GOVERNANCE

E-bill Processing System

Recently, the Finance Minister launched the E-bill Processing system on the occasion of 46th Civil Accounts Day (1st March).It was announced in the Union Budget 2022 to use the technology for facilitating the financial inclusion drive in India.

- The "Civil Accounts Day" is observed every year to mark the anniversary of the inception of the Indian Civil Accounts Service (ICAS) on 1st March, 1976.
- The ICAS performs a key role in delivery of financial management services for the Government of India (GoI).

What are the Key Points?

About:

- E-bill system is part of Ease of Doing Business (EoDB) and Digital India Eco-System' to bring in broader transparency and expedite the process of payments.
- In simple words, e-Bill Processing System is a way of transacting the bills digitally rather than the traditional use of paper. Currently, the suppliers of various goods and services to the Government have to submit physical, ink signed copies of their bills to the respective Ministries/Departments/offices of the Government of India.
- Customers will be able to get their bills online, via e-mail, or in the machine-readable data forms when billed electronically.
- Under the newly launched e-Bill system, vendors/suppliers can upload their bills online along with supporting documents from the convenience of their homes/offices at any time through digital signature.
- At the backend too, the electronic bill received will be processed by the authorities digitally at every stage and finally, the payments will be credited digitally to the bank account of the vendor.

Developed By:

- Developed by the Public Financial Management System (PFMS) Division in the office of the Controller General of Accounts in the Department of Expenditure, Ministry of Finance.

What are the Major Objectives of the E-bill Processing System?

- To Provide convenience to all vendors/suppliers of the government to submit their bills/claims at any time, from anywhere.
- Eliminate physical interface between suppliers and government officers.
- Enhance efficiency in processing of bills/claims.
- Reduce discretion in processing of bills through the "First-In-First-Out"(FIFO) method.

What is the Significance of the E-bill Processing System?

- **Enhance Transparency:** It will enhance transparency, efficiency and faceless-paperless payment system by allowing suppliers and contractors to submit their claim online which will be trackable on a real time basis.
- **Trackable on real time Basis:** As per the Finance Ministry, the suppliers and the contractors will not be able to submit their claim online which will be trackable on a real-time basis.
- **Time Efficient:**As e-Billing is time-efficient, this will also be a quick and simplified way that will be better fitted to the Government's call of making India digital. The E-bill Processing system will also reduce errors.

What is PFMS?

- The PFMS, earlier known as Central Plan Schemes Monitoring System (CPSMS), is a web-based online software application developed and implemented by the Office of Controller General of Accounts (CGA), Ministry of Finance.
- PFMS was initially started during 2009 as a Central Sector Scheme of the Planning Commission with the objective of tracking funds released under all Plan schemes of the Government of India, and real time reporting of expenditure at all levels of Programme implementation.
- The primary objective of PFMS is to facilitate a sound Public Financial Management System for the Government of India (GoI) by establishing an efficient fund flow system as well as a payment cum accounting network.

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2.Start-Up Village Entrepreneurship Programme

Recently, the National Institute of Entrepreneurship and Small Business Development (NIESBUD has signed a Memorandum of Understanding (MoU) with the Ministry of Rural Development (MoRD) to develop a sustainable model for promoting entrepreneurship at the grass roots by initiating the Start-up Village Entrepreneurship Programme (SVEP).

What is the Significance of the Partnership?

- Rural entrepreneurs will be able to access banking systems for receiving financial support for starting their enterprises, including support from MUDRA bank.
- Integrated ICT techniques and tools will also be provided for training and capacity building along with enterprise advisory services to augment the entrepreneurship ecosystem in India's villages.
- The beneficiaries of the project are from the Self-Help Group (SHG) ecosystem of DAY-NRLM and the scheme not only supports existing enterprises but new enterprises as well.
- The partnership will enable the rural community by helping them set up their trades and provide complete support till they are stabilised.
- This pragmatic intervention will provide knowledge, advisory and financial support to the public and will help create village-level community cadre.

What are the Key Points Related to SVEP?

About:

- SVEP is a sub-scheme of the Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM), Ministry of Rural Development and has been implemented since 2016.

Aim:

1. Support the rural poor to come out of poverty.
2. Providing self-employment opportunities with financial assistance and training in business management and soft skills.
3. Create local community cadres for promotion of enterprises.

Features:

- It addresses three major pillars of rural start-ups namely finances, incubation and skill ecosystems.
- It promotes both individual and group enterprises, majorly in manufacturing, trading and service sectors.
- It invests on building the capacities of the entrepreneurs to run the businesses profitably based on the local demand and ecosystem.
- Investments are also made on the use of the Information and Communication Technology (ICT) to create standard E-learning modules for minimizing the transmission loss in technical aspects like a business plan and profit and loss account preparations.

Activities: Activities under SVEP are strategically designed to promote rural enterprises with a few key areas.

- One of the key areas is to develop a pool of Community Resource Persons-Enterprise Promotion (CRP-EP) who are local and support entrepreneurs setting-up rural enterprises.
- Another key area is to promote the Block Resource Center (BRC) in SVEP blocks, to monitor and manage the community resource persons, appraise SVEP loan applications and act as the repository of enterprise-related information in the concerned block.BRCs play the role to support a sustainable revenue model to operate effectively and independently.
- SVEP established local markets/rural haat which motivated entrepreneurs to take up demand-based production, advertise their enterprise and increase earning opportunities.
    1. A typical rural haat is mostly indigenous, flexible and multi-layered structure which accommodates the economic activities of various nature.
    2. Local market/haat/bazaar serves as an important economic platform where a range of products is traded.

Achievements:

- A mid-term review of SVEP which was conducted in September 2019 by Quality Council of India shows about 82% of the sampled entrepreneurs across the blocks reported being from SC, ST and OBC categories which signifies social inclusion - one of the pillars of NRLM.

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- 75% of the enterprises were owned and managed by women and average monthly revenue of enterprises was Rs.39,000 - Rs.47,800 in case of manufacturing, Rs. 41,700 in case of services and Rs.36,000 in case of trading.
- The study also shows that about 57% of the total household income of the entrepreneurs is through SVEP enterprises.

SCIENCE & TECHNOLOGY

Supercomputer PARAM Ganga: NSM

The National Supercomputing Mission (NSM) has deployed PARAM Ganga-a High-Performance Computational (HPC) facility at IIT Roorkee, with a supercomputing capacity of 1.66 Petaflops.Earlier, the Indian Institute of Science (IISc) Bengaluru installed the supercomputer 'Param Pravega'.

What are the Key Points?

- It has been established by the Centre for Development of Advanced Computing (C-DAC) under the approach of NSM.
- The basic idea behind building a Petascale Supercomputer with manufactured in India components is to lead the path towards Aatmanirbhar Bharat and accelerate the problem-solving capacity in multidisciplinary domains simultaneously.It will aid researchers to solve complex problems of national importance and global significance.
- It will serve as an essential computer environment for the modern-day research along with their theoretical and experimental work.
- The focus is to provide computational power to the user community of IIT Roorkee and neighbouring academic institutions.

What is a Supercomputer?

- A supercomputer is a computer that performs at or near the currently highest operational rate for computers.
- Generally, PETAFLOP is a measure of a Supercomputer's processing speed and can be expressed as a thousand trillion floating point operations per second.
  1. FLOPS (floating point operations per second) are typically used to measure the performance of a computer's processor.
  2. Using floating-point encoding, extremely long numbers can be handled relatively easily.
- Supercomputers are primarily designed to be used in enterprises and organizations that require massive computing power.For example: weather forecasting, scientific research, intelligence gathering and analysis, data mining etc.
- Globally, China has the maximum number of supercomputers and maintains the top position in the world, followed by the US, Japan, France, Germany, Netherlands, Ireland and the United Kingdom.
- India's first supercomputer was PARAM 8000.
- PARAM Shivay, the first supercomputer assembled indigenously, was installed in IIT (BHU), followed by PARAM Shakti, PARAM Brahma, PARAM Yukti, PARAM Sanganak at IIT-Kharagpur, IISER, Pune, JNCASR, Bengaluru and IIT Kanpur respectively.
- In 2020, PARAM Siddhi, the High-Performance Computing-Artificial Intelligence (HPC-AI) supercomputer, achieved global ranking of 62nd in Top 500 most powerful supercomputer systems in the world.

What is the National Supercomputing Mission?

- In 2015, the National Supercomputing Mission was launched to enhance the research capacities and capabilities in the country by connecting them to form a Supercomputing grid, with National Knowledge Network (NKN) as the backbone.The NKN project is aimed at establishing a strong and robust Indian network which will be capable of providing secure and reliable connectivity.
- The Mission plans to build and deploy 24 facilities with cumulative compute power of more than 64 Petaflops.Till now C-DAC has deployed 11 systems at IISc, IITs, IISER Pune, JNCASR, NABI-Mohali and C-DAC under NSM Phase-1 and Phase-2 with a cumulative compute power of more than 20 Petaflops.
- It supports the government's vision of 'Digital India' and 'Make in India' initiatives.
- The Mission is being jointly steered by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY).It is implemented by the Center for Development of Advanced Computing (C-DAC), Pune, and the IISc, Bengaluru.

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- **The mission was planned in three phases:**
  1. Phase I looking at assembling supercomputers,
  2. Phase II looking at manufacturing certain components within the country.
  3. Phase III where a supercomputer is designed by India.
- An indigenously developed server platform called 'Rudra' is being tried out in a pilot system, with an interconnect for inter node communication called Trinetra also having been developed.

PRELIMS FACT

Solar Jets

Recently, Scientists at Indian Institute of Astrophysics (IIA) have unravelled the science behind the jets of plasma on the Sun's chromosphere.The Sun's chromosphere is the atmospheric layer just above the Sun's visible surface.

- IIA is an autonomous institute of the Department of Science and Technology, Government of India.

What are Solar Jets or Spicules?

- Solar plasma jets, or spicules, are powerful plasma streams constantly ejecting from the Sun's chromosphere (an atmospheric layer above the Sun's visible surface).Solar jets, or spicules, appear as thin grass-like plasma structures that constantly shoot up from the surface and are then brought down by gravity.
- These jets rise and fall back under the influence of the Sun's gravity, which is 20 to 30 times greater than Earth.
- Some jets are so energetic that they propel into the solar corona and beyond.
- The amount of energy and momentum that these spicules can carry is of fundamental interest in solar and plasma astrophysics.
- The four key ingredients favouring solar jets are the plasma's fluid nature, gravity, strong quasi periodic triggers to eject the plasma and most importantly, the Sun's powerful magnetic field giving it specific direction for ejection.
- The processes by which plasma is supplied to the solar wind, and the solar atmosphere is heated to a million degrees Celsius, still remain a puzzle.

What is the finding?

- The scientists observed how paint placed over bass audio speakers ejected as a forest of jets when a certain sound frequency and amplitude (speaker's loudness) were surpassed.When a paint is placed above a speaker and the music is turned on, the free surface of the liquid becomes unstable beyond a particular frequency and starts vibrating.
- The solar plasma can be imagined as threaded by magnetic field lines, much like the long chains in polymer solutions.
- They found that the underlying physics of paint jets when excited on a speaker is analogous to the solar plasma jets.
- The scientists elaborated that the plasma right below the visible solar surface (photosphere) is perpetually in a state of convection, much like boiling water in a vessel heated at the bottom.This is ultimately powered by the nuclear energy released in the hot-dense core.

What is Plasma?

- Plasma is a hot, charged gas made of positive ions and free-moving electrons that has unique properties distinct from solids, liquids and gases.
- At high temperatures, electrons are ripped from atom's nuclei and become a plasma or an ionised state of matter.
- Plasma is also known as the fourth state of matter.

DAILY ANSWER WRITING PRACTICE

Qns. What are cluster bombs and thermobaric weapons and how do they work? Does its use goes against International conventions and be considered a war crime. Discuss (250 Words)

Introduction

- The 2008 Convention on Cluster Munitions defines a cluster munition as a "conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions".
- A thermobaric weapon comprises entirely of fuel and relies on atmospheric oxygen to generate the explosion. It is also called vacuum bombs as they suck in oxygen from surrounding areas

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to generate high-voltage explosions. It differs from most conventional explosives which use a mix of fuel and an oxidiser to cause an explosion.

- Ukraine has alleged that Russia has used thermobaric weapons, commonly called "vacuum bombs", during the ongoing war between the two countries.

Body

Background

- **Cluster bombs:**
  1. Cluster bombs are non-precision weapons that are designed to injure or kill human beings indiscriminately over a large area, and to destroy vehicles and infrastructure such as runways, railway or power transmission lines.
  2. They can be dropped from an aircraft or launched in a projectile that spins in flight, scattering many bomblets as it travels.
  3. Many of these bomblets end up not exploding, but continue to lie on the ground, often partially or fully hidden and difficult to locate and remove, posing a threat to the civilian population for long after the fighting has ceased.
  4. The Convention on Cluster Munitions specifically identifies "cluster munition remnants", which include "failed cluster munitions, abandoned cluster munitions, unexploded submunitions and unexploded bomblets".
- **Thermobaric bombs**
  1. The thermobaric bomb involves a two-stage munition. The first stage converts carbon-based fuel into minute metal particulates, which are discharged as an aerosol.
  2. The second part detonates the aerosol, converting it into a huge fireball and simultaneously creating an impactful shock wave. Inside this shock wave, a vacuum is created, which draws in the nearby oxygen and exponentially enhances the severity of the explosion..
  3. Thermobaric weapons basically suck the air out of the lungs of anyone unfortunate enough to be within their range of explosion. They function on a combination of heat and pressure and take inspiration from coal mine explosions.
  4. While they cannot be used in taking down tanks and other such military vehicles, they can dismantle civilian spaces, like residential or commercial complexes.
  5. The weapons are also known as fuel-air explosives (FAE), and they were originally used in the Vietnam war by the USA, which led to the Soviets designing their own version.
  6. Russia currently possesses third-generation FAE warheads and has developed variants that can even be launched from an RPG-7.
  7. In modern conflicts, the weapons have seen use in the US war against Al-Qaeda in Afghanistan, and Russia's use in Chechnya in 2000, which was condemned by the Human Rights Watch as a "dangerous escalation".
- **Usage of Cluster bombs and Thermobaric bombs**
  1. Cluster weaponry has been banned by the 2008 Convention on Cluster Munitions;however, neither Ukraine nor Russia were signatories at the convention.
  2. Convention on Cluster Munitions is an international treaty that prohibits all use, transfer, production, and stockpiling of cluster bombs, a type of explosive weapon which scatters submunitions ("bomblets") over an area.
  3. Additionally, the Convention establishes a framework to support victim assistance, clearance of contaminated sites, risk reduction education, and stockpile destruction.
  4. As of date, there are 110 state parties to the convention, and 13 other countries have signed up but are yet to ratify it.
  5. Vacuum or thermobaric bombs are not prohibited by any international law or agreement, but their use against civilian populations in built-up areas, schools or hospitals, could, according to a report in the BBC, attract action under the Hague Conventions of 1899 and 1907.
  6. India is also not a signatory to the Convention on Cluster Munition but the government acknowledges the humanitarian concerns associated with these weapons.

Conclusion

However, international humanitarian law prohibits the use of inherently indiscriminate weapons such as cluster munitions. Launching indiscriminate attacks that kill or injure civilians constitutes a war crime.

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DAILY QUIZ

Q1. Consider the following statements about E-bill Processing system:

1. Recently, the Home Minister launched the E-bill Processing system.
2. It is launched on the occasion of 46th Civil Accounts Day (1st March).

Which of the statements given above is/are correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

Q2. Consider the following statements about Start-Up Village Entrepreneurship Programme:

1. National Institute of Entrepreneurship and Small Business Development has signed a Memorandum of Understanding (MoU) with the Ministry of Rural Development (MoRD) to develop a sustainable model for promoting entrepreneurship
2. Rural entrepreneurs will be able to access banking systems for receiving financial support from MUDRA bank.

Which of the statements given above is/are correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

Q3. Consider the following statements about Supercomputer PARAM Ganga:

1. The National Supercomputing Mission (NSM) has deployed PARAM Ganga-a High-Performance Computational (HPC) facility at IIT Madras.
2. Earlier, the Indian Institute of Science (IISc) Bengaluru installed the supercomputer 'Param Pravega'.

Which of the statements given above is/are correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 nor 2

Q4. Which among the following is the India First Supercomputer ?

a. PARAM Shivay
b. PARAM Yukti
c. PARAM Sanganak
d. PARAM 8000.

Q5. Indian Institute of Astrophysics (IIA) have unravelled the science behind the jets of plasma .It is the study of which of the following?

a. Sun surface
b. Sun core
c. Photosphere
d. Sun's chromospheres

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