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## MENU

Click on Drop Down for Current Affairs

## Topics Covered



- Summary:
- What is the news?
  - Why Important?
- Understanding Solar Eclipses:
  - The Rarity of a Total Solar Eclipse:
  - Why is a Total Solar Eclipse Significant?
  - Safe Observation Practices:
  - Conclusion:
  - QuizTime:
  - Are you Ready!
- Read the Below Instructions Carefully:
  - Please Rate!
- Mains Questions:
  - Question 1:
  - Model Answer:
  - Question 2:
  - Model Answer:
  - Relevance to the UPSC Prelims and Mains syllabus under the following topics:
    - Prelims:
    - Mains:

## **Summary:**

- **Total Solar Eclipse:** A rare total solar eclipse will traverse North America, affecting Mexico, the United States, and Canada. Such events are uncommon for any specific location, with some areas experiencing centuries between occurrences.
- **Understanding Eclipses:** The page explains the three types of solar eclipses: total, partial, and annular, with a total eclipse completely obscuring the Sun's disc within the path of totality.
- **Scientific Significance:** Total solar eclipses offer a unique chance to study the Sun's corona, enhancing our understanding of solar activity and its effects on Earth's climate and space weather.

## ***What is the news?***

- A total solar eclipse will cross North America, passing over Mexico, the United States, and Canada. This type of solar eclipse is a rare event for any particular spot.

## *Why Important?*

- According to Royal Museums Greenwich, once a place on Earth witnesses a total solar eclipse, it will be about 400 years before that part sees the next one.

## *Understanding Solar Eclipses:*

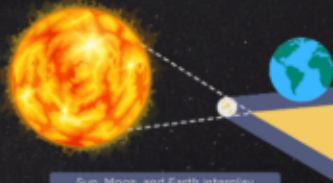
*A solar eclipse occurs when the Moon passes directly between the Earth and the Sun, casting a shadow on a specific path across the Earth's surface. There are three main types of solar eclipses:*

- **Total Solar Eclipse:** When the Moon completely blocks the Sun's disc, creating a breathtaking darkness for a short period within the path of totality.
- **Partial Solar Eclipse:** In this scenario, only a portion of the Sun is obscured by the Moon, visible from a wider geographical area.
- **Annular Solar Eclipse:** The Moon appears smaller than the Sun, creating a "ring of fire" effect around its dark disc.

# TYPES OF SOLAR ECLIPSES



## PARTIAL SOLAR ECLIPSE



Sun, Moon, and Earth interplay

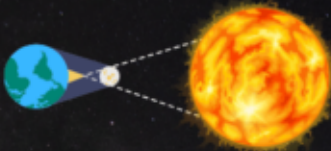
**MOON PARTIALLY COVERS THE SUN, CASTING ONLY A PORTION OF ITS SHADOW ON EARTH.**

From the perspective of an observer, it appears as if a bite has been taken out of the Sun. Partial solar eclipses are more common than total eclipses and can be seen from a broader geographic area.



This is what you see from earth.

## ANNULAR SOLAR ECLIPSE



Sun, Moon, and Earth interplay

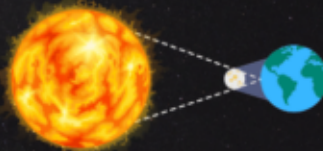
**ANNULAR ECLIPSES HAPPEN WHEN THE MOON IS NEAR ITS APOGEE.**

An annular solar eclipse occurs when the Moon is too far away from Earth to completely cover the Sun's disk. As a result, a ring-like appearance, known as the "ring of fire," is visible around the edges of the Sun.



This is what you see from earth.

## TOTAL SOLAR ECLIPSE



Sun, Moon, and Earth interplay

**THE MOON COMPLETELY COVERS THE SUN, BLOCKING ITS ENTIRE DISK.**

This results in a brief period of darkness known as totality, where the Sun's outer atmosphere, the corona, becomes visible. Total solar eclipses are mesmerizing celestial events but are visible only within a narrow path on Earth.



This is what you see from earth.



## ***The Rarity of a Total Solar Eclipse:***

- Total solar eclipses are relatively rare events for any specific location on Earth. While they occur somewhere on our planet every 18 months on average, witnessing one from a particular spot is a much less frequent occurrence. According to Royal Museums Greenwich, the wait between witnessing a total solar eclipse from a specific location can be as long as 400 years. This emphasizes the unique opportunity this upcoming event presents for North American skywatchers.

## ***Why is a Total Solar Eclipse Significant?***

- Beyond the awe-inspiring spectacle, observing a total solar eclipse offers a unique scientific opportunity. The brief period of totality allows astronomers to study the Sun's outer atmosphere, the corona, which is usually obscured by the Sun's bright light. Studying the corona helps us understand solar activity and its impact on Earth's climate and space weather.

## ***Safe Observation Practices:***

*While the temptation to gaze directly at the Sun might be strong, it is crucial to prioritize eye safety during a solar*

*eclipse. Looking directly at the Sun, even during a partial eclipse, can cause permanent eye damage. Here are some safe ways to observe the eclipse:*

- **Specialized solar filters:** Invest in a certified solar filter specifically designed for viewing eclipses. These filters significantly reduce the Sun's intensity, allowing safe observation.
- **Projection methods:** Project the Sun's image onto a cardboard box using a small pinhole. This creates a safe and indirect way to observe the eclipse's progress.
- **Reputable live streams:** Numerous astronomical organizations and media outlets will likely be broadcasting live streams of the eclipse. This offers a safe and accessible way to experience this event even without specialized equipment.

## **Conclusion:**

- The upcoming total solar eclipse across North America presents a rare opportunity to witness a magnificent astronomical phenomenon. Understanding the nature of solar eclipses, appreciating their rarity, and adhering to safe observation practices are all essential aspects of enjoying this celestial spectacle. Let's celebrate the power of science and nature as we prepare to witness this awe-inspiring event.



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*Are you Ready!*

*Thank you, Time Out !*

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**General Studies**  
CURRENT AFFAIRS QUIZ

***Read the Below Instructions Carefully:***

- Click on - Start Quiz
- Attempt all questions (You can attempt or leave)

- After Attempting Last Question.
  - Enter Name & Email
  - Click on - Check Result
  - Scroll down - Check out Solutions too.
- Thank you.

Loading ...



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Category: General Studies

***The brief period of darkness during a total solar eclipse allows astronomers to study:***

- The Moon's surface in greater detail.
- The composition of the Earth's atmosphere.
- The Sun's outer atmosphere, the corona.
- The internal structure of the Moon.

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Finish

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Category: General Studies

***The reddish color of the Moon during a total lunar eclipse is caused by:***

- The reflection of sunlight from the Earth's atmosphere.
- The Moon's own internal heat radiating outwards.
- The scattering of sunlight by dust particles in space.
- A chemical reaction between the Moon's surface and Earth's atmosphere.

Prev

Finish

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Category: General Studies

**Which of the following is NOT a safe way to observe a solar eclipse?**

- Using a certified solar filter specifically designed for eclipse viewing.
- Looking directly at the Sun with sunglasses.
- Projecting the Sun's image onto a cardboard box using a pinhole.
- Watching a live stream of the eclipse broadcasted by a reputable organization.

Prev

Finish

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Category: General Studies

**The waiting period between witnessing a total solar eclipse from a specific location on Earth can be as long as:**

- 10 years
- 50 years
- 200 years
- 400 years

Prev

Finish

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Category: General Studies

**Consider the following statements about solar eclipses:**

- (a) A total solar eclipse occurs when the Moon completely obscures the Sun, casting a shadow on a specific path across the Earth's surface.

(b) During a partial solar eclipse, the entire Earth experiences a dimming of sunlight.

(c) The phenomenon of a solar eclipse is only observable from specific locations on Earth.

(d) A total solar eclipse occurs more frequently than a lunar eclipse.

**Choose the correct option:**

- (a) and (c) only
- (a), (c), and (d) only
- (a) and (c) only
- All of the above

Prev

Finish

**Check Rank, Result Now and enter correct email as you will get Solutions in the email as well for future use!**

Check the Result

Your score is

0%

Restart quiz

**Please Rate!**

Send feedback

**Mains Questions:**

# Below Mains Question

Write in Comment Section



## **Question 1:**

***A total solar eclipse is set to occur across North America. Explain the concept of a solar eclipse and discuss the scientific importance of observing such an event. (250 words)***

## **Model Answer:**

- A solar eclipse occurs when the Moon passes directly between the Earth and the Sun, casting a shadow on a specific path across the Earth's surface. There are three main types of solar eclipses: total, partial, and annular. In a total solar eclipse, the Moon completely obscures the Sun's disc, creating a brief period of darkness within the path of totality.
- Observing a total solar eclipse holds significant scientific importance for the following reasons:

- **Studying the Sun's Corona:** The Sun's corona, its outer atmosphere, is usually obscured by the Sun's bright light. The brief period of totality during a total eclipse allows astronomers to study the corona in detail. Understanding the corona is crucial for comprehending solar activity and its impact on Earth's climate and space weather.
- **Testing Astronomical Theories:** Observations made during a solar eclipse can be used to test and refine existing astronomical theories about the Sun, Moon, and their interactions.
- **Technological Advancements:** Observing a total solar eclipse often pushes the boundaries of technology. New instruments and observation techniques are developed to gather the most accurate data during these events.

## **Question 2:**

***While witnessing a total solar eclipse is a magnificent spectacle, safety is paramount. Discuss the potential dangers of observing a solar eclipse and elaborate on safe observation practices. (250 words)***

## **Model Answer:**

Looking directly at the Sun, even during a partial eclipse, can cause permanent eye damage. The Sun's intense light can



burn the retina, leading to vision loss. Here are some safe ways to observe a solar eclipse:

- **Certified Solar Filters:** Invest in specially designed solar filters that significantly reduce the Sun's intensity, allowing safe observation. These filters should be certified to meet international safety standards.
- **Projection Methods:** Project the Sun's image onto a cardboard box using a small pinhole. This creates a safe and indirect way to observe the eclipse's progress.
- **Reputable Live Streams:** Numerous astronomical organizations and media outlets often broadcast live streams of solar eclipses. These resources offer a safe and accessible way to experience this event for those without proper equipment.

It's important to educate the public about the dangers of observing a solar eclipse directly and promote the use of safe observation practices.

***Remember: These are just sample answers. It's important to further research and refine your responses based on your own understanding and perspective. Read entire UPSC Current Affairs.***

***Relevance to the UPSC Prelims and Mains syllabus under the following topics:***



## *Prelims:*

- **General Science:** The Prelims syllabus covers “General Science questions relating to our everyday life.” This could include questions about the Solar System, celestial objects, or natural phenomena. A basic understanding of eclipses might be helpful in answering such questions if they are framed in a general way.
- **Current Affairs:** If a recent solar eclipse has garnered significant scientific or public interest, there’s a slight chance of a related question in the current affairs section. However, this is not a high-probability scenario.

## *Mains:*

- **Astronomy:** This section could ask about celestial objects and phenomena. While not super specific, a general understanding of eclipses, including the types and their causes, could be helpful.
- **Space Technology:** Here, a question might touch upon the use of eclipses for astronomical

observations or the development of instruments used for such observations. Understanding the scientific importance of studying a solar eclipse (e.g., observing the corona) could be beneficial in answering such questions.



*Click here to read in  
Hindi.*

**CLICK HERE**



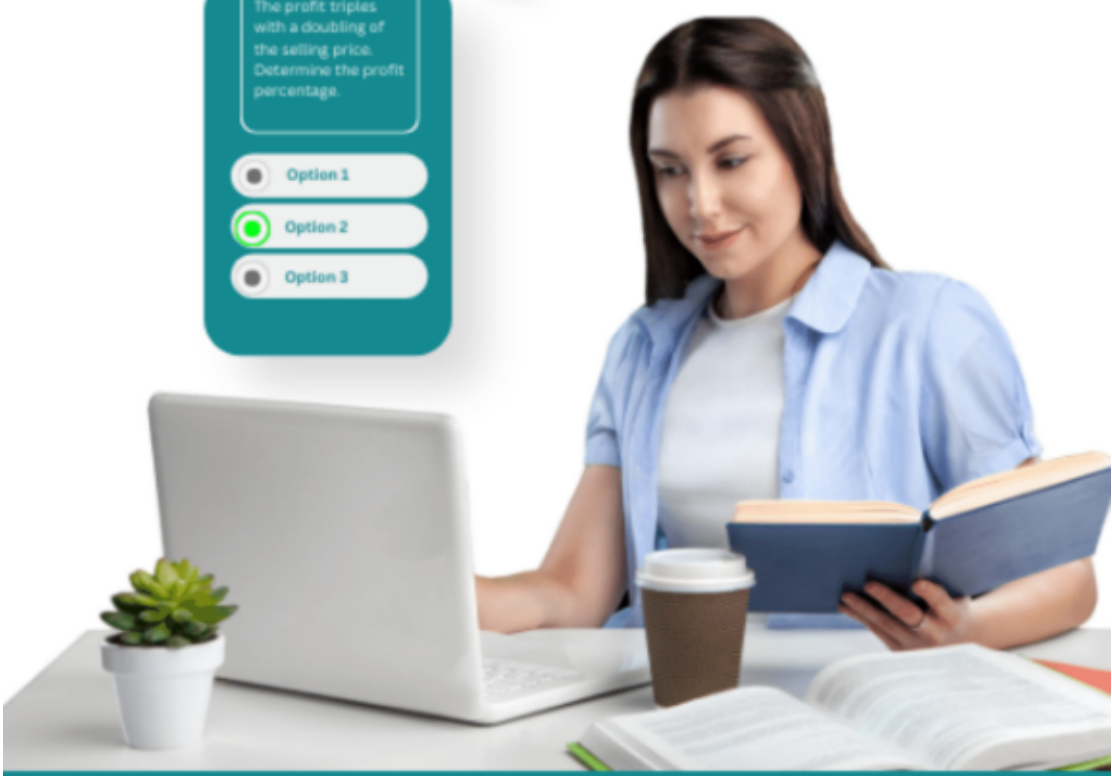
# Quiz Time

The profit triples with a doubling of the selling price. Determine the profit percentage.

Option 1

Option 2

Option 3



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