

BHARAT SCHOOL OF BANKING

FEB MONTH SCIENCE NEWS

- ▶ According to Indian Council of Agricultural Research (ICAR), pests eat away about 30 - 35% of annual crop yield in India.
- Among such pests, nematodes (microscopic worms many of which are parasites) are major threat to crops as they caused loss of 60 million tonnes of crops annually.
- ▶ Chinese scientists from Northwest A&F University produced world's first cows with increased resistance to bovine tuberculosis (TB).
- ▶ Electric car maker Tesla unveiled world's largest battery storage plant in California, consisting 396 Tesla powerpacks that can store 80 megawatt-hours of electricity. It is enough to power 2500 households for a day.
- ▶ First Strategic Dialogue between India and China held in Beijing (capital of China). It was attended by Foreign Secretary S Jaishankar on India's Behalf.
- ▶ In order to focus on deep space missions, National Aeronautics and Space Administration (NASA) will set up of 2 Space Technology Research Institutes (STRIs) in Centre for Utilization of Biological Engineering in Space (CUBES) and Institute for Ultra-Strong Composites by Computational Design (US-COMP).
- ▶ Indian Space Research Organisation (ISRO) developed Telemetry & Telecommand Processor (TTCP) and its productionisation will be initiated shortly. With this, ISRO aims to replace expensive imported equipment necessary for uplinking and downlinking to satellites.
- ▶ Indian Space Research Organisation (ISRO) successfully ground tested India's largest indigenously developed Cryogenic Upper Stage engine for GSLV Mark III. C25 stage is most powerful upper stage so far developed by ISRO. It uses Liquid Oxygen and Liquid Hydrogen propellant combination stored at minus 253 degrees centigrade.
- Development of C25 cryogenic stage will provide ISRO capability to launch 4 ton class satellites in Geosynchronous Transfer Orbit (GTO), an altitude where satellites revolve in sync with Earth's rotation.
- ▶ Indian Space Research Organisation (ISRO) successfully launched record 104 satellites in single mission, on board of Polar Satellite Launch Vehicle PSLV-C37.
- Of total 104 satellites, 3 were Indian and remaining 101 were International. Indian satellites included earth-mapping Cartosat-2 satellite (main payload) and nanosatellites INS-1A and INS-1B.
- Cartosat-2 Satellite: It was the primary payload of the mission. It is similar to the earlier four satellites in Cartosat-2 Series. It weighs 714 kg and has a mission life of five years. It is earth observation satellite that will provide remote sensing services.
- INS-1A and INS-1B Satellites are nanosatellites, carrying Surface Bidirectional Reflectance Distribution Function Radiometer and INS-1B was carrying Earth Exosphere Lyman Alpha Analyser as payloads.
- Foreign Satellites - 96 from USA and remaining 5 from Israel, Kazakhstan, Netherlands, Switzerland and United Arab Emirates. Around 90 small satellites belonged to US-based company Planet Inc. They are named 'Doves' and their constellation will be used to image the earth at low cost.

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- ▶ Indian Space Research Organisation (ISRO) will launch its First mission to Venus and its 2nd to Mars. It is confirmed by newly allotted budget to department of space with 23% increase and mentioning provisions under its space sciences section for 'Mars Orbiter Mission II and mission to Venus'.
- ▶ Intech DMLS has launched India's first indigenously developed Jet Engine series under brand name Poer Jets. India became first in Asia and 4th country in world after to indigenously develop such an engine in private space.
- ▶ International team of researchers from China, Russia, and USA conducted computer modeling to create a thermodynamically stable compound of sodium and noble gas helium - Na_2He , which is stable at high pressures.
- Noble gasses were thought not to mix with other elements and forming no compounds. However, this study will bring big change in noble gas theory.
- ▶ Japanese FORPHEUS (*Future Omron Robotics Technology for Exploring Possibility of Harmonised automation with Sinic Theoretics*), world's first robot table tennis tutor has created Guinness World Record for being able to play table tennis better than most humans.
- ▶ Japanese Scientists developed terahertz (THz) transmitter technology as next generation system which can transmit digital data over 10 times faster than 5G mobile networks (over 100 GBPS). Range of frequencies will fall within 275 GHz to 450 GHz, paving way for faster internet.
- ▶ NASA Scientists discovered living microorganisms (mostly bacteria) trapped inside crystals for 60,000 years in a Naica mine in Mexico.
- It has caused concern for astrobiologists about bringing back samples collected on space missions in solar system as dangerous extraterrestrial organisms could accidentally enter into Earth on a returning spaceship.
- ▶ NASA discovered 7 new Earth-sized exoplanets that may sustain life, detected using NASA's Spitzer Space Telescope and several observatories including Trappist robotic telescope at Chile. These exoplanets are orbiting dwarf star named Trappist-1, which at 39 light years away. They could have some liquid water and maybe supporting life.
- Of seven planets, three orbit in habitable (Goldilocks zone) where temperatures are suited to surface oceans of liquid water. 6 inner planets lie in a temperate zone where surface temperatures range from zero to 100C and masses around 0.4 to 1.4 times mass of Earth.
- ▶ NASA stated that Earth sized planet Proxima b may not host life despite it being in the habitable zone of its host star, due to frequent stellar eruptions.
- ▶ NASA's Chandra X-Ray Observatory detected a strange X-ray signal from Milky Way galaxy, paving way to help scientists in proving existence of dark matter in universe.
- ▶ NASA's solar-powered Juno spacecraft completed closest flyby of Jupiter's mysterious cloud tops for fourth time, roughly 4,300 km above Jupiter's cloud tops at speed of 208,000 kmph.

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- ▶ National Aeronautics and Space Administration (NASA) will send its first robotic spacecraft to Sun in 2018 -
- Solar Probe Plus mission will get within six million kilometres of the Sun to probe its atmosphere. Sun is about 149 million kilometres from Earth.
- Mission's aim is to answer 3 important questions -
- Why Sun's surface is not as hot as its atmosphere. Sun's surface temperature is only 5500 Degree Celsius while temperature of Atmosphere is 2 Million Degree Celsius.
- What accelerates speed of the solar wind.
- Why does Sun occasionally emit high-energy particles that pose a danger to unprotected astronauts and spacecraft.
- ▶ Researchers From China discovered 540 Million Year Old fossils of microscopic sea animal *Saccorhytus*, earliest known ancestor of humans along with a vast range of other species.
- ▶ Researchers discovered new species of bird - Rufous-tailed Rock Thrush (*Monticola saxatilis*) Nepal's upper Dolpa region.
- ▶ Researchers from MIT (USA) developed a small battery that runs on stomach acids and is capable of powering e-pills to monitor patient health. It can generate power to run small sensors or drug delivery devices that can reside in gastrointestinal tract for extended periods.
- ▶ Researchers from Sweden developed world's first heat-driven transistor, with high sensitivity to heat. It means that Single degree temperature rise is sufficient to cause a detectable current variation.
- ▶ Researchers from USA based Michigan State University developed first stretchable integrated circuit (IC) made entirely using an inkjet printer. Using ink, researchers created elastic material, circuit and organic light-emitting diode (OLED).
- As material is produced using a standard printer, it has cost advantage over current technologies that are expensive to manufacture.
- Stretchable electronic fabric can be easily folded and put in one's pocket without breaking.
- ▶ Scientists developed an effective and economical treatment for Ebola Virus using antibodies from Horses. This is a cost effective treatment that can be used in low-income countries like Africa.
- ▶ Scientists developed novel rubber like material nicknamed *thubber* with high thermal conductivity and elasticity. It is an electrically insulating composite material with combination of metal-like thermal conductivity, elasticity similar to soft, biological tissue.
- ▶ Scientists found that consumption of litchi fruit on an empty stomach can result in very low blood glucose level and acute encephalopathy leading to seizures and coma, and causes death in Children.
- Litchi contains toxins hypoglycin A and methylenecyclopropyl-glycine (MCPG). Its consumption and skipping evening meals causes very low blood glucose level (less than normal 70 mg/dL) and acute encephalopathy in children.

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- Outbreaks of high fever followed by seizures and death in young children reported in Muzaffarpur in Bihar and other litchi-growing regions in India due to consumption of unripe lychees on an empty stomach.
- ▶ Scientists from Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) made world's strongest material *graphene* commercially more viable by using soybean. They developed *GraphAir* technology that transforms soybean oil into graphene films in a single step. GraphAir technology grows graphene film in ambient air with a natural precursor, making its production faster and simpler.
- ▶ Scientists from California National Primate Research Centre (USA) tested new male contraceptive *Vasalgel*, that blocked sperm flow on monkeys; leading to effective birth control. Now it is waiting for human trials.
- ▶ Scientists from Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI) have confirmed the multiple therapeutic properties of *Neurocalyx calycinus*, a medicinal plant endemic to southern parts of Western Ghats and Sri Lanka.
- ▶ Scientists from University of Delhi and Kerala Forest Department discovered 4 new species of miniature night frogs in Western Ghats - Athirappilly Night Frog, Sabarimala Night Frog, Radcliffe's Night frog and Kadalar Night Frog.
- ▶ Scientists from University of Western Australia successfully mapped molecular structure of EptA protein that shields superbugs from antibiotics and masks bacteria from both human immune system and antibiotics. Shape of EptA protein was mapped using technique called X-ray crystallography which is mainly used for determining atomic and molecular structure of a crystal. This mapping is important because it will allow development of a drug to prevent superbugs hiding from medication.
- ▶ USA Scientists successfully implanted world's smallest pacemaker dubbed as Micra Transcatheter Pacing System (TPS). It is about size of large vitamin capsule and is meant for patients with *bradycardia*, a condition characterised by a slow heart rate (60 beats / minute).
- ▶ World Health Organisation (WHO) urged nations to develop new drugs to tackle 12 antibiotics-resistant super-germs threatening an explosion of incurable diseases.