Prelim Bits 24-09-2018

Interceptor Missile Test

\n\n

\n
- India‘s Ballistic Missile Defence (BMD) system is concentrated on tracking and destroying incoming hostile missiles both inside (endo) and outside (exo) the earth's atmosphere.
\n
- The BMD program includes a two-tiered system consisting of two interceptor missiles, namely Prithvi Air Defence (PAD)/ Pradyumna and Advanced Air Defence (AAD)/Ashwin Ballistic Missile Interceptor.
\n
- India successfully conducted an interceptor missile (Prithvi Defence Vehicle) test off the Abdul Kalam Island in Odisha Coast.
\n
- The Prithvi Defence Vehicle (PDV) is being developed by DRDO which is set to replace the existing PAD.
\n
- PDV mission is for engaging the targets in the exo-atmosphere region at an altitude above 50 km of the earth’s atmosphere.
\n
- PDV is guided by high-accuracy Inertial Navigation System (INS).
\n
- AAD mission is for engaging the targets in the endo-atmosphere at an lower altitude of 15-30 km.
\n

\n\n

MINERVA-II1

\n\n

\n
- It is the world’s first man-made object to explore movement on an asteroid surface.
\n
- It is developed by Japanese Space Agency.
\n
- MIcro Nano Experimental Robot Vehicle for Asteroid (MINERVA) is the

second generation rover deployed by Hayabusa2 spacecraft.
\n
- It recently landed on Asteroid Ryugu and the world's first rover to land on the surface of an Asteroid.
\n
- This is also the first time for autonomous movement and picture capture on an asteroid surface.
\n
- It will collect a sample of the primitive world during its stay at Ryugu, to bring to Earth for laboratory analysis.
\n

\n\n

oesophageal organoids

\n\n

\n
- Scientists have successfully grown world's first oesophageal organoids using stem cells.
\n
- Oesophageal organoids are miniature, functional versions of the human food pipe.
\n
- The oesophagus is a muscular tube that actively passes food from the mouth to the stomach.
\n
- The organ can be affected by congenital diseases called oesophageal atresia - a narrowing or malformation of the oesophagus caused by genetic mutations.
\n
- The production of organoids using stem cells paves new ways to study and test drugs against gut disorders.
\n
- It was grown entirely from pluripotent stem cells (PSCs), which can form any tissue type in the body.
\n

\n\n

Stem cells

\n\n

\n
- Stem cells differ from other kinds of cells in the body.
\n
- They have the remarkable potential to develop into cell types in the body

during early life and growth.
\n
- They have three unique properties.
\n

\n\n

1. They are capable of dividing and renewing themselves for long periods;

\n\n

2. They are unspecialized; and

\n\n

3. They can give rise to specialized cell types.

\n\n

\n
- Commonly, stem cells come from two main sources:
\n
- Embryonic Stem Cell - Embryos formed during the blastocyst phase of embryological development.
\n
- Adult stem cells – Exist throughout the body after embryonic development and are found inside of different types of tissue such as the brain, bone marrow, blood, blood vessels, skeletal muscles etc.
\n
- The capacity to differentiate into specialized cell types and be able to give rise to any mature cell type is referred to as potency.
\n
- **Totipotent stem cells** can differentiate into embryonic and extra embryonic cell types. These cells are produced from the fusion of an egg and sperm cell and can construct a complete, viable organism.
\n
- The only totipotent cells are the fertilized egg and the cells produced by the first few divisions of the fertilized egg are also totipotent.
\n
- **Pluripotent stem cells** are the descendants of totipotent cells and can differentiate into nearly all cells, i.e. cells derived from any of the three germ layers.
\n
- These are true stem cells, with the potential to make any differentiated cell in the body. Embryonic Stem Cells come under this category.
\n
- **Multipotent stem cells** can differentiate into a number of cells, but only

those of a closely related family of cells (i.e) it can only differentiate into a limited number of types.
\n
- Eg. The bone marrow contains multipotent stem cells that give rise to all the cells of the blood but not to other types of cells.
\n
- **Oligopotent stem cells** can differentiate into only a few cells, such as lymphoid or myeloid stem cells.
\n
- **Unipotent cells** can produce only one cell type, their own, but have the property of self-renewal, which distinguishes them from non-stem cells.
\n
- Such Unipotent cells include muscle stem cells.
\n

\n\n

Hornbill Watch initiative

\n\n

\n
- It is an interactive web interface that allows a person to report on hornbills anywhere in India.
\n
- It was launched by Scientists from Nature Conservation Foundation and Conservation India.
\n
- Hornbills play essential roles in forest ecosystems as dispersers of seeds of forest plants.
\n
- There are nine hornbill species in India out of which four are found in the Western Ghats. They are,
\n

\n\n

\n
1. Indian Grey Hornbill (endemic to India),
\n
2. the Malabar Grey Hornbill (endemic to the Western Ghats),
\n
3. Malabar Pied Hornbill (endemic to India and Sri Lanka) and
\n
4. Widely distributed but endangered Great Hornbill.
\n

\n\n

\n
- India also has one species that has one of the smallest ranges of any hornbill, **the Narcondam Hornbill**, found only on the island of Narcondam.
\n
- The hornbills were reported from 70 protected areas in the country.
\n

\n\n

Total Expense Ratio

\n\n

\n
- The ratio is associated with Mutual Funds investment.
\n
- Mutual funds are investments where an investor entrusts his/her money with an investment manager (of an asset management company) to manage it efficiently.
\n
- This money management comes at a cost, which is usually charged as a percentage of the investment.
\n
- The charge levied is called Total Expense Ratio and money received from the investment is reduced by this ratio.
\n
- For example, if a fund charges 2% as the TER, and the fund produces a gross profit (return) of 15% in a given year, the investor would get 13%.
\n
- SEBI, the regulator of Mutual Funds, has laid down rules on how much an asset management company can charge an investor to manage their funds.
\n

\n\n

\n\n

Source: The Hindu, PIB

\n\n

\n\n

\n



SHANKAR
IAS PARLIAMENT
Information is Empowering