



THE HINDU ANALYSIS

10th March 2024

by saurabh
pandey



THE HINDU



PRELIMS TEST 24

Advanced current affairs

SCHEDULED

Today - 9PM



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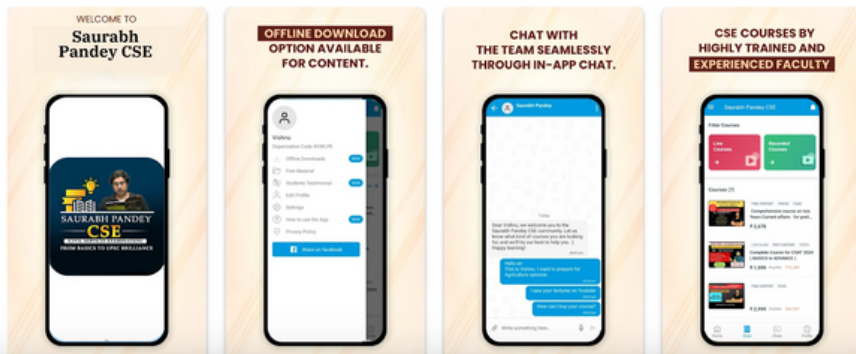
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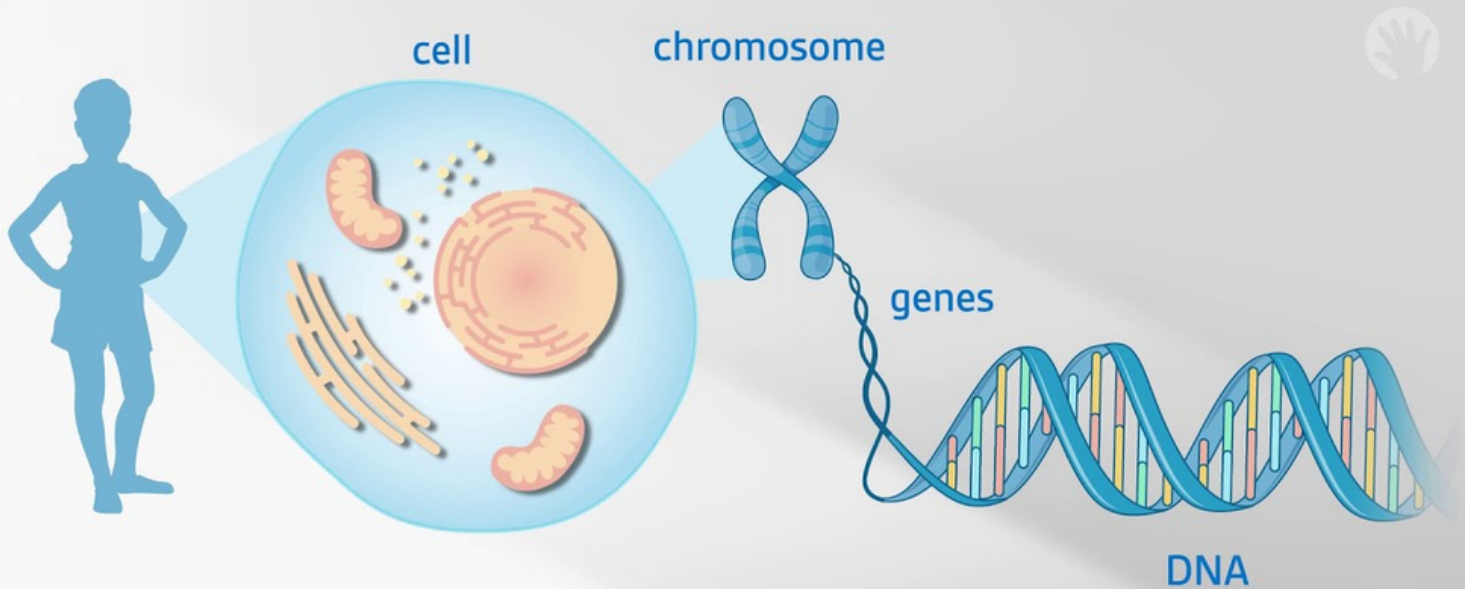
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GENOMICS REGULATION

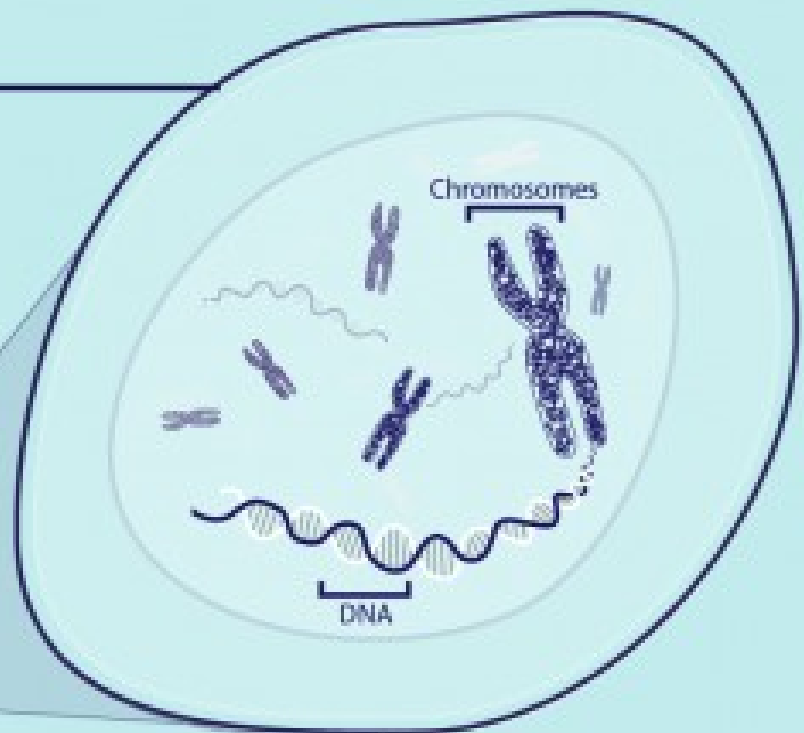
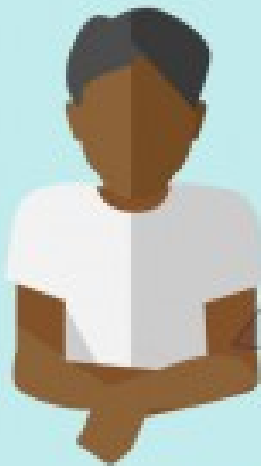


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What is a genome?

Human cell

Most cells in the human body have a **complete** set of genes



Your **genome** is one whole set of all your genes plus all the DNA between your genes.



Genomics

- The study of an organism's complete set of genetic information.
- The genome includes both genes (coding) and non-coding DNA.
- 'Genome': the complete genetic information of an organism.

VS



Genetics

- The study of heredity
- The study of the function and composition of single genes.
- 'Gene': specific sequence of DNA that codes for a functional molecule.

New opportunities, challenges for genomics

India sequenced the first genome in 2009, 1,000 genomes in 2019, and 10,000 genomes last week

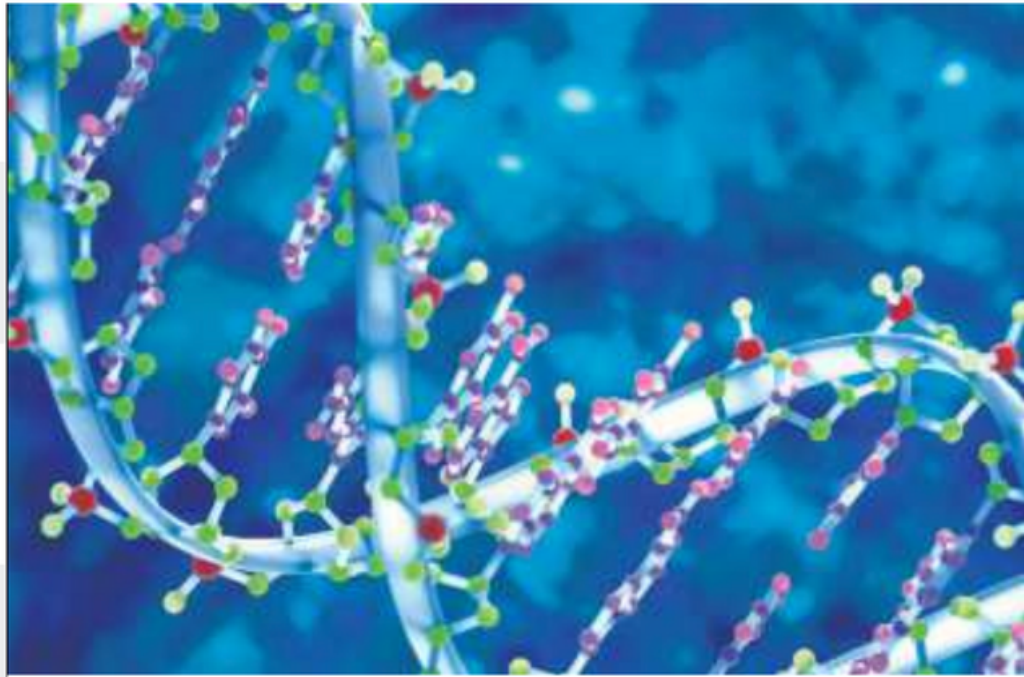
- Data protection is one of the important components that urgently require legal framework

- The Health Ministry Steering committee clearances are required for research collaborations

- But the Director General of Foreign Trade notification currently enables samples from India to cross borders for commercial purposes

- Despite significant established capacity and expertise in India, a significant number of samples from India are sequenced and/or analysed by companies abroad with little oversight and regulation

- With a number of organisations providing genetic testing services, the data remain in silos



India's dilemma: Widespread use of genome sequencing in clinical settings is expected next decade as costs of sequencing continue to drop.

- Discrimination based on genetic information is a real concern due to lack of laws preventing it

- Ensuring ethical use of the technology is paramount to both advance it and ensure that people benefit from the use, while also being protected from misuse



Non mammal producing milk

- **several non-mammalian species have been documented as producing nutrients to feed off spring in a functionally similar way to mammalian milk.**
- **An egg-laying species of worm-like amphibian feeds a lipid-rich milk-like substance to its hatchlings, according to a new study.**
- **The findings report a previously unobserved behaviour and offer new insight into the species' parental care and communication.**

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CO₂ and chemical weathering

- Atmospheric carbon dioxide draw down from the chemical weathering of rocks peaks across a range of moderate erosion rates, according to a new study.
- The findings provide new insights into the constraints of weathering-mediated carbon dioxide drawdown and help resolve conflicting data on the impact of erosion on the carbon cycle.
- The chemical weathering mediates the concentration of carbon dioxide in the atmosphere and, thereby, the planet's climate.

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Types of Chemical Weathering

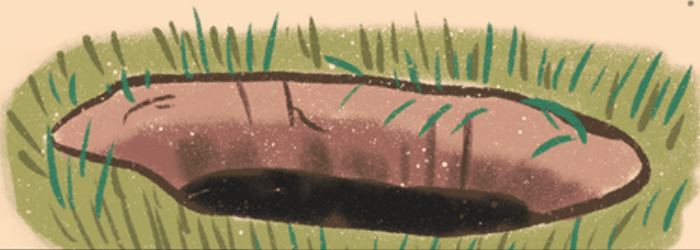
Reaction With Water



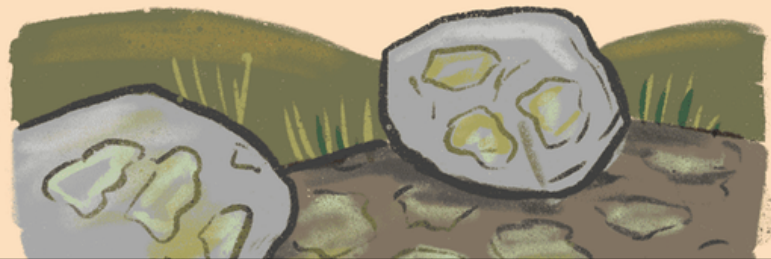
Reaction With Oxygen



Reaction With Acid



Reactions With Organisms





- **Chemical weathering changes the molecular structure of rocks and soil.**
- **For instance, carbon dioxide from the air or soil sometimes combines with water in a process called carbonation.**
- **This produces a weak acid, called carbonic acid, that can dissolve rock.**

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Resveratrol

- Resveratrol is part of a group of compounds called polyphenols.
- They're thought to act like antioxidants, protecting the body against damage that can put you at higher risk for things like cancer and heart disease.
-

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- **Diabetes: Resveratrol helps prevent insulin resistance, a condition in which the body becomes less sensitive to the blood sugar-lowering hormone insulin.**
- **The condition can lead to diabetes.**

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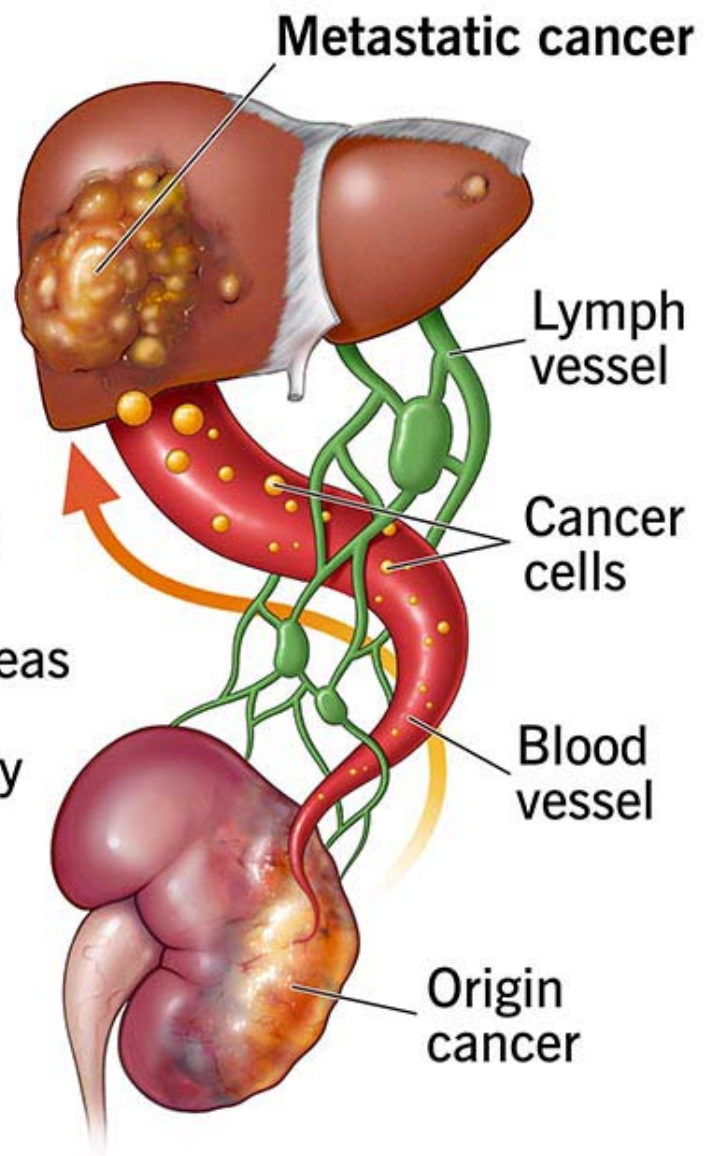
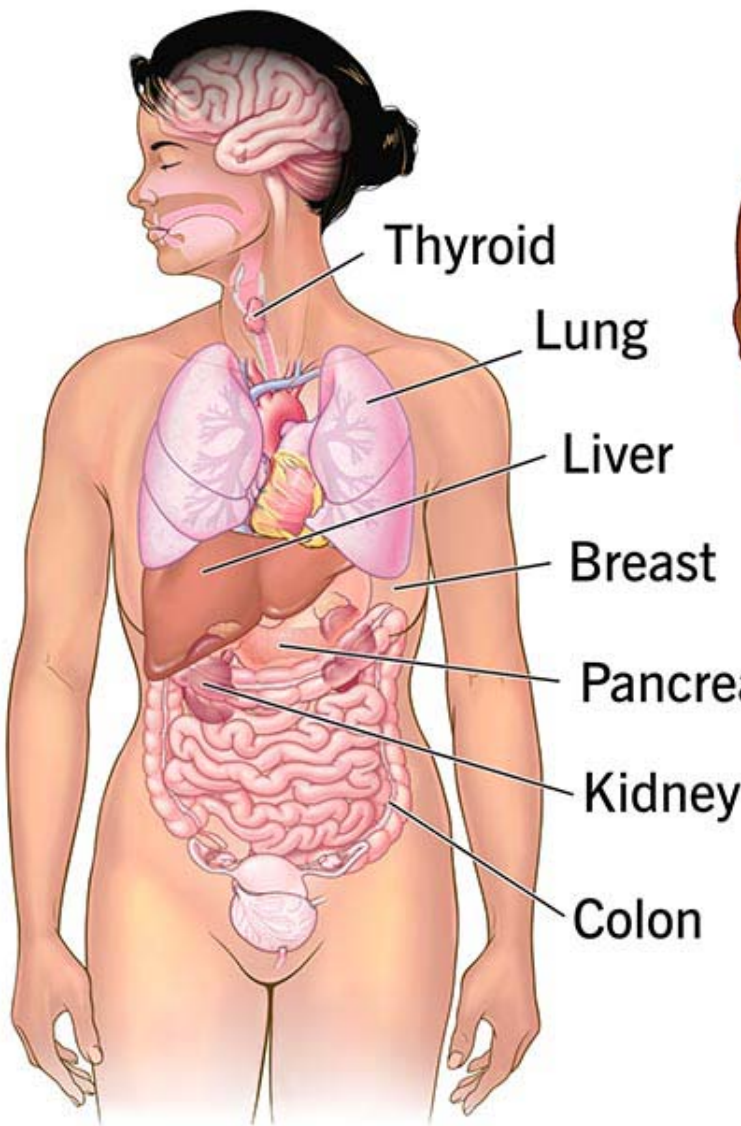
What is metastasis??

- Metastasis means that cancer has spread to a different part of your body part than where it started.
- When this happens, doctors say the cancer has “metastasized.”
- The terms "metastatic cancer," "advanced cancer," and "stage 4 cancer" can also be used to describe metastasis, but these terms can have somewhat different meanings.
- The term advanced cancer can also be used to describe large cancers that have not spread to other parts of the body.

Metastatic cancer

Cancers likely to metastasize

How cancer can spread / metastasize





Government AI Advisory

- On March 1, the Ministry of Electronics and Information Technology (MeitY) issued an advisory to the Artificial Intelligence industry.
- It said that all generative AI products, like large language models on the lines of ChatGPT and Google's Gemini, would have to be made available "with [the] explicit permission of the Government of India" if they are "under-testing/unreliable"

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ADVISORY SAYS

AI, Gen AI models, LLMs must warn users of unreliable output



Cos must warn users

against using AI platforms, deepfake to impact elections in any way

Software, platforms used to generate deepfake need to embed metadata in all such content



Govt advisory comes days after a social media user had flagged 'biased' response from Google's Gemini AI on PM Narendra Modi





Post



Rajeev Chandrasekhar  
@Rajeev_GoI



Recent advisory of [@GoI_MeitY](#) needs to be understood

➔ Advisory is aimed at the Significant platforms and permission seeking from Meity is only for large platforms and will not apply to startups.

➔ Advisory is aimed at untested AI platforms from deploying on Indian Internet

➔ Process of seeking permission , labelling & consent based disclosure to user abt untested platforms is insurance policy to platforms who can otherwise be sued by consumers

Safety & Trust of Indias Internet is a shared and common goal for Govt, users and Platforms

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essay topic

Q "जन्मने वाले की मृत्यु निश्चित है और मरने वाले का जन्म निश्चित है इसलिए जो अटल है अपरिहार्य है उसके विषय में तुमको शोक नहीं करना चाहिये।

Death is certain for the born, and re-birth is certain for the dead; therefore you should not feel grief for what is inevitable

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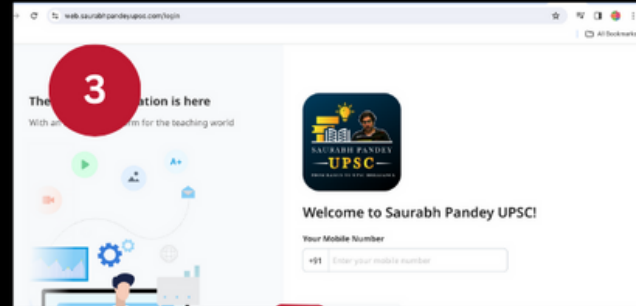
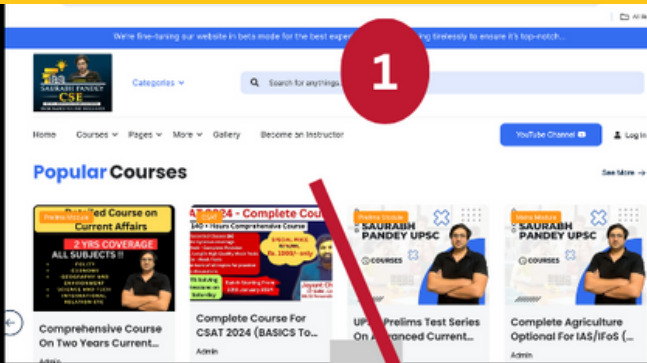
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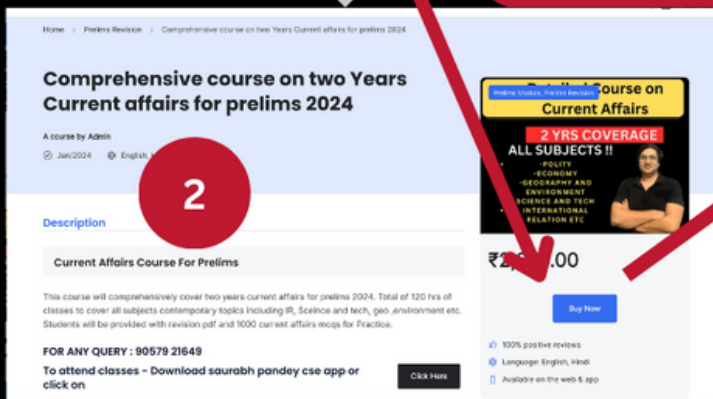
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