

Government of Tamil Nadu Department of Employment and Training

Course : TNPSC Combined Civil Services Examination - IV(Group IV / VAO) Subject : Physics

Topic : Inventions and Discoveries

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Commissioner,

Department of Employment and Training.

INVENTIONS AND DISCOVERIES

Year	Discoveries	Scientist Name
1905	Photon	Albert Einstein
1897	Electron	J.J.Thomson
1919	Proton	Ernest Rutherford
1808	Atom	John Dalton
1932	Neutron	James Chadwick
1687	Law of Motion	Isaac Newton
1779	Coulomb	Charles-Augustin de Coulomb
1827	Ohm's Law	Georg Simon Ohm
1831	Electromagnetic Induction	Michael Faraday
1880	Thermionic Emission	Thomas Edison
1896	Radioactivity	Henri Becquerel
1898	Radium	Marie Sklodowska-Curie
1900	quantum theory	Max Planck
1905	Photoelectric Effect	Heinrich Rudolf Hertz & Albert
		Ellisten
1895	X-Ray	Röntgen
1905	Relativity	Albert Einstein
1913	Atomic Structure	Neil Bohr & Rutherford
1942	Nuclear Reactor	Anrico Fermi
1904	Diode Bulb	Sir J.S Fleming
1906	Triode Bulb	Lee de Forest
1608	Telescope	Hann Lippershey

Invention	Inventor
Centigrade scale	Anders Celsius
Watch	Peter Henlein
Radio	Guglielmo Marconi
Telephone	Alexander Graham Bell
Electricity	Benjamin Franklin
Electric Light Bulb	Thomas Edison
Thermometer	Galileo Galilei
Telescope	Hans Lippershey and Zacharias Janssen; later Galileo
Telegraph	Samuel Morse
Cosmic Rays	Victor Hess (but the term 'cosmic rays' first used by Robert Millikan
Automobile	Karl Benz
Magnetic Tape	Fritz Pfleumer
Transformer	Michael Faraday (later Ottó Titusz Bláthy)
Electromagnetic Induction	Michael Faraday
Quantum mechanics	Werner Heisenberg, Max Born, and Pascual Jordan
Wave mechanics	Erwin Schrödinger
Fuel Cell	William Grove
Airplane	Wright Brothers
Barometer	Evangelista Torricelli
Camera	Nicéphore Niépce
Diesel Engine	Rudolf Diesel
Helicopter	Igor Sikorsky
Dynamite	Alfred Nobel

Lift	Elisha Otis	
Laser Printer	Gary Starkweather	
Mobile Phone	Martin Cooper	
Printing Press	Johannes Gutenberg	
Video Games	Ralph Baer	
Steam engine	Thomas Newcomen	
Railway Engine	George Stephenson	
Jet Engine	Frank Whittle	
Seismograph	John Milne	
Electric Generator	Michael Faraday	
Television	John Logie Baird	
Refrigerator	William Cullen (later Oliver Evans)	
Carburetor	Luigi De Cristoforis & Enrico Bernardi	
Air Brake	George Westinghouse	
Atomic bomb	Robert Oppenheimer, Edward Teller et al	
Air conditioner	Willis Carrier	
Machine Gun	Sir Hiram Maxim	
Radar	Sir Robert Alexander Watson-Watt	
Submarine	Cornelius Drebbel (later) David Bushnell	
First military submarine	Yefim Nikonov	
Transistor	John Bardeen, Walter Brattain, and William	
	Shockley	
Galvanometer	Johann Schweigger	
Laser	Theodore H. Maiman (first demonstrated)	
Neon lamp	Georges Claude	
Rocket Engine	Robert Goddard	
Typewriter	Christopher Latham Sholes	

Nobel Prize in Physics

- The Nobel Prize in Physics is the most prestigious award given yearly by the Royal Swedish Academy of Sciences.
- The Noble prize is given to those physicists who conferred the most outstanding contributions for mankind (in physics).
- Wilhelm Röntgen, a German/Dutch physicist, was the first person who had received the first Nobel Prize in 1901.
- Wilhelm Röntgen had received the Nobel Prize for discovery of the remarkable x-rays).
- In the field of physics (by the time), only two women have won the Nobel Prize, namely Marie Curie (in 1903) and Maria Goeppert Mayer (in 1963).
- The following table illustrates some of the significant physicists who have received the Nobel Prize along with their remarkable works –

Name	Year: Country	Work
Wilhelm Conrad	1901: Germany	Discovery of the remarkable rays
Röntgen		
Hendrik Lorentz 🔰	1902: Netherlands	Worked on the influence of magnetism
Pieter Zeeman	1)02. Netherlands	upon radiation phenomena
Antoine Henri	" ALO	Spontaneous radioactivity
Becquerel	1903: France	Spontaneous radioactivity
Pierre Curie		
Maria Skłodowska-	1903:	Radiation phenomena
Curie	Poland/France	
Philipp Eduard	1905: Austria-	Worked on cathode rays
Anton von Lenard	Hungary	worked on canode rays
Guglielmo Marconi	1909: Italy	Development of wireless telegraphy
Karl Ferdinand	1909: Germany	

Braun		
Max Planck	1918: Germany	Discovered energy quanta
Johannes Stark	1919: Germany	Discovered Doppler effect in canal rays
Albert Finstein	1921: Germany-	For the discovery of the law of the
	Switzerland	photoelectric effect
Niels Bohr	1922: Denmark	Investigated the structure of atoms
Chandrasekhara Venkata Raman	1930: India	Worked on scattering of light
Werner Heisenberg	1932: Germany	Created quantum mechanics
Erwin Schrödinger	1933: Austria	Discovered productive forms of atomic
Paul Dirac	1933: United	theory
	Kingdom	
James Chadwick	1935: UK	Discovered Neutron
Victor Francis Hess	1936: Austri <mark>a</mark>	Discovered cosmic radiation
Willis Eugene Lamb	1955: US	Discovered the fine structure of the hydrogen spectrum
Emilio Gino Segrè	1959: Italy	Discovered the entirector
Owen Chamberlain	1959: US	
Lev Davidovich	1962: Soviet	Theories for condensed matter
Landau	Union ⁷ ALO	
Maria Goeppert- Mayer	1963: US	Discovered nuclear shell structure
J. Hans D. Jensen	1963: Germany	
Hans Albrecht Bethe	1967: US	Worked on the theory of nuclear reactions
Murray Gell-Mann	1969: US	Classification of elementary particles and their interaction
Hannes Olof Gösta Alfvén	1970: Sweden	Worked on plasma physics

Louis Néel	1970: France	Worked solid state physics
Dennis Gabor	1971: Hungary- UK	Developed the holographic method
John Bardeen		
Leon Neil Cooper	1972: US	Developed the theory of superconductivity
John Robert		
Schrieffer		
Arno Allan Penzias		Discovered cosmic microwave background
Robert Woodrow	1978: US	nadiation
Wilson		radiation
Nicolaas	1981:	
Bloembergen	Netherlands-US	Developed laser spectroscopy
Arthur Leonard	1021.115	
Schawlow	1981. 05	
Ernst Ruska	1986: Ger <mark>many</mark>	Designed the first electron microscope
Johannes Georg	1087: Cormony	
Bednorz		Discovered the superconductivity in
Karl Alexander	1097: Switzerland	ceramic materials
Müller	1987: Switzerland	TRUNN
Robert B. Laughlin	1998: US	NE TT
Horst Ludwig	1008. Сотасти	Discoursed a new form of eventure fluid
Störmer	1998: Germany	Discovered a new form of quantum fluid
Daniel Chee Tsui	1998: China-US	
Jack St. Clair Kilby	2000: US	Developed integrated circuit
Riccardo Giacconi	2002: Italy-US	Discovered cosmic X-ray sources
Roy J. Glauber	2005: US	Worked on the quantum theory of optical coherence

Willard S. Boyle	2009: Canada-US	Invented an imaging semiconductor circuit
George E. Smith	2009: US	– the CCD sensor
Takaaki Kajita	2015: Japan	Discovered neutrino oscillations, which
Arthur B.	2015: Canada	illustrations that the neutrinos have mass
McDonald	2015. Canada	
J. Michael Kosterlitz	2016 : UK	Use of topological concepts in physics and
Duncan Haldane	2016 : London	discovered that superconductivity could
David J. Thouless	2016 : US	occur at low temperatures
Rainer Weiss	2017 : US	Laser Interferometer Gravitational Wave
Kip S. Thorne	2017 : US	Observatory, or Ligo
Barry C. Barish	2017 : US	
Arthur Ashkin	2018: US	Optical tweezers and their application to
		biological systems
Gérard Mourou	2018: France	In the field of laser physics for inventing the
Donna Strickland	2018: Canada - US	method of generating high-intensity, ultra- short optical pulses

