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COVID-19 updates

2022

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The download for Current Affairs for Recruitment Test (RTs) exams of UPSC, including ALC, LEO, APFC, EPFO EO/AO, Admin Officer, Store Officer, Deputy Director, and Investigator Grade-I is available.

The Current Events are tailored to the latest RTs trends and requirements of UPSC. To optimize exam performance, focus on the following key points:

- Cover current events from the past 18 months only, up to the date of the exam. For periodic events, such as the Budget, Economic Survey, Nobel Prize, or Tournaments, refer to only the latest ones. For instance, for an April 2023 exam, study the 2023 budget, not the 2022 budget.
- The UPSC RT exam is factual, so don't delve into details or implications.
- The Return on Investment (ROI) for studying current affairs is generally low. Therefore, devote an appropriate amount of time to them while prioritizing other topics that have a higher ROI. For instance, studying 100 pages of current affairs may result in solving only 5 questions, while studying 100 pages of Polity could yield 14-15 questions.
- A few questions will always be unsolvable, no matter how much you've studied. Don't get discouraged by them, as they won't affect your selection.
- Based on experience, you can expect to answer approximately 60-70% of question in exam, from these concise current affairs booklets.
- Current affairs for UPSC RT exams are purely factual, so self-study is better than coaching classes. In fact, coaching classes are counterproductive, as a teacher may only cover 10 events in 60 minutes, while you can cover 35-40 events in the same time frame.

Finally, note that these files are specifically prepared for RT exams of UPSC and should not be used for Civil Services Preliminary exam (GS Paper 1).

If you want to report any correction/error/feedback, you are welcome at contact@humanperitus.com. We will check and respond within 1 working day.

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WHO Corona virus - Omicron

Scientists have detected a new COVID-19 variant called B.1.1.529 and are working to understand its potential implications. Confirmed cases have been identified in South Africa, Hong Kong, Israel and Botswana. The Variant is being considered potentially more dangerous than the Delta variant. It comes with a “very unusual constellation” of mutation and can even infect fully vaccinated people. Viruses, like all living things, go through mutations throughout their lifespan.

ZyCov-D - world first needle-free COVID-19 vaccine

ZyCov-D is the world first needle-free plasmid DNA COVID-19 vaccine administer in first 2 layers of the skin using a needle-free applicator. This same technology is used in diabetic patient for insulin. It is a 3-dose vaccine administered in the interval of 0-28-56 days.

Plasmid vaccine: This is a novel approach of vaccination to induce an immune response in the human body. It involves direct introduction of a plasmid (a genetic structure) that contains DNA sequence. This is done by encoding the antigen(s) against which an immune response is sought. This plasmid is then introduced into tissues using an applicator.

What is S-gene Target Failure (SGTF)?

Ministry of Health & Family Welfare has notified that Omicron, the new variant of the COVID-19 virus, does not escape RT-PCR or Rapid Antigen Test. While these tests will confirm the presence of COVID-19, the variant will be identified only through genome sequencing and through S-gene Target Failure.

S-gene Target Failure (SGTF) test detects the absence of the S-gene, which is an indicator of the presence of Omicron variant in a COVID-19 positive patient. S gene is not present in the Omicron variant. This is the result of the multiple mutations that the variant has undergone and is a marker to identify the variant.

Government approved new COVID-19 vaccines

Drug regulator Central Drugs Standard Control Organisation (under Ministry of Health & Family Welfare) has cleared 2 more COVID-19 vaccines and 1 pill. The 2 approved vaccines are – Corbevax and Covovax.

Corbevax vaccine is India’s first indigenously developed Receptor-Binding Domain (RBD) protein sub-unit vaccine against COVID-19, made by Hyderabad-based firm Biological-E.

The Nanoparticle Vaccine, Covovax, is made by Pune-based firm Serum Institute of India.

Government launches National Oxygen Stewardship Programme

Union Government has launched the National Oxygen Stewardship Programme to train healthcare workers in rational utilisation of medical oxygen to prevent wastage. As part of the programme, at least 1 oxygen steward will be identified and trained in each district across the country. These trained professionals would be responsible for leading the training on oxygen therapy and management in their respective districts. They will also support audit of oxygen delivery and preparedness for a surge scenario.

Omisure – Omicron detecting kit got approval

Omisure, a ‘made in India’ kit to detect the omicron has got approval by Indian Council of Medical Research. It is developed by The Tata Medical and Diagnostics that can detect the Omicron in nasopharyngeal/ oropharyngeal

specimens during the RT-PCR tests. Omicron patients are detected only after genome sequencing. But this test can help eliminate that step and detection can be done during the testing.

What are mRNA Vaccines?

PHASE 2/3 human trials of the country's first homegrown mRNA vaccine developed by Pune-based Gennova Biopharmaceuticals have been completed, and the firm is in the process of submitting data to the national regulatory authority.

Messenger RNA or mRNA technology works by teaching our cells to recognize and protect us against infectious diseases. mRNA vaccines trick the body into producing some of the viral proteins itself. They work by using mRNA, or messenger RNA, which is the molecule that essentially puts DNA instructions into action. Inside a cell, mRNA is used as a template to build a protein. One of the challenges with this new technology is that it must be kept cold to maintain stability during transport and storage.

India becomes the first country to administer DNA vaccine against COVID-19

India has become the first country in the world to administer a DNA vaccine ZyCoV-D against COVID-19. The ZyCoV-D is the world's first plasmid DNA vaccine produced by Ahmedabad-based vaccine manufacturer Zydus Cadila.

Plasmid vaccine: This is a novel approach of vaccination to induce an immune response in the human body. It involves direct introduction of a plasmid (a genetic structure) that contains DNA sequence. This is done by encoding the antigen(s) against which an immune response is sought. This plasmid is then introduced into tissues using an applicator.

WHO suspended Covaxin Supply through UN Agencies

The WHO has suspended COVID-19 vaccine Covaxin's supply through UN agencies, after an inspection flagged issues relating to manufacturing.

Covaxin had got Emergency Use Listing (EUL) from the WHO in November 2021 as it met the standards set by the WHO for protection against the coronavirus disease.

Good Manufacturing Practice (GMP) is a system for ensuring that products are consistently produced and controlled according to quality standards. It is designed to minimize the risks involved in any pharmaceutical production that cannot be eliminated through testing the final product.

Covaxin is a whole virion-inactivated vaccine against SARS-CoV-2, developed in partnership with the Indian Council of Medical Research and the National Institute of Virology, Pune.

Self-Amplifying mRNA Vaccine developed in USA

A California based pharmaceutical company has developed ARCT-154, a self-amplifying mRNA vaccine against Covid-19 infection.

An mRNA vaccine uses messenger RNA that encodes the spike protein of the coronavirus. The mRNA directs the cell to produce copies of the spike protein, so that the immune system will recognize the spike if and when actual infection takes place and mount a response. Examples: *Pfizer/BioNTech and Moderna*.

A self-amplifying mRNA vaccine is an improvement on the traditional RNA platform. It encodes 4 extra proteins in addition to the vaccine antigen, and these enable amplification of the original strand of RNA once inside the cell. The basic advantage is that it requires a smaller dose.

mRNA Technology

Vaccine maker Biological E. has been selected to receive mRNA technology from the World Health Organization technology transfer hub. Primarily set up to address the COVID-19 emergency, WHO's technology transfer hub has the potential to expand manufacturing capacity for other products as well, including treatments, and target other priorities such as malaria, HIV and cancer.

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There are 2 parts to our immune system: innate (the defences we're born with) and acquired (which we develop as we come into contact with pathogens).

1. Classical vaccine molecules usually only work with the acquired immune system and the innate immune system is activated by another ingredient, called an adjuvant.
2. Interestingly, mRNA in vaccines could also trigger the innate immune system, providing an extra layer of defence without the need to add adjuvants

Indian SARS-CoV-2 Consortium on Genomics (INSACOG)

The Indian SARS-CoV-2 Genomics Consortium (INSACOG) is jointly initiated by the Union Ministry of Health and Family Welfare, and Department of Biotechnology (DBT) with Council for Scientific & Industrial Research (CSIR) and Indian Council of Medical Research (ICMR). It is a consortium of 28 National Laboratories to monitor the genomic variations in the SARS-CoV-2. It carries out whole genome sequencing of SARS-CoV-2 virus across the nation, aiding in understanding the spread and evolution of the virus. INSACOG also aims to focus on sequencing of clinical samples to understand the disease dynamics and severity.

First device which to detect COVID-19 in breath samples

The US Food and Drug Administration has granted emergency use authorization to the first COVID-19 test – *InspectIR COVID-19 Breathalyzer* – that spot chemical compounds associated with the coronavirus in breath. The system separates and identifies chemical mixtures to detect 5 compounds associated with SARS-CoV-2 infection.

INSACOG

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India's first mRNA vaccine for COVID-19

The country's first home-grown mRNA COVID-19 vaccine — GEMCOVAC-19 — developed at Pune's Gennova Biopharmaceuticals has got a 'restricted emergency use' nod for the 18-and-above age group.

DCGI approves India's first mRNA Vaccine for COVID-19 for Emergency Use

The Drugs Controller General of India (DCGI) has approved India's first home-grown mRNA Covid-19 vaccine by Gennova Biopharma for emergency use in 18 years and above.

mRNA technology: The technology uses genetically engineered m-RNA to instruct cells to make the S-protein found on the surface of the Covid-19 virus. After vaccination, the muscle cells begin making S-protein pieces and displaying them on cell surfaces. This causes the body to create antibodies.

What is sprayable coating?

Team of Australian researchers has developed a first-of-its-kind sprayable coating that prevents the surface spread of infection from bacteria and viruses, including COVID-19.

The spray works 2-ways:

- repelling viruses and bacteria through an air-filled barrier and
- killing pathogens through microscopic materials if the layer becomes damaged or submerged for extended periods.

The spray uses a combination of plastics strong enough to be considered as an alternative to bullet-proof glass. The coating can be applied to surfaces in public settings such as lift buttons, stair rails, and surfaces in hospitals, nursing homes, schools and restaurants. The coating is also safer than existing alternatives to disinfectant, with no harmful side effects.