

Education debt

- U.S. President Joe Biden has already released a new plan to cancel billions in student loan debt after the Supreme Court of the U.S. (SCOTUS) in a 6-3 decision on June 30 blocked his ambitious plan to cancel \$430 billion in debt.
- Proposals for broad-scale student loan debt relief including cancellation of all or a portion of federal student loan debt have gained considerable attention in recent years.
- As the cost of education increases while wages stagnate, it has become harder for students to pay off their loans.
- Studies also point out how federal grants and scholarships have not kept pace with the increasing cost of education and attendance.
- President Biden has explained the need for loan cancellation by arguing that higher education “should be a ticket to a middle-class life, but for too many, the cost of borrowing for college is a lifelong burden that deprives them of that opportunity.
- On the other hand, critics of broad-based cancellation of loans point out how a one-time loan cancellation may fail to address the underlying causes of crushing loan debt.
- One major cause is the skyrocketing

cost of education and the need for an overhaul of the system

THE HINDU

Leptospirosis

- Leptospirosis has emerged as an important infectious disease in the world today. It is a potentially fatal zoonotic bacterial disease that tends to have large outbreaks after heavy rain or flooding.
 - The disease is more prevalent in warm, humid countries and in both urban and rural areas. It affects an estimated 1.03 million people every year, killing around 60,000
- What causes the disease?**
- The disease is caused by a bacterium called *Leptospira interrogans*, or *Leptospira*.
 - It is a contagious disease in animals but is occasionally transmitted to humans in certain environmental conditions.
 - The carriers of the disease can be either wild or domestic animals, including rodents, cattle, pigs, and dogs.
 - The cycle of disease transmission begins with the shedding of leptospira, usually in the urine of infected animals

Preventing leptospirosis

- Leptospirosis control can benefit

from a 'One Health' approach. 'One Health' is an interdisciplinary approach that recognizes the interconnections between the health of humans, animals, plants, and their shared environment.

- People who frequently interact with animals or their urine should exercise particular caution, such as by wearing personal protective equipment like gloves and boots

THE HINDU

Why does Flame go upward?

- Flames heat a few layers of air nearby and make them less dense.
- Due to buoyancy, this hot air moves vertically upwards, creating a sort of low pressure near the flame.
- This causes the cool air from faraway layers to flow towards the flame from the sides and below.
- Oxygen present in the air keeps the fuel burning.
- The air near the flame gets heated and moves up faster.
- The dynamics of airflow near the flame is a complex process.
- However, mathematicians have modeled it and found that there is a greater (faster) outflow of hot air right above the flame with a smaller (slower) inflow from the sides and below.

THE HINDU

Antibiotics-GRAM NEGATIVE BACTERIA

- The doctors turned to a promising antibiotic, cefepime/zidebactam. Developed by Indian researchers, this antibiotic combines two active components to combat drug-resistant gram-negative pathogens,
- The scarcity of potent antibiotics to combat drug-resistant infections poses a direct threat to countless lives.
- Cefiderocol, a licensed antibiotic in several countries, developed by a Japanese company, has demonstrated excellent efficacy against drug-resistant infections.
- It is disheartening that it remains unavailable within our country
- Gram-negative bacteria are bacteria that do not retain the crystal violet stain used in the Gram-staining method of bacterial differentiation.
- They are characterized by their cell envelopes, which are composed of a thin peptidoglycan cell wall sandwiched between an inner cytoplasmic cell membrane and a bacterial outer membrane.
- Gram-negative bacteria are found in virtually all environments on Earth that support life.

- The gram-negative bacteria include the model organism *Escherichia coli*, as well as many pathogenic bacteria, such as *Pseudomonas aeruginosa*, *Chlamydia trachomatis*, and *Yersinia pestis*.

THE HINDU

NATO

- NATO Secretary-general Jens Stoltenberg will stay in office for another year, the 31-nation military alliance decided
- Formed in 1949 with the signing of the Washington Treaty, NATO is a security alliance of 30 countries from North America and Europe
- NATO's fundamental goal is to safeguard the Allies' freedom and security by political and military means.

THE HINDU
