

# 50 IMPORTANT TOPICS FOR PRELIMS 2023

## SCHEDULE






27-03-2023	Monday	Polity	06-04-2023	Thursday	Geography
28-03-2023	Tuesday	Science	07-04-2023	Friday	Economy
29-03-2023	Wednesday	Environment	08-04-2023	Saturday	History
30-03-2023	Thursday	Geography	09-04-2023	Sunday	HOLIDAY
31-03-2023	Friday	Economy	10-04-2023	Monday	Polity
01-04-2023	Saturday	History	11-04-2023	Tuesday	Science
02-04-2023	Sunday	HOLIDAY	12-04-2023	Wednesday	Environment
03-04-2023	Monday	Polity	13-04-2023	Thursday	IR
04-04-2023	Tuesday	Science	14-04-2023	Friday	Economy
05-04-2023	Wednesday	Environment	15-04-2023	Saturday	Schemes

Starting from **27th March** 2023 on YouTube Channel



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## Pre-Mix - 5 MCQs for Prelims

### Subject - Science & Technology

Date - 06<sup>th</sup> April 2023

#### FROM OUR CRASH COURSE QUIZ

1. Consider the following statements with reference to Uranium Enrichment:

1. Natural uranium is only 0.7% U-235, the fissionable isotope.
2. Centrifugal separators are used in uranium enrichment.
3. The enriched uranium fuel used in fission reactors cannot be used to make a bomb.

Which of the above is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. 1, 2 and 3

2. Arrange the following components of the universe in an increasing order of their share in universe?

1. Stars and comets
2. Dark energy
3. Dark matter

Select the correct option from below:

- A. 2>3>1
- B. 1>2>3
- C. 3>2>1
- D. 2>1>3

3. Pluto is not referred to as a planet. Which of the following criteria of planet, Pluto does not satisfy?

- A. It orbits around a fully-fledged star.
- B. It has cleared the neighborhood objects around its orbit.

- C. It has enough gravity to pull itself into a spherical shape.
- D. Both A and B

4. Which of the following is not an advantage of CRISPER technology ?

- A. Inexpensive
- B. Cancer treatment
- C. Pest resistant crops
- D. Off target effects

5. Consider the following statements:

1. In somatic gene therapy effects are transferred to next generation.
2. In Germline therapy effects will not be transferred to next generation.

Which of the above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

## Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

#### FROM OUR CRASH COURSE QUIZ

1. Consider the following statements with reference to Uranium Enrichment:

1. Natural uranium is only 0.7% U-235, the fissionable isotope.
2. Centrifugal separators are used in uranium enrichment.
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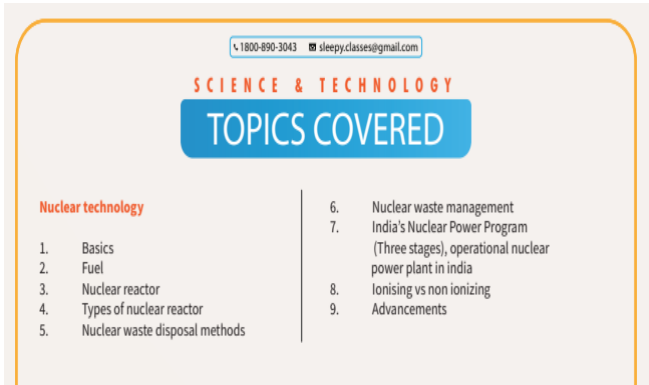
Which of the above is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only

D. 1, 2 and 3

**Answer : D**

**Explanation**



- **Statement 1 is correct:** Natural uranium is only 0.7% U-235, the fissionable isotope.
- **Statement 2 is correct:** Centrifugal separators are used in uranium enrichment.
- **Statement 3 is correct:** The enriched uranium fuel used in fission reactors cannot be used to make a bomb.

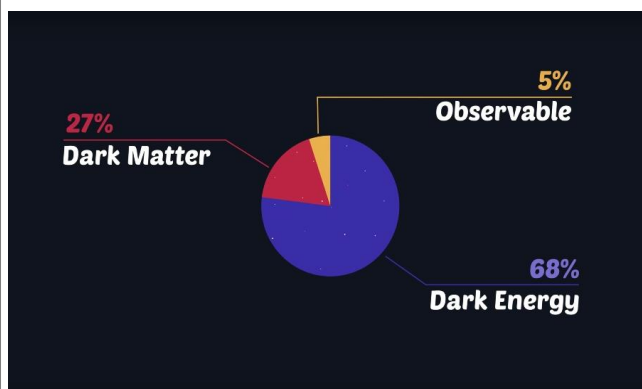
**2. Arrange the following components of the universe in an increasing order of their share in universe?**

1. Stars and comets
2. Dark energy
3. Dark matter

**Select the correct option from below:**

- A. 2>3>1
- B. 1>2>3
- C. 3>2>1
- D. 2>1>3

**Answer : A**



**Explanation**

Dark energy constitutes 68% of the universe, dark matter constitutes 27% of the universe and stars, comets, planets, blackholes constitute 5% of the universe.

**3. Pluto is not referred to as a planet. Which of the following criteria of planet, Pluto does not satisfy?**

- A. It orbits around a fully-fledged star.
- B. It has cleared the neighborhood objects around its orbit.
- C. It has enough gravity to pull itself into a spherical shape.
- D. Both A and B

**Answer : B**

**Explanation**

**International Astronomical Union (IAU)**, a group of experts, is the authorized body to define the criteria for any object to be designated as a planet.

In 2006, IAU defines three criteria to classify any object as a planet.

- 1) It needs to be in orbit around any fully-fledged star.
- 2) It needs to have enough gravity to pull itself into a spherical shape.
- 3) It has cleared the neighborhood around its orbit.

Pluto has not satisfied third criteria (It has cleared the neighborhood around its orbit). Therefore, Pluto is not referred to as a planet anymore.

**4. Which of the following is not an advantage of CRISPER technology ?**

- A. Inexpensive
- B. Cancer treatment
- C. Pest resistant crops
- D. Off target effects

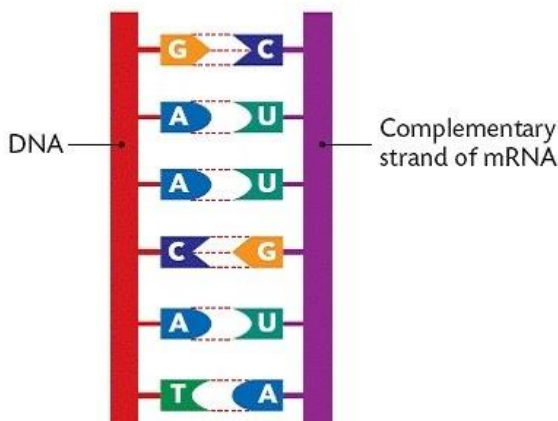
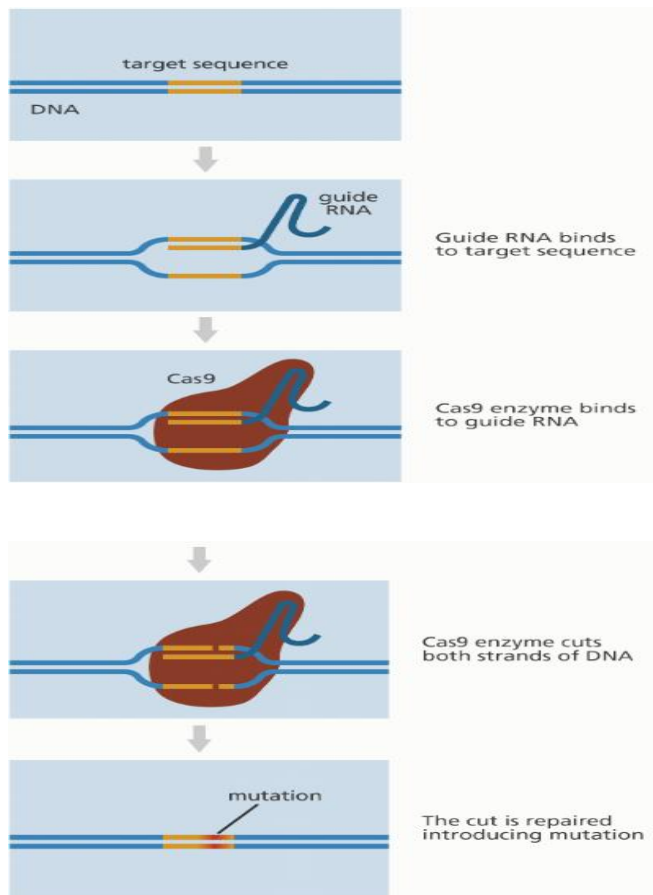
**Answer : D**

**Explanation**

## CRISPER Technology

### HOW IT WORKS

- Pieces of RNA are engineered to be a guide that homes in on the targeted stretch of genetic material. The Cas9 is an enzyme that acts like molecular scissors to snip that spot. That allows scientists to delete, repair, or replace a particular gene.



### Advantages of crisper technology

- Curing Genetics Disease
- Inexpensive
- Cancer Treatments
- Pest Resilient Crops
- Simple to Amend Target
- Drug Research

### 5. Consider the following statements:

- In somatic gene therapy effects are transferred to next generation.
- In Germline therapy effects will not be transferred to next generation.

### Which of the above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Answer : D

### Explanation

Somatic therapy	Gene	Germline therapy	Gene
<ul style="list-style-type: none"> <li>Somatic Gene therapy refers to the alteration of the genome of somatic cells by transferring therapeutic genes.</li> </ul>		<ul style="list-style-type: none"> <li>Germline Gene therapy refers to the alterations of the genome of the germ cell by introducing therapeutic genes</li> </ul>	
<ul style="list-style-type: none"> <li>Alterations done by somatic gene therapy are non-reproducible. Hence, do not pass to the</li> </ul>		<ul style="list-style-type: none"> <li>Alterations done by germline gene therapy are reproducible. Hence, pass</li> </ul>	

next generation.	into the next generation.
<ul style="list-style-type: none"><li>Techniques used in somatic gene therapy are relatively simple. Hence, can be performed under in vitro conditions.</li></ul>	<ul style="list-style-type: none"><li>Techniques are very complex since it involves fetal samples.</li></ul>