Balalatha's
CSB IAS ACADEMY
The Road Map to Mussoorie...

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SCHEMES IN NEWS

IndiaAI Mission

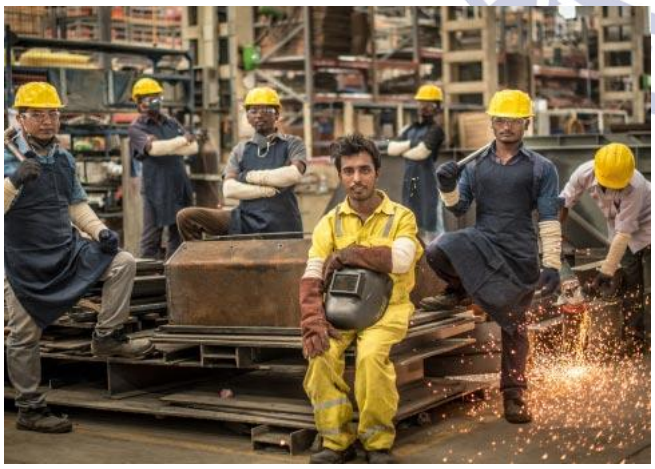
- The IndiaAI Mission will establish a comprehensive ecosystem catalysing AI innovation through strategic programmes and partnerships across the public and private sectors.
- Under this scheme, the government will allocate funds towards subsidising private companies looking to set up AI computing capacity in the country.
- **To be implemented by:** IndiaAI independent business division under **Digital India Corporation**.

Key Features:

- **IndiaAI Compute Capacity:** Aims to build a high-end scalable AI computing ecosystem to cater to the demands of India's AI start-ups.
    - The ecosystem will comprise AI compute infrastructure of **10,000 or more Graphics Processing Units** (GPUs), built through public-private partnerships.
    - Further, an AI marketplace will be designed to offer AI as a service and pre-trained models to AI innovators.
    - It will act as a one-stop solution for resources critical for AI innovation.
- **IndiaAI Innovation Centre:** The IndiaAI Innovation Centre will undertake the development and deployment of indigenous **Large Multimodal Models (LMMs)** and domain-specific foundational models in critical sectors.
- **IndiaAI Datasets Platform:** The IndiaAI Datasets Platform will streamline access to quality non-personal datasets for AI Innovation.
- **IndiaAI Application Development Initiative:** It will promote AI applications in critical sectors for the problem statements sourced from Central Ministries, State Departments, and other institutions.
    - It aims at the adoption of impactful AI solutions with the potential for catalysing large-scale socio-economic transformation.

- **IndiaAI FutureSkills:** It is conceptualised to mitigate barriers to entry into AI programmes and will increase AI courses in undergraduate, Masters level, and Ph.D. programmes.
    - **Data and AI Labs** will also be set up.
- **IndiaAI Startup Financing**: The IndiaAI Startup Financing pillar is conceptualised to support and accelerate deep-tech AI startups and provide them with streamlined access to funding to enable futuristic AI projects.
- **Safe & Trusted AI:** For responsible development, deployment, and adoption of AI, the Safe & Trusted AI pillar will enable implementation of responsible AI projects including the development of indigenous tools and frameworks, self-assessment checklists for innovators, and other guidelines and governance frameworks.

Employment Linked Incentive (ELI) scheme



- The ELI Scheme was announced in the Union Budget 2024-25 as part of PM's package of five schemes to facilitate employment, skilling and other opportunities for 4.1 Crore youth with a total budget outlay of Rs 2 Lakh Crore.
- It aims to incentivize the creation of more than 3.5 Crore jobs in the country, over a period of 2 years. Out of these, 1.92 Crore beneficiaries will be first timers, entering the workforce.
- It will support employment generation, enhance employability and social security across all sectors, with special focus on the manufacturing sector.
- Under the Scheme, while the first-time employees will get one month's wage (up to Rs 15,000/-), the employers will be given incentives for a period to two years for generating additional employment, with extended benefits for another two years for the manufacturing sector.
- The benefits of the Scheme would be applicable to jobs created between 01st August 2025 and 31st July, 2027.

The Scheme consists of two parts with Par A focused on first timers and Part B focused on employers:

- **Part A: Incentive to First Time Employees**
    - Targeting first-time employees registered with EPFO, this Part will offer one-month EPF wage up to Rs 15,000 in two installments. Employees with salaries up to Rs 1 lakh will be eligible.
- **Part B: Support to Employers**
    - This part will cover the generation of additional employment in all sectors, with a special focus on the manufacturing sector.

- The employers will get incentives in respect of employees with salaries up to Rs 1 lakh.
- The Government will incentivize employers, up to Rs 3000 per month, for two years, for each additional employee with sustained employment for at least six months.
- For the manufacturing sector, incentives will be extended to the 3rd and 4th years as well.
- All payments to the First Time Employees under Part A of the Scheme will be made through DBT (Direct Benefit Transfer) mode using Aadhar Bridge Payment System (ABPS).
- Payments to the Employers under Part B will be made directly into their PAN-linked Accounts

Research Development and Innovation (RDI) Scheme

- It aims **to provide long-term financing or refinancing with long tenors at low or nil interest rates to spur private sector investment in RDI.**
- The scheme has been designed to overcome the constraints and challenges in funding of private sector.
- It seeks **to provide growth & risk capital to sunrise and strategic sectors to facilitate innovation, promote adoption of technology and enhance competitiveness.**

Key Objectives of the Scheme

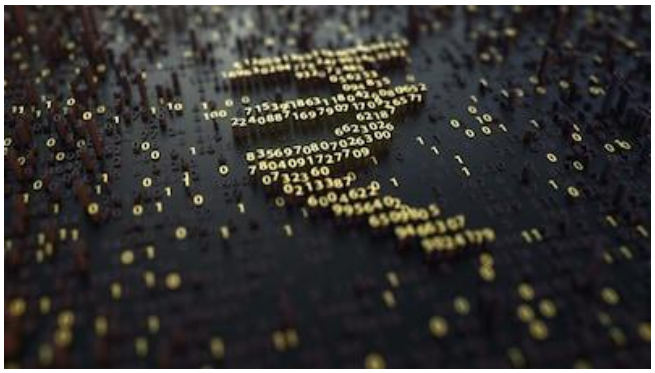
- Encourage the private sector to scale up research, development, and innovation (RDI) in sunrise domains and in other sectors relevant for economic security, strategic purpose, and self-reliance;
- Finance transformative projects at higher levels of Technology Readiness Levels (TRL)
- Support acquisition of technologies which are critical or of high strategic importance;
- Facilitate setting up of a Deep-Tech Fund of Funds.
- Funding Mechanism of Research Development and Innovation (RDI) Scheme
- The RDI Scheme will have a two-tiered funding mechanism.
- At the first level, there will be a Special Purpose Fund (SPF) established within the ANRF, which will act as the custodian of funds.
- From the SPF funds shall be allocated to a variety of 2nd level fund managers. This will be mainly in the form of long-term concessional loans.
- The funding to R&D projects by the 2nd level fund managers would normally be in the form of long-term loan at low or nil interest rates.
- Financing in the form of equity may also be done, especially in case of startups. Contribution to Deep-Tech Fund of Funds

(FoF) or any other FoF meant for RDI may also be considered.

Execution of the Research Development and Innovation (RDI) Scheme

- The Governing Board of **Anusandhan National Research Foundation (ANRF),** chaired by the Prime Minister, will provide overarching strategic direction to the RDI Scheme.
- The Executive Council (EC) of ANRF will approve the Scheme's guidelines, and recommend 2nd level fund managers and scope and type of projects in sunrise sectors.
- An Empowered Group of Secretaries (EGoS) led by the Cabinet Secretary, will be responsible for approving scheme changes, sectors and types of projects as well as second-level fund managers besides reviewing the performance of the Scheme.
- **Nodal Department:** The Department of Science and Technology (DST) will serve as the nodal department for implementation of the RDI Scheme

Indian Development and Economic Assistance Scheme (IDEAS)



About IDEAS scheme:

- **Origin:** Launched in 2003-04 as the "India Development Initiative," later renamed as IDEAS Scheme.
- **Aim:** To promote India's political, economic, and strategic interests by providing developmental assistance to developing countries.
- **Ministry:** The scheme is administered by the Ministry of External Affairs (MEA) with support from Exim Bank.
- **Features:**
  - Provides Lines of Credit (LoCs) to developing countries for projects in infrastructure, water, education, and other key sectors.
  - Projects funded are typically recommended by MEA and are aimed at bolstering socio-economic development in partner countries.
  - The financing includes concessional terms to reduce the burden on developing nations.
  - The scheme **fosters diplomatic goodwill**, strengthening India's ties with countries in the Global South.

TERMS IN NEWS

Darknet

- Darknet refers to a **segment of the internet that is accessible only through advanced protocols designed to provide user anonymity and security.**
- Unlike the surface web, which can be easily accessed using standard search engines and web browsers, darknet content is not indexed and requires specialized tools, such as privacy-focused browsers like **Tor**, to access.
- Tor (The Onion Router) is free and open-source software for enabling anonymous communication.
- Tor utilizes a method known as **onion routing,** which anonymizes users by routing their connections through multiple volunteer-operated servers, making it difficult to trace their actual IP addresses.
- The concept of the darknet is closely related to the **dark web,** but the terms are not entirely interchangeable.
- The dark web is the content found on darknet networks.
- "Darknet" and "dark web" are also often incorrectly used interchangeably with "deep web."
- The **deep web** encompasses everything not indexed by conventional search engines but may still be accessed through regular web browsers if the URL is known.
- The darknet represents a deeper layer of the web, hosting content that is intentionally hidden and only reachable by a select group of users.
- Darknet also includes friend-to-friend (F2F) networks that allow secure, private communications among known individuals.
- While darknet technologies can provide a means for users to bypass censorship and maintain privacy in their online activities, they are also associated with illegal activities such as the trade of illicit goods and services

Genome Sequencing

- A genome is a complete set of DNA that contains all of the genes of an organism.
- Genome sequencing is a process of determining the complete DNA sequence of an organism's genome.
- It involves figuring out the order of bases (**Adenine, Cytosine, Guanines, and Thymine)** that make up an organism's DNA.
- It is supported by automated DNA sequencing methods and computer software to assemble the massive sequence data.

Methods of Genome Sequencing:

Clone-by-Clone Approach:

- In this approach, the genome is first broken up into relatively large segments called clones, which are typically around 150,000 base pairs (bp) in length. Genome mapping techniques are then used to determine the location of each clone within the overall genome.
- Next, each clone is further fragmented into smaller, overlapping pieces of

around 500 bp in size, which are suitable for sequencing.
- Finally, the individual sequenced pieces are assembled using the overlapping regions to reconstruct the complete sequence of the entire clone.

Whole-Genome Shotgun Approach:

- This method involves randomly fragmenting the entire genome into small pieces.
- These small fragments are then **sequenced**, without any prior knowledge of their genomic location.
- The sequenced fragments are then **computationally reassembled** into the full genome sequence by identifying and aligning the overlapping regions between the fragments.
- The clone-by-clone approach is often used for large and complex genomes, while the whole-genome shotgun method is more suitable for smaller and less complex genomes.

Applications:

- **Finding origin of Epidemics:** Genome sequencing helps researchers understand the genetic makeup of pathogens, tracing the source and spread of outbreaks like SARS-CoV-2.
- **Controlling Disease Spread:** Genome analysis allows monitoring pathogen evolution and identifying mutation patterns, incubation periods, and transmission rates to inform prevention strategies.
- **Healthcare Applications**: It enables personalised treatments, guides targeted public health interventions, reveals genetic underpinnings of diseases like cancer, and informs drug efficacy and safety for diverse populations.
- **Agricultural Advancements**: Crop genome sequencing can enhance understanding of genetic susceptibility to pests and environmental stressors.
- **Evolutionary Studies**: Genome data can contribute to mapping species' migrations and evolution, furthering our knowledge of human origins and life's history.

Genome India Project:

- It was launched in 2020 as a flagship initiative aimed at comprehensively deciphering the genetic makeup of the Indian population.
- It is funded and coordinated by the Department of Biotechnology (DBT), Government of India.

PRACTICE QUESTIONS

Q1 : Consider the following statements regarding India AI mission

1. It is a bureaucracy led public sector only mission that aims to enhance AI capabilities of India's Public Sector
2. It is being implemented by IndiaAI independent business division under Digital India Corporation.

How many of the above statements are incorrect?

A. Only Statement 1
B. Only Statement 2
C. Both the statements
D. None of the Above

Q2 : Consider the following statements regarding Employment Linked Incentives Scheme

1. It aims to facilitate employment, skilling and other opportunities for 4.1 Crore youth with a total budget outlay of Rs 2 Lakh Crore.
2. Under the Scheme, while the first-time employees will get one month's wage (up to Rs 15,000/-), the employers will be given incentives for a period to two years for generating additional employment, with extended benefits for another two years for the manufacturing sector.

How many of the above statements are incorrect?

A. Only Statement 1
B. Only Statement 2
C. Both the statements
D. None of the Above

Q3 : Consider the following statements regarding Research Development and Innovation Scheme

1. It aims to provide long-term financing or refinancing with long tenors at low or nil interest rates to spur private sector investment in RDI.
2. The Department of Science and Technology (DST) will serve as the nodal department for implementation of the RDI Scheme

How many of the above statements are incorrect?

A. Only Statement 1
B. Only Statement 2
C. Both the statements
D. None of the Above

Q4 : The term Onion Routing is related to which of the following?

A. Darknet
B. Money Laundering
C. Cruise Missiles
D. Drones

Q5 : Consider the following statements regarding Genome Sequencing

1. A genome is a complete set of DNA that contains all of the genes of an organism.
2. Genome sequencing is a process of determining the complete DNA sequence of an organism's genome.
3. It involves figuring out the order of bases (Adenine, Cytosine, Guanines, and Thymine) that make up an organism's DNA.

How many of the above statements are incorrect?

A. Only One
B. Only Two
C. All of the Above
D. None of the Above

Answers

1. A
2. D
3. D
4. A
5. D