

15 March 2020: UPSC Exam Comprehensive News Analysis

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Category: HEALTH

1. The time is right for 'One Health' science

Introduction

- The Nipah virus outbreak was thought to have come from fruit bats. These diseases, which “spillover” from animals to humans are referred to as **zoonotic diseases**, and represent more than 60% of emerging infectious diseases worldwide.
- The **destruction** of the natural environment, globalized trade and travel, and industrialized food production systems have created numerous pathways for new pathogens to jump between animals and humans.
- Understanding this critical intersection between human health, domestic and wild animal health and the environment requires a new integrated framework — a paradigm called ‘OneHealth’.

One Health

- 'One Health' is an approach to designing and implementing programs, policies, legislation, and research in which multiple sectors communicate and work together to achieve better public health outcomes.
- The areas of work in which a One Health approach is particularly relevant include **food safety**, the control of **zoonoses** (diseases that can spread between animals and humans, such as flu, rabies, and Rift Valley Fever), and **combatting antibiotic resistance** (when bacteria change after being exposed to antibiotics and become more difficult to treat).

Why do we need a One Health approach?

- Many of the same microbes infect animals and humans, as they share the eco-systems they live in. Efforts by just one sector cannot prevent or eliminate the problem.
 - For instance, rabies in humans is effectively prevented only by targeting the animal source of the virus (for example, by vaccinating dogs).
- So to effectively contain it, a well-coordinated approach in humans and in animals is required.

How does it work?

- Many professionals with a range of expertise who are active in different sectors, such as public health, animal health, plant health, and the environment are required to find a solution to the problem.
- To effectively detect, respond to, and prevent outbreaks of zoonoses and food safety problems, epidemiological data and laboratory information should be shared across sectors.
- Government officials, researchers and workers across sectors at the local, national, regional and global levels should implement joint responses to health threats.

Example- Kyasanur Forest Disease

- The concept of onehealth may be of recent origin but it was operationalized back in the late 1950s.
- A stellar example of OneHealth being operationalized helped discover the source of Kyasanur Forest Disease (KFD), a highly dangerous hemorrhagic fever more threatening than COVID-19.
- It took **pioneering interdisciplinary work to bring together diverse entities** like the
 - Rockefeller Foundation
 - It provided the financial and technical support, including laboratory facilities
 - The Virus Research Centre (later the National Institute of Virology), Pune.
 - A team of dedicated researchers from the Virus Research Centre searched the forests of the Western Ghats for potential carriers and autopsied monkeys in their investigations into the cause of the disease.
 - The World Health Organization (WHO) and the Bombay Natural History Society.
 - **The bird man of India, Salim Ali**, supported by WHO funds, tagged migratory birds to rule out the possibility that they were carrying pathogens responsible for the disease in their cross-continental flights.

This model of cross-sectoral collaboration did not set the tone for further research along similar lines or fructify into readying our public health system to address zoonotic diseases.

Range of permissions

- The regulatory framework for doing OneHealth research in India **with international collaboration** typically requires approvals from multiple authorities, including Indian Council of Medical Research (ICMR), the Ministries of External Affairs and Finance, Directorate General of the Armed Forces, National Biodiversity Authority, Committee for the Purpose of Control & Supervision of Experiments on Animals and State health authorities, among others.

- Additional **permissions are required from state forest authorities and biodiversity boards** for accessing biological resources within natural landscapes.
- Yes, there is a necessity for permission, but the range of permissions needed and the long waiting periods (ranging from three months to more than a year), **raises the issue of whether we are unwittingly hampering our ability to rapidly respond to emerging threats from infectious diseases.**

National Mission on Biodiversity and Human Well-being

- The mission aims to **explore the neglected links between biodiversity science and human well-being** across the sectors of health, economic development, agricultural production and livelihood generation, in combination with efforts to mitigate climate change and related disasters.
- One of the components of the mission **explicitly links biodiversity to human health through the OneHealth framework.**

Significance of OneHealth

The frequency with which new pathogens are emerging or old ones are re-emerging across the world are alarm calls for greater transparency, cross-country collaborations, and enhanced national infrastructure and capacity for integrated OneHealth science.

- The OneHealth program aims to encourage team science by having **networks of institutions collectively bid for grants to set up integrated OneHealth surveillance systems** across India at 25 sentinel surveillance sites in potential emerging infectious disease hotspots.
- In this manner, government and private institutions, across a range of disciplines, from virology to epidemiology, genomics to ecology, and social and behavioral sciences to veterinary and animal sciences can **collaborate to understand how zoonotic diseases can emerge, the threats they can pose, and the mechanisms by which the emergence or spread can be controlled.**

Conclusion

- Given our pioneering historical contribution to combat zoonotic diseases, and a robust institutional framework for biomedical research, **India has the opportunity to take the lead in combating the massive public health crisis posed by emerging infectious diseases.**
- An opportunity now exists for India to **leap-frog over the systemic and institutional barriers** that prevent an integrated OneHealth framework from being operationalized.

C. GS 3 Related

Category: DEFENCE

1. MPs' panel concerned at Defence fund shortfall

Context

- The **Parliamentary Standing Committee** on Defence has expressed concern **at the widening gap between projections and allocations in the defense budget** impacting modernization and has recommended a dedicated fund for committed liabilities and procurements.
- The shortfall in the allocation has also affected setting up of three tri-service organizations and the operational readiness of the Andaman and Nicobar Command (ANC)

A look at numbers

- The gap in capital allocation for the **Army**, which was ₹4,596 crore in 2015-16, has increased to ₹17,911.22 crore in 2020-21 (14% to 36%).
- In the case of the **Navy**, the difference was ₹1,264.89 crores in 2014-15, which has increased to ₹18,580 crores in 2020-21 (5% to 41%) and
- For the **Air Force**, the gap of ₹12,505.21 crores in 2015-16 has increased to ₹22,925.38 crores in 2020-21 (27% to 35%).

Extracts from the report

- The Committee feels such a situation is **not conducive for preparation of country to modern-day warfare**, as possession of capital intensive modern machines are pre-requisite for not only tilting the result of war in our favor but also having a credible deterrence
- The Committee observes that the **Navy's fighting capabilities depend on the high-value platforms** like an aircraft carrier, submarines, destroyers, and frigates but the allocation of Capital Budget for Navy [percentage-wise] has the sharpest decline.

Committed Liabilities

Capital acquisition of the armed forces consists of two components:

- Committed Liabilities
 - Committed liabilities are payments anticipated during a financial year **in respect of contracts concluded in previous years**.
 - This is due to the fact that defense acquisition is a complicated process involving long gestation periods.
- New schemes
 - New schemes include new projects, which are at various stages of approval and are likely to be implemented in the future.

On the committed liabilities, the Committee has noted that they constitute a significant part of the Capital Head. The inadequate allocation would definitely lead to a 'default situation' on contractual obligations.

- So it has recommended a dedicated fund which should be earmarked for committed liabilities and new schemes, invariably from next Budget onwards

Navy and Air Force

- Both the Navy and the IAF have a situation **where their committed liabilities are more than their share of the capital allocation**.
- To offset this, the Services have been forced to **defer payment of committed liabilities of the Defence Public Sector Undertakings (DPSU)** among other measures.

Miscellaneous Expenditure

The projection under miscellaneous expenditure was ₹660.94 crores while allotment is ₹294.00 crores and the standing committee was informed that the carry forward burden from the previous year is ₹32.14 crores. Hence, the **net availability is ₹261.86 crore and the net shortfall is ₹399.08 crore**.

- The implications of the shortfall in miscellaneous expenditure include the **inability to operationalize the** Defence Space Agency (DSA), Defence Cyber Agency (DCYA) and Armed Forces Special Operations Division (AFSOD).
- Other implications are lower operational readiness of Andaman and Nicobar Command (ANC) ships due to impact on annual refit plans, maintenance of SIGINT (Signal Intelligence) equipment and administration of training institutes and operational units.

Category: ENVIRONMENT

1. Heat stress may impact over 1.2 billion people annually by 2100: study

Context

- According to research as published in the journal *Environmental Research Letters*, heat stress from extreme heat and humidity will **annually affect areas now home to 1.2 billion people by 2100**, assuming current greenhouse gas emissions.
- This is more than four times the number of people affected today and more than 12 times the number who would have been affected without industrial-era global warming

What is Heat Stress?

- Heat stress is caused by the body's inability to cool down properly through sweating. It happens when the body's means of controlling its internal temperature starts to fail.
 - The body reacts to heat by increasing the blood flow to the skin's surface, and by sweating. This results in cooling as sweat evaporates from the body's surface and heat is carried to the surface of the body from within by the increased blood flow.
- It occurs when the body cannot get rid of excess heat.
- When this happens, the **body's core temperature rises and the heart rate increases**.

What are the effects of heat stress?

Typical symptoms are:

- Body temperature can rise rapidly, and high temperatures **may damage the brain and other vital organs**.
 - an inability to concentrate
- muscle cramps
- heat rash
- fainting
- heat exhaustion - fatigue, giddiness, nausea, headache, moist skin
- Heatstroke - hot dry skin, confusion, convulsions and eventual loss of consciousness.

What does the report say?

- Annual exposure to extreme heat and humidity in excess of safety guidelines is projected to **affect areas currently home to about 500 million people** if the planet warms by 1.5 degrees Celsius, and **nearly 800 million** at 2 degrees Celsius
 - An estimated **2 billion people** would be affected with 3 degrees Celsius of warming

- It not only harms the health of humans but its impact is felt on agriculture, economy, and environment.

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Category: HEALTH

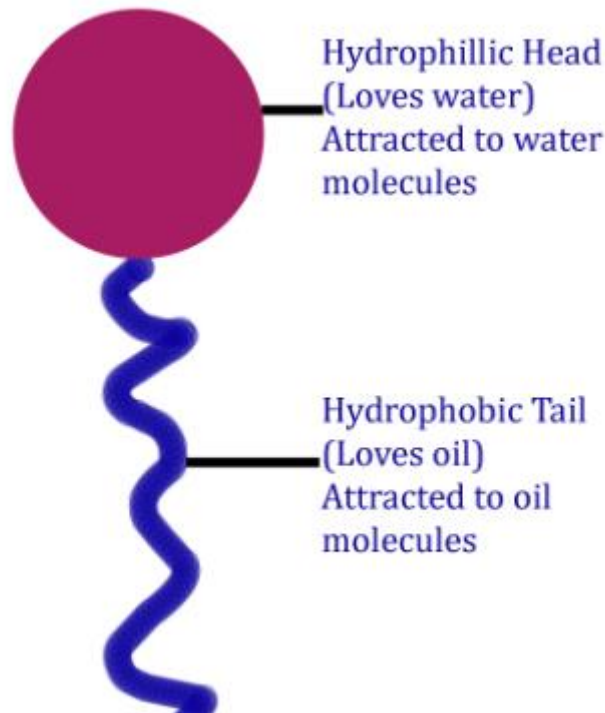
1. How does soap use help in tackling COVID-19?

Context

- The WHO has issued guidelines to reduce the risk of infection. It includes a regular and thorough cleaning of one's hands with an alcohol-based hand rub or washing them with soap and water.

How does washing with soap helps get rid of the coronavirus?

- The dirt on our hands contains innumerable viruses and bacteria. Washing with only water helps reduce the number of microbes but does not remove most of the virus and bacteria completely. Using soap, therefore, becomes **far more effective in removing microbes**.
- Viruses such as coronavirus, influenza-causing viruses, Ebola, Zika have their genetic material **encased in a layer of fat called the lipid envelope**.
- **Soap molecules** are pin-shaped with a **head** that is water-loving (hydrophilic) and a **tail** that is oil-loving (oleophilic).
 - Being oleophilic, the **tail portion of the molecule tends to have an affinity** for and 'competes' with the lipids in the virus envelope.
- Since the **chemical bonds holding the virus together are not very strong**, the long oleophilic tail gets inserted into the envelope and tends to have a 'crowbar' effect that breaks the lipid envelope of the virus.
 - The **tail also competes with the bond** that binds the RNA and the lipid envelop thus dissolving the virus into its components which are then removed by water.
 - The oil-loving tail of the soap molecule thus disrupts the bond that binds dirt and non-enveloped viruses to the hand. The **dirt and viruses are surrounded by several tails making them remain suspended particles**. Rinsing with water washes away the suspended particles leading to clean hands.



Do all viruses have the lipid layer?

- No, certain viruses do not have the lipid envelop and are called the **non-enveloped viruses**.
 - Rotavirus which causes severe **diarrhea**, **poliovirus**, **adenovirus** that causes pneumonia and even human papillomavirus (HPV) does not contain the lipid envelop.

How do alcohol-based hand sanitizers help get rid of coronavirus?

- Like soap, the alcohol present in **hand sanitizers dissolves the lipid envelop**, thus inactivating the virus.
- In addition, the alcohol also tends to change the shape or denature the mushroom-shaped protein structures that stick out of the lipid envelope.
 - The mushroom-shaped protein structures help the virus to bind to special structures found on human cells and enter the cells.
- To be effective, the **sanitizers should contain at least 60% alcohol**.
- Unlike soap lather, the alcohol does not come in contact with all parts of the hand. So care needs to **be taken to use sufficient sanitizer to increase the coverage**.
- While a sanitizer can quickly reduce the number of microbes, it does not get rid of all types of germs, and is “not as effective when hands are visibly dirty or greasy”.

Should healthy people who are not taking care of COVID-19 patients use a mask?

- Medical masks help prevent the spread of coronavirus infection. If worn properly, masks may be effective in preventing transmission of coronavirus.

- Transmission through droplets from coughing and sneezing is one of the major routes of virus spread. When worn correctly, a mask can reduce the risk of inhaling droplets containing the virus.
- With many studies showing that people infected with novel coronavirus transmit the virus even before symptoms show up, it may be prudent to wear a mask especially when the virus is spreading in the community.

What other precautions should be taken when a mask is used?

- WHO cautions that using a mask alone will be insufficient to provide an “adequate level of protection”. It should be combined with hand hygiene to prevent human-to-human transmission.
- So if an individual decides to wear a mask, care must be taken to regularly wash hands with soap or alcohol rub, and avoid touching the face with hands.
- Incorrect mask-wearing might otherwise reduce the effectiveness in cutting the risk of transmission. It should be discarded once it gets wet or dirty, and care should be taken to safely dispose of used masks. The same mask should not be used for more than a couple of hours.

2. Is the global economy headed for recession?

Context

- The global death toll due to COVID-19 has crossed the 5,300 mark, with over 1.42 lakh people infected. India, where 88 people have been infected, saw two casualties. A diverse set of industries has been impacted by the spread of the virus.

What does it mean to the global economy?

- Analysts fear that the global economy may tip into a recession unless the virus turns out to be seasonal.
- A recession sets in when the economy **shows two consecutive quarters of contraction**.

Why should the economy be affected?

- If individuals **engage less with the outer world** and avoid work, education, fitness, and entertainment, a lot less economic activity would occur.
- Businesses face the challenge of disrupted supply of components to make products, or of having to shut some of their factories temporarily, not to mention the workforce having to be quarantined.

Which are the industries impacted?

The Indian pharmaceutical, automobile, and mobile phone industries, immediately trembled.

- The **Indian Pharma Industry**, which depends on China for 70% of raw materials needed to manufacture drugs here, has seen input costs go up by 50%

- The **Pesticides Sector** is another that has been affected as manufacturers depend on China for raw materials.
 - While there are comforting stock levels for now in India, farmers may soon face pesticide availability issues unless the situation resolves quickly.
- Even the **Software Services Industry**, which easily lends itself to working from remote locations, will have some issues as the decision-making is mostly in the West.
 - Since it is the key market for software services, it may be hit, with in-bound travel restricted and the U.S. declaring an emergency.
- Textile and clothing exporters have started feeling the impact of Covid-19 because of supply chain disruptions, fall in exports and the cancellation of international events.

How will it hit the travel sector?

Travel has been hit severely as countries issue advisories to eliminate unnecessary travel and go into lockdown mode.

- The **U.S.**, for instance, has halted all inbound travel from Europe.
- **India** has temporarily stopped grant of visas except for emergency situations.
- **Operators and service providers.** The vendors in the airport who provide services suffer due to this restriction. It this impacts the profits of — and jobs at — airlines, airport authorities and oil marketing companies
- Evidence has also shown that **cab drivers** cannot afford to have their cabs out of circulation for even as short a period as a week if they have to provide comforts to their families. Curtailed travel and commutes can be devastating for them.

Commercial Impact of Coronavirus on Sports and Entertainment

1. Sports

- **Indian Premier League** has been postponed.
- The **South Africa-India cricket series** has been cancelled.
- **In football**, all Union of European Football Association (UEFA) competitions, including the Champions League and Europa League matches, have been postponed.
- **Formula 1** has called off the first race of the season, the Australian Grand Prix. In golf, the PGA has cancelled its Players' Championship.
- The **U.S. basketball association**, the National Basketball Association (NBA) suspended its season's events indefinitely.

2. Movies

- States such as Kerala have shut down **cinema halls** for this month.
- **Indian movie releases** have been postponed indefinitely.
- The iconic **Disneyworld** has brought down its shutters temporarily to help prevent the spread of the virus.

Is there a silver lining at all?

- Sales of medical supplies, soaps, hand sanitizers and essentials to be stocked up at home will evidently rise.
- It is said that after the Severe Acute Respiratory Syndrome (SARS) epidemic in China in 2003, shoppers began to prefer buying online, **to avoid crowded spaces and that e-commerce major Alibaba's fortunes zoomed after this.**
- **Digital shopping** may get a boost.
- With schools shutting down temporarily, **online learning platforms** are likely to get a boost.

Category: ECONOMY

1. Yes Bank and bonds

Background

Refer to [10 March 2020 Comprehensive News Analysis.](#)

Context

- The Government and the RBI are working on restructuring the Yes Bank.
- The **draft restructuring proposal** put out by the Reserve Bank of India (RBI) says **AT1 bonds will be entirely written off**, while equity owners will be spared.

Basel Accord

- The primary purpose of a bank is to engage in the business of banking, which entails taking deposits and giving loans. For engaging in this business, **banks are required to have sufficient capital**, such that their deposit holders are protected.
- The capital required by banks is regulated by The Reserve Bank of India, which is the primary regulator for all banking activities in India. Internationally, **central bankers like RBI follow common minimum standards** of capital adequacy, which are known as the **Basel accords**.
- Post the Global Financial Crisis in 2008, regulators around the world agreed to **stronger capital adequacy norms, to protect banks from any systemic risk and keep adequate capital buffers**. These regulations are known as **Basel III regulations** and banks in India are following these guidelines
 - Requiring banks to have their own finance in the form of permanent capital, before taking on deposits or loans, is one of the underlying principles of Basel III norms.

Tier 1 and Tier 2 capital

- Under the Basel III framework, banks' regulatory capital is divided into Tier 1 and Tier 2 capital.
 - In India, one of the key new rules brought in was that banks must maintain capital at a minimum ratio of 11.5 percent of their risk-weighted loans.
 - Of this, 9.5 percent needs to be in Tier-1 capital and 2 percent in Tier-2.
- **Tier-1 capital refers to equity** and other forms of permanent capital that stays with the bank, as deposits and loans flow in and out.
- Tier 1 capital is subdivided into **Common Equity Tier (CET) and Additional Capital (AT1)**.
 - Equity and Preference Capital is classified as CET
 - Perpetual bonds are classified as AT1.
 - Together, CET and AT1 are called **Common Equity**.

Common Equity Capital

Under Basel III norms, the minimum requirement for Common Equity Capital has been defined.

- By nature, CET is the **equity capital of the bank, where returns are linked to the banks' performance** and therefore the performance of the share price.

What are AT1 bonds?

- **AT1 bonds, also known as Additional Tier 1 bonds, are unsecured perpetual bonds issued by banks to shore up their capital base to meet Basel III requirements.**
 - AT1 bonds are issued by banks to supplement their permanent or Tier 1 capital which is mainly made up of equity shares.
- Both AT1 and Tier 2 capital are subordinated debt instruments and are ranked lower than deposits, secured and unsecured creditors in the order of liquidation.
- The investors in such instruments typically include mutual fund houses and bank treasuries.
 - The investors invest in these bonds **because of higher yield** than secured bonds issued by the same entity.

1. Unique Features

- AT1 bonds are in the nature of **debt instruments, which carry a fixed coupon payable annually** from past or present profits of the bank. These AT1 bonds have **no maturity and are therefore called perpetual bonds.**
 - These bonds are perpetual and carry no maturity date.
 - Instead, they carry call options that allow banks to redeem them after five or 10 years.
- If the **RBI** feels that a bank is tottering on the brink and needs a rescue, it can simply ask the bank to cancel its outstanding AT-1 bonds **without consulting its investors.**
 - This is what has happened to YES Bank's AT-1 bond-holders who are said to have invested ₹10,800 crore.
 - The write-off also kicks in if the RBI decides that the bank is beyond the "Point of Non Viability" or needs a public sector capital infusion to survive

2. Risks Associated with these bonds

- First, the issuing bank has the discretion to **skip coupon payments.**
 - Under normal circumstances, it can pay from profits or revenue reserves in case of losses for the period when the interest needs to be paid.
- Second, the bank has to maintain a common equity tier I ratio of 5.5%, failing which the bonds can **get written down.**

How did these bonds get into the hands of retail investors?

- Reports suggest that retail investors were sold **these high-value bonds** (the face value is ₹10 lakh each) as high-return alternatives to fixed deposits, given that they were offering 2-3% higher interest than FDs.
- Some investors also **bought them through their brokers** based on their high yields in the secondary market.

How it will impact the AT1 bondholders?

As a part of this proposal, the RBI has proposed to permanently write off the AT1 bonds issued by the bank while protecting the interest of the depositors.

- Such a proposal ends up affecting retail investors who may have invested in the AT1 bonds directly.
- It also impacts investors who have invested in Mutual Funds which in turn have invested in these instruments.

So who should invest in AT1 bonds?

- Only affluent investors who are willing to take on a higher risk of a capital loss for higher yields.

Possible Solution

Given that one of the important objectives of the regulator is to protect retail investors, a solution has to be found which will protect the interests of these investors.

- One of the probable way out is to convert the debt into equity.
- This conversion allows the bank to write off their liability, can offset the higher permanent capital against provisions for bad loans and still give the bondholders the chance to participate in the future success of the bank and recover their lost dues.
- A permanent write down, while within the regulatory ambit, changes the risk characteristics of this instrument and may end up damaging the AT1 market in India permanently.

F. Prelims Facts

Nothing here for today!!!

G. Tidbits

1. GST on mobile phones hiked to 18%

Context

- The Goods and Services Tax (GST) Council has decided to increase the rate on mobile phones and specific parts to 18% from the current 12%, from April 1

Details

- The decision was taken not to increase the prices but to correct the inverted structure of duty on some products wherein the rate of tax paid on inputs purchased is more than the rate of tax on finished products on outward supplies.

Impact

- Mobile phones are likely to get costlier
- Consumption will be stymied and it might be detrimental to the vision of Digital India.

2. Excise duty on fuels hiked by ₹3 per litre

Context

- The government increased duties on petrol and diesel
- This will shore up revenues to exploit the steep fall in global crude prices.

Details

- Special excise duty on **petrol was hiked by Rs 2** to Rs 8 per litre in case of petrol and to Rs 4 in the case of diesel

- Additionally, **road cess on petrol was raised by Rs 1 per liter** each on petrol and diesel to Rs 10.
- The increase in excise duty would in normal course result in a hike in petrol and diesel prices but **most of it would be adjusted against the fall in rates** because of a slump in international oil prices.
 - This was on the back of a deepening slowdown in the world economy as the outbreak of novel **coronavirus** has spread across the globe and a **price war** between major oil-producing countries like Saudi Arabia, Iran, and Russia.
- The Centre has taken this step of increasing the duty to raise some revenue in view of a tight fiscal situation.
 - This would help in generating the resources for the development of infrastructure and other developmental items of expenditure

Revenue impact

- Roughly, every rupee hike in excise duty is expected to yield Rs 13,000-14,000 crore annually.

For more information, read [13 March 2020 Comprehensive News Analysis](#).

3. Two more banks to invest in Yes Bank

Context

- Two more banks — Federal Bank and Bandhan Bank — have committed to invest ₹300 crores each in crisis-hit Yes Bank.

Details

- Federal Bank Limited has decided to invest Rs 300 crore in Yes Bank
- The Bank has issued an **equity commitment Letter** for the subscription of 300 million shares of Yes Bank at a price of Rs 10 per equity share.
 - The commitment is pursuant to the scheme of reconstruction of Yes Bank proposed by the Reserve Bank of India under section 45 of the Banking Regulation Act, 1949 and subject to regulatory approvals and other conditions as set out in the Letter.

H. UPSC Prelims Practice Questions

Q1. Bedaquiline is a medication used to treat

- a) Breast Cancer
- b) Multidrug-Resistant Tuberculosis (MDR-TB)
- c) Polio
- d) Lymphatic Filariasis

Answer: b

Explanation:

- Nix-TB is a pivotal TB trial that tests the **three-drug BPaL regimen**, consisting of bedaquiline, pretomanid and linezolid – collectively referred to as the BPaL regimen.
 - **Bedaquiline** is a bactericidal drug that belongs to a new class of antibiotics (diarylquinolines).
 - Although the drug is active against many different bacteria, it has been registered specifically for the treatment of MDR-TB.

Q2. Which of the following conditions are required for hailstorms to occur?

1. Highly developed Cumulonimbus clouds need to be present.
2. There must also be strong currents of air ascending through these clouds.
3. The clouds will need to contain high concentrations of supercooled liquid water.

Options:

- a) 1 and 2 only
- b) 1 and 3 only
- c) 3 only
- d) 1, 2 and 3

Answer: d

Explanation:

- Hail is formed when drops of water freeze together in the cold upper regions of thunderstorm clouds. These chunks of ice are called hailstones.
 - Hailstones are formed by layers of water attaching and freezing in a large cloud.
- There must also be strong currents of air ascending through these clouds. These currents are commonly known as **updrafts**.
 - The updrafts contain ice particles, as a large number of water droplets become solid ice at the low temperatures found at high altitudes within the massive clouds.
- A **frozen droplet** begins to fall from a cloud during a storm but is pushed back up into the cloud by a strong updraft of wind.
 - When the hailstone is lifted, it hits liquid water droplets.
 - Those droplets then freeze to the hailstone, adding another layer to it.
- The hailstone eventually falls to Earth when it becomes too heavy to remain in the cloud, or when the updraft stops or slows down.

Q3. Consider the following statements with respect to Wasp-76b

1. It is an extreme kind of exoplanet that's twice the width of Jupiter
2. It was discovered by NASA's Wasp telescope system

Which of the above statement/s is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) None

Answer: a

Explanation:

- It is an extreme kind of exoplanet known as an **ultrahot gas giant** that's twice the width of our Jupiter.
- Its unusual name comes from the UK-led Wasp telescope system that detected this planet
- Its dayside temperatures exceed 2,400C - hot enough to vaporize metals.
- The planet's nightside, on the other hand, is 1,000 degrees cooler, allowing those metals to condense and rain out.
 - Winds and WASP-76 b's rotation carry vaporized iron from the dayside to the nightside.

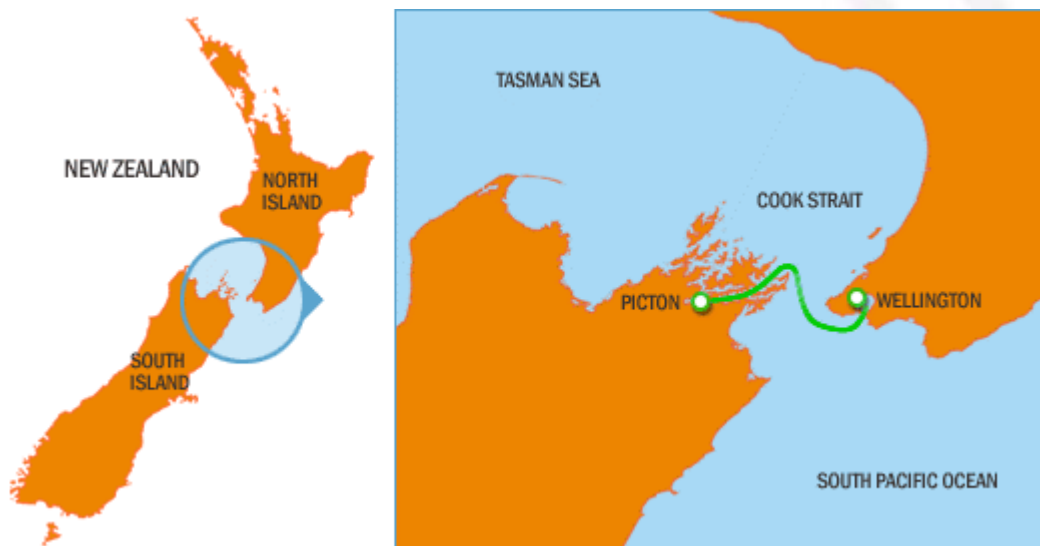
- The nightside is cool enough for the iron vapor to condense into clouds, which then dump rain into the air over there.
- That rain could consist of compounds such as iron sulfide or iron hydride.
- The planet is 390 light-years from Earth. **Q4. The Cook Strait separates**

- a) Tasmania from the Australian mainland
- b) Great Britain from continental Europe.
- c) North and South Islands of New Zealand
- d) Gibraltar and Peninsular Spain in Europe from Morocco in Africa.

Answer: c

Explanation:

- The Bass Strait is a sea strait separating Tasmania from the Australian mainland
- Dover Strait is the strait at the narrowest part of the English Channel, marking the boundary between the Channel and the North Sea, separating Great Britain from continental Europe.
- The Strait of Gibraltar is a narrow strait that connects the Atlantic Ocean to the Mediterranean Sea and separates Gibraltar and Peninsular Spain in Europe from Morocco in Africa.



I. UPSC Mains Practice Questions

1. Has the coronavirus caused enough economic damage to send the global economy into recession? Substantiate.
2. The concept of 'One Health' can be effectively implemented for reducing the incidence of emerging zoonotic threats. Discuss.