୂରକ :

ଜଗନ୍ନାଥ ମନ୍ଦିର ପୁରୀରେ ଅବସ୍ଥିତ ।

ରାମଚନ୍ଦ୍ର ଚଉଦବର୍ଷ ବନବାସ କରିଥିଲେ ।

ବିଜୁବାବୁ ଥିଲେ କଳିଙ୍ଗର ଗୌରବ ।

ନାସ୍ତିପୂରକ :

ସାପର ଗୋଡ଼ ନ ଥାଏ । ଏ କୁଥିରେ ପାଣି ନାହିଁ ।

ସେ ପୋଖରୀରେ ମାଛ ନାହିଁ ।

1. ଯେଉଁ ବାକ୍ୟରେ ଶ୍ରେଣୀ ପ୍ରତି କିଛି ନିର୍ଦ୍ଦେଶ ରହିଥାଏ, ତାହାକୁ କେଉଁ ବାକ୍ୟ କୁହାଯାଏ ?
 (A) ଆଦେଶ ମୂଳକ (B) ଅନୁରୋଧ ପୂରକ (C) ପ୍ରଶ୍ନପୂରକ (D) ବିସ୍ମୟ ପୂରକ
2. ସେ ପୋଖରୀରେ ମାଛ ନାହିଁ । (ଉକ୍ତ ବାକ୍ୟ ଅର୍ଥଗତ ଦୃଷ୍ଟିରୁ କେଉଁ ଶ୍ରେଣୀର ସୂଚୀ)
 (A) ଅସ୍ତ୍ରପୂରକ (B) ନାସ୍ତିପୂରକ (C) ବିବୃତ୍ତିପୂରକ (D) ବିସ୍ମୟ ପୂରକ
3. 'ସେ କେତେ ସୁନ୍ଦର !' (ଉକ୍ତ ବାକ୍ୟଟି କେଉଁ ଶ୍ରେଣୀର ସୂଚୀ)
 (A) ବିସ୍ମୟପୂରକ (B) ଆଦେଶ ମୂଳକ (C) ପ୍ରଶ୍ନ ପୂରକ (D) କେଉଁଟି ବି ନୁହେଁ
4. ଯେଉଁ ବାକ୍ୟରେ କୌଣସି ବିଷୟରେ ବକ୍ତବ୍ୟ ଥାଏ, ତାହାକୁ କେଉଁ ବାକ୍ୟ କୁହାଯାଏ ?
 (A) ବିବରଣାତ୍ମକ (B) ବିବୃତ୍ତିପୂରକ (C) ଆଦେଶାତ୍ମକ (D) ଉଭୟ (A) ଓ (B) ଠିକ୍
5. 'ଦୟାକରି ମୋ କଥା ଚିକିଏ ଶୁଣନ୍ତୁ ।' (ଉକ୍ତ ବାକ୍ୟ ଅର୍ଥ ଦୃଷ୍ଟିରୁ କେଉଁ ଶ୍ରେଣୀର ସୂଚୀ)
 (A) ବିବୃତ୍ତିପୂରକ (B) ଅନୁଜ୍ଞାତ୍ମକ (C) ପ୍ରଶ୍ନପୂରକ (D) ବିସ୍ମୟ ପୂରକ

1.- A, 2.-B, 3-A, 4-D, 5-B