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NOBEL PRIZES 2018

For

UPSC, Banking & SSC Exams



NOBEL PRIZES 2018:

CATEGORY	AWARDED TO	FOR
PEACE	Denis Mukwege & Nadia Murad	For their efforts to end sexual violence as a weapon of war & armed conflict
	1.Arthur Ashkin	1.For optical tweezers & their application to biological systems
PHYSICS	2.Gerard Morou & Donna Strickland	2.For their method of generating high intensity , ultra-short optical pulses
	1.Frances H.Arnold	1.For the directed evolution of enzymes
CHEMISTRY	2.George P. Smith & Gregory P. Winter	2.For the phage display of peptides & anti-bodies
MEDICINE	James P. Allison & Tasuku Honjo	For their discovery of cancer therapy by inhibiting the negative immune regulation
	1.William Nordhaus	1.For integrating climate change into long-run macroeconomic analysis
ECONOMICS	2.Paul M. Romer	2.For integrating technological innovations into long-run macroeconomic analysis
LITERATURE	POSTPONED	

1. Nobel Peace Prize:

Nobel Peace Prize for 2018 was awarded to **Denis Mukwege** and **Nadia Murad** for their efforts to end the use of sexual violence as a weapon of war and armed conflict.

Denis Mukwege:

The physician Denis Mukwege has spent large parts of his life helping the victims of sexual violence in the Panzi Hospital, Bukavu, **Democratic Republic of Congo**. Most of the abuses have been committed in the context of a long-lasting civil war that has cost the lives of more than six million Congolese.

Nadia Murad:

Nadia Murad is a member of the Yazidi minority in Kocho, northern **Iraq**. In August 2014 the Islamic State (IS) launched a brutal, systematic attack on the villages of the Sinjar district, to exterminate the Yazidis.

Nadia Murad is just one of an estimated 3000 Yazidi girls and women who were victims of rape and other **abuses** by the **IS** army. Abuses, part of military strategy served as a weapon in the fight against Yazidis and other religious minorities. Following her escape after 3 months, she chose to speak openly about what she had suffered. In 2016, she was named the **UN's first Goodwill Ambassador for the Dignity of Survivors of Human Trafficking**.

UN Resolution on the use of sexual violence as a weapon of war & Armed conflict:

This year 2018 marks a decade since the UN Security Council adopted Resolution 1820 (2008), which determined that the use of sexual violence as a weapon of war and armed conflict constitutes both a war crime and a threat to international peace and security.

2. Nobel Prize in Physics:

Nobel Prize in Physics was awarded to **Arthur Ashkin, Gerard Morou & Donna Strickland** for their groundbreaking inventions in the **laser physics**.

Arthur Ashkin:

Arthur Ashkin invented **optical tweezers** that grabs virus, atoms, particles, living cells & viruses with their laser beam fingers. He succeeded in pushing the particles to the center of the beam & holding them there. Optical tweezers are used to **investigate the machinery of life**.

Gerard Morou & Donna Strickland:

Gerard Morou & Donna Strickland created shortest & most intense **laser pulses** i.e, ultrashort high intensity pulses without destroying the amplifying material. Their technique called **chirped pulse amplification**, CPA, soon became standard for subsequent high-intensity lasers. Its uses include the millions of **corrective eye surgeries** that are conducted using the sharpest of laser beams.

3.Nobel Prize in Chemistry:

Nobel Prize in Chemistry was awarded to **Frances H.Arnold** for the directed evolution of enzymes & **George P.Smith & Gregory P.Winter** for the Phage display of peptides & antibodies.

Frances H. Arnold :

Frances H. Arnold in 1993, conducted the first **directed evolution of enzymes**, which are proteins that catalyse chemical reactions. The uses of Frances Arnold's enzymes include more environmentally friendly manufacturing of chemical substances, such as pharmaceuticals, and the production of renewable fuels.

George P. Smith and Sir Gregory P. Winter:

In 1985, George Smith developed a method known as **phage display**, where a bacteriophage – a virus that infects bacteria – can be used to evolve new proteins. Gregory

Winter used phage display for the **directed evolution of antibodies** in order to produce new pharmaceuticals. using Phage Display, firstly **adalimumab** was invented & was approved in 2002 and is used for rheumatoid arthritis, psoriasis and inflammatory bowel diseases. phage display has also been used to produce anti-bodies that can counteract Metastatic Cancer.

4. Nobel Prize in Medicine:

James Allison & Tasuku Honjo have been awarded the Nobel Prize in medicine for the discovery of cancer therapy by inhibition of negative immune regulation

James Allison & Tasuku Honjo:

James Allison has studied a new protein that acts as a **brake** on the immune system. He realized the potential of the immune system by releasing the brake & unleashing the immune system to attack the tumors. Tasuku Honjo discovered a protein on immune cells later realized to be a brake on the immune system. James Allison & Tasuku Honjo both discovered different strategies to **inhibit the brakes on the immune system** that can be used to treat the cancer.

5. Nobel Prize in Economics:

William Nordhaus & Paul M. Romer were awarded the Nobel Prize in Economics for integrating climate change & Technological innovations into long run macro-economic analysis respectively.

Paul M. Romer:

Paul M. Romer demonstrates how **knowledge** can function as a driver of **long-term economic growth**. Romer's solution, which was published in 1990, laid the foundation of what is now called **endogenous growth theory**. The theory explains how ideas are different to other goods and require specific conditions to thrive in a market.

William Nordhaus:

Nordhaus' findings deal with interactions between society and nature. He is the first person to create an **integrated assessment model**, i.e. a quantitative model that describes

the global interplay between the economy and the climate. Nordhaus' model is used to simulate how the **economy and the climate co-evolve** & to examine the consequences of climate policy interventions, for example carbon taxes.

6. Nobel Prize in Literature:

The 2018 Nobel Prize in Literature has been **postponed**.

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