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EKAM Fest

- Entrepreneurship, Knowledge, Awareness, and Marketing (EKAM) Fest is an exhibition-cum-Fair organized by National Handicapped Finance Development Corporation (NHFDC) under M/o Social Justice & Empowerment.
- It aims to

1. Promote entrepreneurship and knowledge among Divyangjan community,
2. Generating awareness among society about potentialities of PwDs &
3. Providing a major marketing opportunity to PwDs entrepreneurs.

- EKAM Fest will be an opportunity for all to encourage these products made with extra ordinary determination by the divyang craftsperson and entrepreneurs.

NHFDC

- National Handicapped Finance and Development Corporation (NHFDC) was set up in January 1997.
- It is a non-profit company and Apex Corporation under the aegis of Department of Empowerment of Persons with Disabilities (Divyangjan), Ministry of Social Justice & Empowerment.
- The corporation provides financial assistance for wide range of income generating activities to disabled persons.
- The company is managed by Board of Directors nominated by Government of India.
- **Recent Initiatives of NHFDC are as follows**

1. **NHFDC Swavalamban Kendra (NSK) -** Initiative to establish PWD owned micro skill training Centers throughout the country for skill training of PwDs.
2. **Safe Cabs in Delhi and Indore** – Arrangements with Sakha Cabs ((Vehicles financed by NHFDC) where the PwD owned commercial vehicles will be driven by the Women drivers to provide safe taxi option for the women, children and senior citizen commuters.
3. **Safe Drinking Water E Carts** - E-carts fitted with RO water dispensing

vending machines, these carts will sell water in paper glasses maintaining the hygiene, the carts will be supported in operation by Bharat Jal and funded by NHFDC.

4. **Online Marketing Platforms -** to promote online sales and roping in the big corporate houses.

List of migratory species of India

- The Zoological Survey of India (ZSI) had for the first time compiled the list of migratory species of India under the CMS before the Conference of Parties (COP 13) held in Gujarat recently.
- ZSI's list had 451 species of migratory animals found in India, recently six species has been added which are as follows,

1. Asian elephant,
2. Great Indian bustard,
3. Bengal florican,
4. Oceanic white-tip shark,
5. Urial hammerhead shark,
6. Smooth hammerhead shark.

- Globally, more than 650 species are listed under the CMS appendices and India, with over 450 species, plays a very important role in their conservation.
- **Birds -** Birds make up the bulk of migratory species, the bird family Muscicapidae has the highest number of migratory species.
- The next highest group of migratory birds is raptors or birds of prey, such as eagles, owls, vultures and kites which are from the family Accipitridae.
- India has migratory birds has three flyways (flight paths used by birds):

1. The Central Asian flyway,
2. East Asian flyway
3. East Asian–Australasian flyway.

- Another group of birds that migrate in large numbers are waders or shore birds.
- In India, their migratory species number 41, followed by ducks (38) belonging to the family Anatidae.
- **Mammals -** The estimate of 44 migratory mammal species in India has risen to 46 after COP 13.
- The Asian elephant was added to Appendix I and the Urial to Appendix II.
- The largest group of mammals is definitely bats belonging to the family Vespertilionidae.

- Dolphins are the second highest group of mammals with nine migratory species of dolphins listed.
- **Fishes -** Fishes make up another important group of migratory species.
- Before COP 13, the ZSI had compiled 22 species, including 12 sharks and 10 ray fish.
- The oceanic white-tip shark and smooth hammerhead shark were then added, the total number of migratory fish species from India under CMS now stands at 24.
- **Reptiles -** Seven reptiles, which include five species of turtles and the Indian gharial and salt water crocodile, are among the CMS species found in India. There was no addition to the reptiles list.

Merkel Cell Polyoma Virus

- Merkel cell carcinoma is a rare and aggressive type of skin cancer.
- Merkel cell carcinoma is associated with old age, excessive exposure to ultraviolet light and a weak immune system.
- Merkel cell polyomavirus can get integrated in the human genome and undergo a mutation which causes it to promote the cancer.
- Earlier studies have shown that the Merkel cell carcinoma caused by the virus is less aggressive and progresses slower than that caused by excessive exposure to ultraviolet light.
- National Centre for Biological Sciences, Bengaluru, has developed a diagnostic system to detect the presence of Merkel cell polyomavirus in Merkel cell carcinoma tumours.
- The researchers have developed a test using the CRISPR-CAS12 technology that can identify the virus in the tumour and give off a fluorescence to indicate the presence of the virus.
- This is an important development, both, from the point of view of diagnostics and giving a prognosis for the condition.

DETECTR system

- National Centre for Biological Sciences developed diagnostic system for Merkel Cell polyoma virus adapted a system named DETECTR (DNA endonuclease-targeted CRISPR trans reporter) to help them in this endeavor.
- The system consists of three components:

1. **Identifier -** It is a guide RNA which can recognize and bind to a section of the Merkel cell polyoma virus.
2. **Switch -** It is a DNA-cutting enzyme known as Cas-12a which gets

attached to the guide RNA after it finds its target DNA.

3. **Reporter -** It consists of a single stranded DNA tagged with a fluorescent molecule.

- When the guide RNA attaches itself to the viral DNA segment, the attached Cas-12a enzymes get activated and start cutting the "target" virus DNA.
- They also are enabled to cut up the single-stranded DNA tagged with fluorescent molecule.
- This then causes the fluorescent molecules to glow, which can be detected.
- Also, the strength of the glow depends on the number of activated Cas-12a molecules, which in turn depends on the number of virus DNA copies recognised in the tumour DNA.
- This therefore gives a measure of the number of viruses in the tumour.

Reintroduction of African Cheetahs

- The SC recently gave the nod to the National Tiger Conservation Authority to reintroduce African cheetahs, nearly 10 years after the plea was first made.
- The background extinction rates are over 100 to 1000 times due to various reasons like hunting, destruction of habitat and human intervention.
- Species die out naturally but when a species becomes extinct unnaturally it is like murder.
- The International Union for Conservation of Nature (IUCN) has a protocol to introduce wild animals in the country.
- It has reintroduction specialist groups, it has template guidelines.
- India currently don't have such protocol for its own species.
- In India there is a need to create provisions under the Wildlife Act for a policy on introduction of wild animals.
- Otherwise, reintroduction of cheetahs may hinder the interests of other species.

Cheetahs

- The cheetah (Acinonyx jubatus) is a large cat that occurs in North, Southern and East Africa, and a few localities in Iran.
- It inhabits a variety of mostly arid habitats like dry forests, scrub forests, and savannahs.
- The species is IUCN Red Listed as Vulnerable, as it suffered a substantial decline in its historic range in the 20th century due to habitat loss,

poaching for the illegal pet trade, and conflict with humans.
- Several African countries have taken steps to improve cheetah conservation measures.
- Its yellowish tan or rufous to greyish white coat is uniformly covered with nearly 2,000 solid black spots.
- The cheetahs are the fastest land animal which makes them good antelope hunters.
- In India captive cheetahs were used to hunt other animals in the princely states.

National Genetic Wildlife Bank

- Laboratory for Conservation of Endangered Species (Lacones) is building up National Genetic Wildlife Bank.
- It now has the germplasm of 23 species, including red panda, pygmy hog, Asiatic lion and gharials.
- It is one of the few frozen zoos in the world where a repository of germplasm is stored in cryogenic conditions for possible future use.

2020 AV2

- First asteroid found to orbit entirely within the orbit of Venus named 2020 AV2 is discovered recently.
- The asteroid spans about 1 to 3 kilometers and has an elongated orbit tilted about 15 degrees relative to the plane of our solar system.
- 2020 AV2 belongs to a small class of asteroids known as Atiras, which are bodies with orbits that fall within the orbit of Earth.
- More specifically, it is the first "Vatira" asteroid, with the "V" standing for Venus.
- Vatira asteroids, which were only hypothesized until now, have orbits that fall entirely inside the orbit of Venus.
- It is discovered by Zwicky Transient Facility, or ZTF, a survey camera based at Palomar Observatory.
- The ZTF camera is particularly adept at finding asteroids because it scans the entire sky rapidly and thus can catch the asteroids during their short-lived appearances in the night sky.
- Because Vatiras orbit so close to our sun, they are only visible at dusk or dawn.
- According to the findings the asteroid must have migrated in toward Venus from farther out in the solar system.
- The only way it will ever get out of its orbit is if it gets flung out via a

gravitational encounter with Mercury or Venus, but more likely it will end up crashing on one of those two planets.

Zwicky Transient Facility

- Zwicky Transient Facility is funded by the National Science Foundation and an international collaboration of partners.
- ZTF data are processed and archived by Infrared Processing and Analysis Center (IPAC)
- NASA supports ZTF's search for near-Earth objects through the Near-Earth Object Observations program.
- 2020 AV2 is the third Atira discovered by ZTF as part of its Twilight program developed by National Central University in Taiwan.

Infrared Processing and Analysis Center (IPAC)

- IPAC provides science operations, data management, data archives and community support for astronomy and planetary science missions.
- IPAC has a historical emphasis on infrared-submillimeter astronomy and exoplanet science.
- IPAC has supported NASA, National Science Foundation USA and privately funded projects and missions.
- It is located on the campus of the California Institute of Technology in Pasadena, California.
- IPAC was established in 1986 to provide support for the joint European-American orbiting infrared telescope, the Infrared Astronomical Satellite, or IRAS.

Sonbhadra Gold Mines

- Geographical Survey of India (GSI) provided estimates for the amount of gold that can be extracted from a site in Sonbhadra district of Uttar Pradesh.
- The gold resource is located near a village called Mahuli, around 70 km from Sonbhadra district, the land is mainly forest area and inhabited mostly by tribal and members of backward classes.
- The probable resource is 52,806.25 tonnes of ore, with an average grade of 3.03 grams per tonne, which means the total gold that can be extracted is 160 kg.
- The site is part of the Mahakoshal region that includes parts of UP, Madhya Pradesh and Jharkhand.

- It is known to be potentially mineral-rich
- Two basic processes are involved to determine the quantity of gold that can be extracted are as follows
- **Study of rocks** - Laboratory analysis of the rocks indicates the possibility of these containing a particular mineral, in this case gold.
- For high possibility of containing such metals and minerals, the rocks need to be at least 700 million years old.
- The rocks in Sonbhadra are in the Mahakoshal region and from the Proterozoic era, which started 2,500 million years ago.
- The age of the rocks is determined by radiometric dating processes.
- **Drilling of the ground** - This eventually provides a three-dimensional image of the area, which is necessary for determining the quality of the resource and the amount available.
- The GSI classifies ore into categories based on the viability of extraction, which is determined from density.
- The gold ore found in Sonbhadra is in the "economic" category, which means that extraction will cost less than the cost of the gold that is extracted.
- The cost of extraction also depends on the grade of gold; the higher the gold concentration, the easier its extraction.

Period Poverty

- 'Period poverty' according to Scottish definition are some circumstances that make menstruation a "difficult experience" for women.
- These include homelessness, coercive, controlling and violent relationships and health conditions such as endometriosis.
- As of now, in Scotland, the provision of free sanitary products is already available in schools, universities and colleges.
- Recently Scottish parliament passed the Period Products (Free Provision) (Scotland) Bill that aims to make sanitary products free for women of all age groups.
- By this Scotland may become the first country in the world to end 'period poverty'.
- Referring to "period dignity", the legislation aims to develop a universal system in Scotland, which will provide free sanitary products for "anyone who needs them".
- One of the primary aims of the Bill is to ensure that those who menstruate have "reasonably convenient" access to period products free of charge.
- Essentially, the Bill places a duty on Scottish ministers to ensure that period products are made available free of charge on a universal basis.

- It also requires education providers to make period products available free of charge in on-site toilets.

Source: PIB, Indian Express, the Hindu

