SCIENCE AND TECHNOLOGY

DEFENCE

1. **Which one of the following is an 'Air-to-Air' Missile?**
   (a) Prithvi (b) Agni
   (c) Akash (d) Astra

Ans. (d) [SSC MTS Exam, 2011]

Expl:– Astra is an active radar homing Beyond Visual Range Air to Air Missile (BVRAAM) developed by the Defence Research and Development Organisation (DRDO) India.

2. **The Chief of the Indian Navy has the rank of–**
   (a) General of Indian Navy
   (b) Chief of Indian Navy
   (c) Naval Chief
   (d) Admiral

Ans. (d) [SSC CISF Exam 2011]

Expl:– An Admiral of the fleet is a military naval officer of the highest rank. In many nations, the rank is reserved for wartime of ceremonial appointments. It is usually a rank above admiral (which is now usually the highest rank in peace-time for officers in active service) and is often held by the most senior admiral of an entire naval sevice.

3. **Which one of the following is a 'Surface to Air Missile'?**
   (a) Trishul (b) K-15 Sagarika
   (c) Brahmos (d) Agni

Ans. (a) [SSC MTS Exam, 2011]

Expl:– Trishul is the name of a short range surface to air missile developed by India as a part of the Integrated Guided Missile Development Programme. It has a range of 9 km and is fitted with a 5.5 kg warhead. Trishul flies in supersonic speed and has a low altitude sensitive radio altimeter and height lock loop control on board, to skim over the sea at a very low altitude and hit against sea skimming missiles coming towards our ships.

4. **Nuclear explosive devices were tested in India at–**
   (a) Sriharikota (b) Bangalore
   (c) Pokharan (d) Kanchipuram

Ans. (c) [SSC CPO Exam 2010]

Expl:– Pokhran is a city and a municipality located in Jaisalmer district in the Indian State of Rajasthan. It is a remote location in the Thar desert region and served as the test site for India's first underground nuclear weapon detonation. It shot into the international limelight on 7th September 1974, when the then Indian Prime Minister Indira Gandhi verbally authorised scientists at the Bhabha Atomic Research Centre (BARC) at Trombay to detonate small and miniaturised nuclear device. Throughout its development, the device was formally called the Peaceful Nuclear Explosive (PNE) by Indian Government, but it was usually referred to as the Operation 'Smiling Buddha'. On 11th May of 1998, 24th year after the first operation, the Atomic Energy Commission of India and the Defence Research and Development Organisation (DRDO) carried out the joint operation, known as Pokhran-II. The AEC India detonated its four devices as part of the underground nuclear testing on Pokhran Test Range.

5. **MIRV stands for-**
   (a) Multi-directional Independently Reoriented Vehicle
   (b) Multipurpose Integrally Targeted Revolutionary Vehicle
   (c) Multiple Independently Targetable Reentry Vehicle
   (d) Multidimensional Independent Re-entry Vehicle

Ans. (c) [SSC SAS Exam 2010]

Expl:– Multiple Independently Targetable Reentry Vehicle (MIRV) warhead is a collection of separate warheads. By contrast a unitary warhead is a single warhead on a single missile.

6. **Which one of the following correctly describes AGNI?**
   (a) A fighter plane (b) A versatile tank
   (c) A long-range missile (d) A long-range gun

Ans. (c) [SSC CGL Exam 2008]

Expl:– The Agni missile is a family of medium to intercontinental range ballistic missiles developed by India, named after one of the five elements of nature. The first missile of the series, Agni-I was developed under the Integrated Guided Missile Development Programme and tested 1991.

7. **Who is known as 'the Father of Indian Missile Technology'?**
   (a) Dr UR Rao (b) Dr APJ Abdul Kalam
   (c) Dr Chidambaram (d) Dr Homi Bhabha

Ans. (b) [SSC SO Exam 2007]

Expl:– Dr APJ Abdul Kalam is the undisputed father of India's missile programme. He was breathed life into ballistic missiles like the Agni and Prithvi. It is too exhausting to track Dr Adbul Kalam's achievements to date. In the 60s and 70s he was a trail blazer in the space department. In the 80s, he transformed the moribund Defence Research and Development Laboratory in Hyderabad into a highly motivated team.

By the 90s, Kalam emerged as the Czar of Indian Science and technology and was awarded the Bharat Ratna and served as the 11th President of India 2002 to 2007.

8. What is the name of the Light Combat Aircraft developed by India indigenously?

(a) Brahmos (b) Chetak
(c) Astra (d) Tejas

Ans. (d) [SSC SO Exam 2007]

Expl:–The HAL Tejas is a lightweight multirole fighter developed by India. It is a tailless, compound delta wing design powered by a single engine. It came from the Light Combat Aircraft (LCA) Programme, which began in the 1980s to replace India's against MiG-21 fighters. Later the LCA was officially named 'Tejas', meaning 'Radiance' by then Prime Minister Atal Bihari Vajpayee.

9. Which one of the following shipyards builds warships for Indian Navy?

(a) Mazgaon Dock, Mumbai
(b) Cochin Shipyard
(c) Hindustan Shipyard, Vishakhapatnam
(d) Garden Reach Workshop, Kolkata

Ans. (d) [SSC CPO Exam 2005]

Expl:–Garden Reach Shipbuilders and Engineers Limited (GRSE) is one of India's leading shipyards, located in Kolkata, West Bengal. It builds and repairs commercial and navals vessels. Founded in 1884 as a small privately owned company on the Eastern Bank of the Hughly river, it was renamed as Garden Reach Workshop in 1916. The company was nationalised by the Government of India in 1960.

10. INS Virat serves the Indian Navy. It is a–

(a) Submarine (b) Gunboat
(c) Aircraft carrier (d) Freighter

Ans. (c) [SSC Tax Asst. Exam 2005]

Expl:–INS Virat is a Centaur class aircraft carrier currently in service with the Indian Navy. INS Virat is the flagship of the Indian Navy the oldest carrier in service. Virat is currently the second largest ship in the Indian Navy after the INS Jyoti Viraat was completed and commissioned in 1959 as the Royal Navy's HMS Hermes and was transferred to India in 1987.

11. Which of the following is the first missile which has been developed in India?

(a) Akash (b) Prithvi
(c) Agni (d) Trishul

Ans. (b) [SSC SO Exam 2005]

Expl:–The Prithvi missile is a family of tactical surface to surface Short-Range Ballistic Missiles (SRBM) and is India's first indigenously developed ballistic missile. Development of the Prithvi began in 1983 and it was first test-fired on 25th February, 1988 from Sriharikota, SHAR Centre, Potti Sreeramulu Nellore district, Andhra Pradesh. It has a range of upto 150 to 300 km. The land variant is called Prithvi while the naval operational variant of Prithvi I and Prithvi II class missiles are code-named Dhanush (meaning Bow). All missiles programme under DRDO.

12. Air Force Academy is located in–

(a) Hyderabad (b) Coimbatore
(c) Kakinada (d) Mumbai

Ans. (a) [SSC CPO Exam 2004]

Expl:–Air Force Academy (AFA) at Dundigal has built a formidable reputation as the premier institution of Indian Air force. It is situated 43 km from Hyderabad since, Inception in 1971.

13. Who developed Ballistic Missile ?

(a) Wernher Von Braun
(b) J Rober Oppenheimer
(c) Edward Teller
(d) Samuel Cohen

Ans. (a) [SSC CGL Exam 2002]

Expl:–Wernher Magnus Maximilian, Freiherr Von Braun was a German- American rocket scientist, aerospace engineer, space architect and one of the leading figures in the development of rocket technology in Nazi Germany during World War II and subsequently in the United States. He is credited as being the 'Father of Rocket Science'.

14. Which of the following is a stealth aircraft virtually undetectable even by radar ?

(a) B-2 Spirit
(b) Bl-B Lancer
(c) B-52 Stratofortrees
(d) FA-18 Hornets

Ans. (a) [SSC CGL Exam 2002]

Expl:– The North rop Grumman B-2 Spirit also known as the stealth technology designed for penetrating dense antiaircraft defenses. It is able to deploy both conventional and nuclear weapons.

15. Indian and Russian scientists successfully test- fired a supersonic cruise missile named–

(a) GSAT-1 (b) GSLV
(c) Brahmos (d) INSAT-3B

Ans. (c) [SSC Matric Level Exam 2002]

Expl:– Brahmos is a stealth supersonic cruise missile that can be launched from submarines, ships, aircraft or land. It is a joint venture between Republic of India's Defence Research and Development Organisation (DRDO) and Russian Federation's NPO Mashinostroeyenia. The name Brahmos is a portmanteau formed from the names of two rivers, The Brahmaputra of India and the Moskva of Russia.

16. **What is 'Barak'?**
(a) A barrage on river Brahmaputra
(b) A peak in Kargil
(c) A ship- based missile system
(d) Residential Complex of an Army Unit

Ans. (c) [SSC SO Exam 2001]

Expl:– Barak is an Indo-Israeli Surface to Surface Missile, designed to defend against aircraft, anti-ship missiles and UAVS.

17. **The intermediate range nuclear capable missile developed indigenously is named–**
(a) Agni (b) Prithvi
(c) Nag (d) Trishul

Ans. (a) [SSC Matric Level Exam 2001]

Expl:– The Agni missile is a family of medium to intercontinental range ballistic missiles developed by India, named after one of the five elements of nature. In the Agni series of ballistic missiles, Agni II, Agni III and Agni IV are Intermediate Range Ballistic Missiles (IRBMs). These are all nuclear weapons capable surface to surface ballistic missile.

18. **Which country assisted India to establish the Koodan-Kulam Nuclear Power Station in Tamil Nadu?**
(a) Russia (b) Canada
(c) Germany (d) France

Ans. (a) [SSC Matric Level Exam 2000]

Expl:– Koodan-Kulam Nuclear Power Plant (KKNP) is associated with Russia, which is located in Tirunelveli district of Tamil Nadu. KKNP is Indias first pressurised water reactor belonging to the light water category.

SPACE

1. **Which scale is used to measure the intensity of earthquake?**
(a) Richter (b) Metric
(c) Centigrade (d) Newton

Ans. (a) [SSC Stenographer Exam 2013]

Expl:– The Richter magnitude scale (often shortened to Richter scale) was developed to assign a single number to quantify the energy that is released during an earthquake. An earthquake (also known as a quake, tremor or temblor) is the result of a sudden release of energy in the Earth's crust that creates seismic waves.

2. **Geostationary orbit is at a height of–**
(a) 6 km (b) 1000 km
(c) 3600 km (d) 36000 km

Ans. (d) [SSC Stenographer Exam 2013]

Expl:– A geostationary orbit, geostationary Earth orbit or Geosynchronous Equatorial Orbit (GEO), is a circular orbit 35786 km (22236 mile) above the Earth's equator and following the direction of the Earth's rotation. An object in such an orbit has an orbital period equal to the Earth's rotational period (one sidereal day).

3. **The National Chemical Laboratory is situated in–**
(a) New Delhi (b) Bengaluru
(c) Pune (d) Patna

Ans. (c) [SSC CGL Exam 2013]

Expl:– The National Chemical Laboratory (NCL) is an ~ Indian Government laboratory based in Pune, popularly known as NCL, a constituent member of the Council of Scientific and Industrial Research (CSIR) India, it was established in 1950.

4. **'PCB' stands for–**
(a) Programme Control Block
(b) Process Control Block
(c) Process Communication Block
(d) None of the above

Ans. (b) [SSC (10 +2) Exam 2013]

Expl:– Process Control Block (PCB, also called Task Controlling Block, Task Structure or Switchframe) is a data structure in the Operating System kernel containing the information needed to manage a particular process.The PCB is the manifestation of a process in an Operating System.

5. **ISRO launched the world's first satellite dedicated to education, the EDUSAT in the month of–**
(a) June, 2004 (b) July, 2004
(c) August, 2004 (d) September, 2004

Ans. (d) [SSC (10+2) Exam 2012]

Expl:– EDUSAT or GSAT-3 is a communications satellite which was launched on 20th September, 2004 by the Indian Space Research Organisation. EDUSAT is the first Indian satellite built exclusively to serve the educational sector. It has revolutionised classroom teaching through IP based technology.

6. **A geostationary satellite revolves round the Earth from–**
(a) East to West (b) West to East
(c) North to South (d) South to North

Ans. (b) [SSC CGL Exam 2011]

Expl:– Geostationary satellites are located exactly above the Earth's equator and revolves around the Earth in a circular orbit. Their revolving speed and direction (West to East) are exactly same as that of the Earth, which makes it look stationary from the Earth's surface.

7. **Vikram Sarabai Space Centre (VSSC) is at–**
(a) Thiruvananthapuram
(b) Mumbai

(c) Hyderabad

(d) Bengaluru

Ans. (a) [SSC (10+2) Exam 2011]

Expl:– The Vikram Sarabhai Space Centre (VSSC) is located in Thiruvananthapuram. The centre had its beginings as the Thumba Equatorial Rocket Launching Station (TERLS) in 1962. It was renamed in honour of Dr Vikram Sarabhai, the father of the Indian Space Programme. The VSSC is an entirely indigenous facility working on the development of sounding rockets. Rohini and Manaka launches. VSSC current Director is S Ramakrishan.

8. The first explosion of an atomic device in India was carried out in the State of–

(a) Jammu and Kashmir

(b) Nagaland

(c) Manipur

(d) Rajasthan

Ans. (d) [SSC (10+2) Exam 2011]

Expl:– Smiling Buddha, formally designated as Pokhran I, was the code name given to India's first nuclear test explosion that took place at the long constructed Indian Army base. Pokhran Test Range in Rajasthan on 18th May, 1974. It was also the first confirmed nuclear test by a nation outside the five permanent members of the United Nations Security Council. Then Indian Prime Minister was Smt Indira Gandhi. It is a remote location in the Thar desert region.

9. The Headquarters of MCF (Master Control Facility) the nerve centre of the entire spacecraft operations in India is at–

(a) Hyderabad - Andhra Pradesh

(b) Thumba - Kerala

(c) Sriharikota - Andhra Pradesh

(d) Hassan - Karnataka

Ans. (d) [SSC CGL Exam 2011]

Expl:– The Master Control Facility is a facility set-up by the Indian Space Research Organisation (ISRO) in the city of Hassan in the Indian State of Karnataka established in 1982, this facility is responsible for monitoring and controlling the satellites launched by ISRO. This was the only Master Control Facility of ISRO till another one was established in Bhopal in 2005. Currently MCF controls the following 10 satellites: A-2E, INSAT-3C, INSAT-3A, INSAT-3E, INSAT- 4 A, INSAT-4B, INSAT-4CR KALPANA-1, GAST-8 and GSANT-12. On these 10 satellites, 8 are controlled from MCF Hassan and 2 are controlled from MCF Bhopal (INSAT-3C and INSAT-4CR.).

10. Which city receive the highest cosmic radiation amongst the following?

(a) Chennai (b) Mumbai

(c) Kolkata (d) Delhi

Ans. (d) [SSC CGL Exam 2011]

Expl:– Cosmic rays in Mumbai, Kolkata, Chennai, Delhi and Bengaluru is 0.484,0.81, 0.79 and 0.825 milligray respectively. Gray is a unit for absorbed dose, when the radiation energy imparted to a kg of material is 1 joule, it is called a gray.

Since, gray is very large, milligray (one thousandth of a gray) and micro- gray (one million of a gray), are commonly used. Cosmic rays come from outer space. Their intensity at a place depends on the altitude. Cosmic rays alone contribute 0.28 milligray at the first three cities as they are at sea level, the column of air helps to reduce their intensity.

11. OTEC stands for–

(a) Ocean Thermal Energy Conservation

(b) Oil and Thermal Energy Conservation

(c) Oil and Thermal Energy Convention

(d) Ocean Thermal Energy Conversion

Ans. (d) [SSC CGL Exam 2011]

Expl:– OTEC stands for Ocean Energy Thermal Conversion and is all about using the differences in warm and cold temperature of the oceans to produce useful products like electric power for coastal or island communities. With increases in energy prices and technical innovations over the last few years, OTEC systems, such the one produced by the Ocean Thermal Energy Corporation are becoming viable technological solutions to help provide some of the world's energy requirements.

12. The rear side of the Moon was photographed by–

(a) Viking I (b) Viking II

(c) Luna III (d) Mariner IX

Ans. (c) [SSC CGL 2011]

Expl:– The Soviet space probe Luna 3rd of 1959 (of the E-3 series) was the third space probe to be sent to the neighbourhood of the Moon and this mission was an early feat in the spaceborne exploration of outer space.

Though, it returned rather poor pictures by later standards, the historic, never-before-seen views of the far side of the Moon caused excitement and interest when they were published around the world and a tentative Atlas of the Far Side of the Moon was created after image processing improved the pictures. These views showed mountainous terrain, very different from the near side and only two dark, lowlying regions, which were named Mare Moscoviense (Sea of Moscow) and Mare Desiderii (Sea of Desire). Mare Desiderii was later found to be composed of a smaller mare, Mare Ingenii (Sea of Ingenuity) and several other dark craters.

13. Which country launched the world's first satellite dedicated to monitoring Greenhouse Gas emission in 2009?

(a) Japan (b) Brazil

(c) India (d) USA

Ans. (a) [SSC CGL Exam 2011]

Expl:– The first satellite dedicated to monitoring greenhouse gas emissions as part of global efforts to combat climate change was launched into space from Japan (which monitoring levels of greenhouse gases carbon dioxide and methane.

14. The US Department of Energy's Brookhaven National Laboratory in New York an attempt to understand cosmic history used a Giant Atom Smasher and has generated temperature of–

(a) 52 billion degrees Celsius
(b) 85 billion degrees Celsius
(c) 2.5 trillion degrees Celsius
(d) 4 trillion degrees Celsius

Ans. (d) [SSC SAS Exam 2010]

Expl:– This scorching achievement happened inside the Relativistic Heavy Ion Collider (RHIC), which is a 2.4 mile (3.9 km) underground track where particles smash into one another under conditions that existed about a millionth of a second after the Big Bang.

The new feat, at Brookhaven National Laboratory in Upton, NY, occurred when gold nuclei (the positively charged part of the atom made of protons and neutrons were sent speeding around RHIC at near light-speed until they crashed into each other. When the ions collide, the enormous energy released is, so intense it melts the neutrons and protons inside the gold nuclei into their constituent parts, namely quarks and gluons. RHIC physicists have measured the temperature of this quark-gluon plasma, finding it reaches around 7.2 trillion degrees fahrenheit (4 trillion degrees Celsius).

15. Kaiga-II plant which supplies electricity is a–

(a) Hydel project
(b) Coal project
(c) Nuclear power reactor
(d) None of the above

Ans. (c) [SSC CISF Exam 2010]

Expl:– Kaiga generating station is a nuclear power generating station situated at Kaiga, near the river Kali, in the Uttar Kannada district of Karnataka, India. The plant has been in operation, since March 2000 and is operated by the Nuclear Power Corporation of India.

16. The device in communication satellites which receives signals from an Earth station and transmits them to different directions is–

(a) Transformer (b) Transistor
(c) Transponder (d) Transducer

Ans. (c) [SSC CISF Exam 2010]

Expl:– In telecommunication, a transponder is one of two types of devices. In air navigation or radio frequency, identification, a transponder is a device that emits an identifying signal in response to an interrogating received signal.

In a communications satellite, a transponder gathers signals over a range of uplink frequencies and re-transmits them on a different set of down link frequencies to receivers on Earth, often without changing the content of the received signal or signals. The term is a portmanteau for transmitter responder.

17. Where is the satellite launching centre of India located?

(a) Ahmedabad (b) Hassan
(c) Sriharikota (d) Thumba

Ans. (c) [SSC SI 2010]

Expl:– Sriharikota is a barrier island of the coast of the Southern State of Andhra Pradesh in India. It houses India's only satellite launch centre in the Satish Dhawan Space Centre (also known as SHAR) and is used by the Indian Space research Organisation to launch satellites using multi-stage rockets such as the Polar Satellite Launch Vehicle and the Geosynchronous Satellite Launch Vehicle. Originally called Sriharikota High Altitude Range (SHAR, an acronym ISRO have retained to the present day) and then Sriharikota Launching Range, the centre was renamed in 2002 after the death of ISRO's former Chairman Satish Dhawan.

18. The 'Messenger' satellite launched by NASA is to study–

(a) Mercury (b) Venus
(c) Saturn (d) Jupite

Ans. (a) [SSC CGL Exam 2010]

Expl:– Messenger (an acronym of Mercury Surface, Space Environment, Geochemistry and Ranging) is a robotic NASA spacecraft orbiting the planet mercury, the first spacecraft ever to do so. The 485 kg spacecraft was couched aboard a Delta II rocket in August, 2004 to study Mercury's chemical composition, geology and magnetic field. It became the second mission after 1975's mariner 10th to reach Mercury.

19. The first ever robot spacecraft to probe planet Venus was named–

(a) Galileo (b) Magellan
(c) Newton (d) Challenger

Ans. (b) [SSC SO Exam 2008]

Expl:– The Magellan spacecraft, also referred to as the Venus Radar Mapper, was a 1035 kg (2280 lb) robotic space probe launched by NASA on 4th May, 1989 to map the surface of Venus using synthetic aperture radar and measure the planetary gravity. It was the first interplanetary mission to be launched from the Space Shuttle.

20. Comets revolve around the–

(a) Earth (b) Venus
(c) Sun (d) Jupiter

Ans. (a) [SSC SO Exam 2008]

Expl:– Comet is an icy small Solar System body that, when passing close to the Sun, heats up and begins to outgas, displaying a visible atmosphere or coma and sometimes also a tail.

These phenomena are due to the effects of solar radiation and the solar wind upon the nucleus of the comet. Comet nuclei range from a few hundred metres to tens of kilometres across and are composed of loose collections of ice, dust and small rocky particles. The coma and tail are much larger and if sufficiently bright may be seen from the Earth without the aid of a telescope. Comets have been observed and recorded, since, ancient times by many different cultures.

21. PSLV stands for–

(a) Polar Satellite Launch Vehicle
(b) Polish Satellite Launch Vehicle
(c) Perfect Satellite Launching Verifier
(d) Preparatory Satellite Launching Vehicle

Ans. (a) [SSC SO Exam 2008]

Expl:– The Polar Satellite Launch Vehicle (PSLV) is an expendable launch system developed and operated by the Indian Space Research Organisation (ISRO). It was developed to allow India to launch its Indian Remote Sensing (IRS) satellites into Sun synchronous orbits, a service that was, until the advent of the PSLV, commercially viable only from Russia.

PSLV can also launch small size satellites into Geostationary Transfer Orbit (GTO). The PSLV has launched 55 satellites / spacecrafts (26 Indian and 29 Foreign Satellites into a variety of orbits so far. The notable paylords launched by PSLV include Chandrayaan I and India Mars orbiter Mission.

22. The name of India's research station at the North pole is–

(a) Dakshin Gangotri (b) Maitri
(c) Himadri (d) None of the above

Ans. (c) [SSC CPO Exam 2008]

Expl:– Himadri Station is India's first Arctic research station located at Spitsbergen, Svalbard, Norway. It is located at the International Arctic Research base, Nyalesund. The station is operated by National Centre for Antarctic and Ocean Research. The station was inaugurated in 2006 by Kapil Sibal.

The centre is primarily involved in the following areas Geological mapping and allied Earth science studies Bio-geo-chemistry of sea-ice-ecosystems. Atmospheric Physics and Chemistry Glaciological studies Paleoclen etology

23. The first astronaut to walk in outer space is–

(a) Aleksei Leonov (b) Yuri Gagarin
(c) Neil Armstrong (d) Dave Scott

Ans. (b) [SSC Tax Asst. Exam 2008]

Expl:– Yuri Alekseyevich Gagarin was Soviet pilot and cosmonaut. He was the first human to journey Into outer space, when his vostok spacecraft completed an orbit of the Earth on 12th April, 1961. Gagarin became an international celebrity and was awarded many medals and titles, including 'Hero of the Soviet Union', the nation's highest honour.

24. Bhabha Atomic Research Centre is situated in–

(a) Delhi (b) Mumbai
(c) Chennai (d) Hyderabad

Ans. (b) [SSC Tax Asst. Exam 2008]

Expl:– The Bhabha Atomic Research Centre (BARC) is India's premier nuclear research facility based in Trombay, Mumbai. BARC is a multi-disciplinary research centre with extensive infrastructure for advanced research and development covering the entire spectrum of nuclear science engineering and related areas. Established in 3rd January, 1954.

25. The Department of Space proposed setting up of Indian Institute of Space Technology on the line of the seven IITs. It will have its independent campus at–

(a) Chennai (b) Thumba
(c) Thiruvananthapuram (d) Sriharikota

Ans. (c) [SSC Tax Asst. Exam 2007]

Expl:– The Indian Insititute of Space Science and Technology is India's national institute for the study and development of space science, located at Valiamala, Nedumangad, Thiruvananthapuram, Kerala. It was inaugurated on 14th September, 2007 by G Madhavan Nair, the Chairman ISRO. IIST is sponsored by the Indian Space Research Organisation (ISRO) under Department of Space, Government of India. IIST offers undergraduate BTech, Master's M Tech and Ph D programmes in space science and technology and also serves as a research centre.

26. The period of revolution of a Geostat -Ionary satellite is–

(a) 24 hours (b) 30 days
(c) 365 days (d) Changing Continuously

Ans. (a) [SSC CPO Exam 2007]

Expl:– A geosynchronous satellite is a satellite in geosynchronous orbit, with an orbital period the same as the Earth's rotation period. Such a satellite returns to the same position in the sky after each sidereal day, and over the course of a day traces out a path in the sky that is typically some form of analemma.

27. In which year was the Indian Space Research Organisation (ISRO) founded?

(a) 1967 (b) 1969
(c) 1970 (d) 1974

Ans. (b) [SSC CPO Exam 2007]

Expl:– Established in 1969, ISRO superseded the erstwhile Indian National Committee for Space Research (INCOSPAR). Headquartered in Bangalore, ISRO is under the administrative control of the Department of Space, Government of India. Since its establishment, ISRO has achieved numerous milestones. It built India's first satellite, Aryabhata, which was launched by the Soviet Union In 1975.

In 1980, Rohini became the first satellite to be placed In orbit by an Indian made launch vehicle.

An astronaut in outer space will observe sky as–

(a) white (b) black

(c) blue (d) red

[SSC CGL Exam 2007]

Ans. (b)

Expl:– Space is black because there are no substances or objects to reflect back any colour (or all colours, which would make it white). That is also why the astronauts see the Earth as we see it in photos, but the space around it is black. The light from the sun is reflected back as the blues and greens and browns that we see, but the space around the Earth is just that empty space and therefore does not reflect back any colours, so it is black.

29. Which of the following Indian satellites, which one is intended for long distance telecommunications for transmitting TV programmes?

(a) INSAT-A (b) Aryabhata

(c) Bhaskara (d) Rohini

[SSC SO Exam 2007]

Ans. (a)

Expl:–INSAT-A or the Indian National Satellite System is a series of multipurpose Geostationary satellites launched by ISRO to satisfy the telecommunications, broadcasting, meteorology and search and rescue operations. Commissioned in 1983, INSATA is the largest domestic communication system in the Asia Pacific Region. The Indian National Satellite (INSAT) system was commissioned with the launch of INSAT-1B in August, 1983. It is joint venture of the Department of space, Department of Telecommunications, India meterological Department, All India Radio and Doordarshan.

30. ISRO is abbreviation for–

(a) Indian Scientific Research Organisation

(b) International Space Research Organisation

(c) International Sales Research Organisation

(d) Indian Space Research Organisation

Ans. (d)

[SSC CGL Exam 2007]

Expl:– The Indian Space Research Organisation (ISRO) is the primary space agency of the Indian Government. ISRO is amongst the six largest government space agencies in the world, alongwith NASA, RKA, ESA, CNSA and JAXA. Its primary objective is to advance space technology and use its applications for national benefit. Established in 1969, ISRO superseded the estwhile Indian National Committee for Space Research (INCOSPAR). Headquartered in Bangalore, ISRO is under the administrative control of the Department of Space, Government of India. ISRO has achieved numerous milestones since, its establishment. India's first satellite, Aryabhata, was built by ISRO and launched by the Soviet Union, In 1975. Rohini, the first satellite to be placed in orbit by an Indian made launch vehicle.

31. To an astronaut, sky appears–

(a) White (b) Rich blue

(c) Light blue (d) Dark

Ans. (d)

[SSC SO Exam 2006]

Expl:– Sunlight doesn't light up space because there is nothing there for it to light up. Light in space travels in straight lines, so we only see sunlight when we look at the Sun. As for the rest of the universe, if we assume an infinite universe, we would expect it to be bright with the light of infinity of stars.

This is called Olbers.' paradox. But the intensity of the light decreases with the square of the distance and at some point the stars are too far away and receding too fast for their light to ever reach us. So, the actual amount of starlight from very distant stars is negligible.

32. What is supernova?

(a) a black hole (b) a dying star

(c) an asteroid (d) a comet

Ans. (b)

Expl:– A dying star has several names depending on the stage of its 'death'. A giant or a super giant is one that collapses its core and expands its outer regions. A neutron star is a dying star that releases a lot of energy called a supernova during its formation.

Supernova are extremely luminous and cause a burst of radiation that often briefly outshines an entire galaxy, before fading from view over several weeks or months. During this interval, a supernova can radiate as much energy as the Sun is expected to emit over its entire life Span.

33. Who propounded the possibility of placing communications satellites in geosynchronous orbit for the first time?

(a) Edwin P Hubble (b) William Herschel

(c) Arthur C Clarke (d) Pierre Laplace

Ans. (c)

[SSC SO Exam 2005]

Expl:– Arthur C Clarke was a British Science fiction author, inventor and futurist, famous for his short stories and novels, among them 2001.

A Space Odyssey (1968) and as a host and commentator in the British television series Mysterious World. Clarke has contributed to the popularity of the idea that geostationary satellites would be ideal telecommunications relays.

He described this concept in a paper titled Extra-Terrestrial Relays Can Rocket Stations Give Worldwide Radio Coverage, published in Wireless World in October, 1945. The geostationary orbit is now sometimes known as the Clarke orbit or the Clarke belt in his honour.

Clarke was also a science writer, who was both an avid populariser of space travel and a futurist of uncanny ability, who won a Kalinga Prize (Award given by UNESCO for popularising science) in 1961.

34. Which space vehicle put man on the Moon first time?

(a) Apollo (b) Challenger

(c) Columbia (d) Explorer

Ans. (a)

[SSC Tax Asst. Exam 2005]

Expl:– Apollo 11 was the spaceflight that landed the first humans, Americans Neil Armstrong and Buzz Aldrin, on the Moon on 20th July, 1969. Armstrong became the first to step onto the lunar surface 6 hours later on 21 st July. Armstrong spent about V/2 hours outside the spacecraft, Aldrin slightly less and together they collected 47.5 pounds (21 kg) of lunar material for return to Earth.

35. Which is the latest satellite of India placed in the geosynchronous orbit?

(a) INSAT-2D (b) INSAT-3A
(c) INSAT-4A (d) Kalpana

Ans. (b) [SSC Tax Asst. Exam 2004]

Expl:– INSAT-3A, a multipurpose satellite built by ISRO was launched by Ariane in April, 2003. It is located at 93° East longitude. It is third satellite INSAT-3 series after INSAT-3B and INSAT-3C, it will provide communication, weather and search and rescue services. INSAT 3A was launched by Ariane-5 launch vehicle of Arianespace on 10th April, 2003 at 4.22 am 1ST from Kourou, French Guyana.

36. Saha Institute of Nuclear Physics is situated at-

(a) Mumbai (b) Kolkata
(c) Chennai (d) New Delhi

Ans. (b) [SSC CPO Exam 2004]

Expl:– The Saha Institute of Nuclear Physics (SINP) is an institution of basic research and training in physical and biophysical sciences located in Bidhannagar, Kolkata, India. The institute is named after the famous Indian physicist Meghnad Saha and established in 1949.. Present Director is Professor Milan K Sanyal

37. What is the name given to India's Meteorological Research Satellite (Met Sat) launched in 2003?

(a) Aryabhata-1 (b) Kalpana-1
(c) Bhaskara-1 (d) Vikram-1

Ans. (b) [SSC CPO Exam 2004]

Expl:– Kalpana-I is an exclusive meterological satellite launched by PSLV in September, 2002. It carries very high resolution radiometer and DRT payloads to provide meterological services. It is located at 74 degree East longitude. Its first name was METSAT. It was later renamed as Kalpana-I to commemorate Kalpana Chawla.

38. What is the name given to India Lunar Mission?

(a) Vikram-I (b) Kalpana-II
(c) Chandrayan-I (d) INSAT-5

Ans. (c) [SSC CPO Exam 2004]

Expl:– Chandrayan-I was India's first unmanned lunar probe. It was launched by the Indian Space Research Organisation in October, 2008 and operated until August, 2009. The mission included a lunar orbiter and an impactor.

India launched the spacecraft with a modified version of the PSLV, PSLV C11 on 22nd, October, 2008 from Satish Dhawan Space Centre, Sriharikota, Nellore district, Andhra Pradesh. The mission was a major boost to India's space programme, as India researched and developed its own technology.

39. The premier national centre for research in space and allied sciences, named the Physical Research Laboratory, is situated at–

(a) Ahmedabad (b) Dehradun
(c) Pune (d) Bangalore

Ans. (a) [SSC CPO Exam 2004]

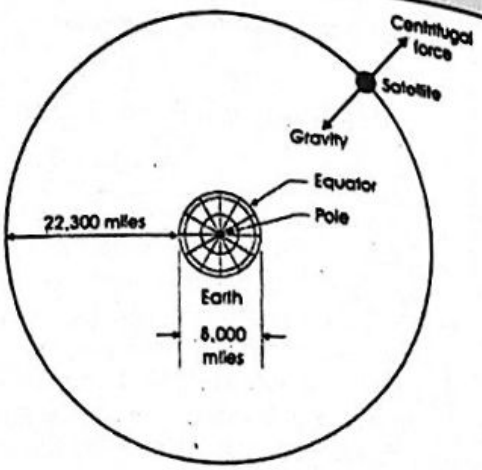
Expl:– The Physical Research Laboratory (PRL) is a National Research Institute for space and allied sciences, supported mainly by Department of Space, Government of India. This research laboratory has on going research programmes in Astronomy and Astrophysics, Atmospheric Sciences and Acronomy, Earth Science, Solar System Studies and Theoretical Physics. It manages the Udaipur Solar Observatory located in Ahmedabad and established in 1947 and present director is JN Goswami.

40. Geostationary satellite revolves at–

(a) any height
(b) fixed height
(c) height which depends upon its mass
(d) height above pole

Ans. (*) [SSC SO Exam 2003]

Expl:– Eatrh Geo-stationary Satellite The satellite , above the Equator of surface around height of (35900 km) in a stationary position is called Geostationary Satellite.



41. The process in which nitrogen is released into the atmosphere is–

(a) Ammonification
(b) Denitrification
(c) Biological nitrogen fixation
(d) Nitrification

Ans. (c) [SSC Matric Level Exam 2002]

Expl:– Nitrogen fixation is a process by which nitrogen (N_2) in the atmosphere is converted into ammonia (NH_3). Atmospheric nitrogen or molecular nitrogen (N_2) is relatively inert it does not easily react with other chemicals to form new compounds.

It is essential for all forms of life because nitrogen is required to bio-synthesise basic building blocks of plants, animals and other life forms, e.g., nucleotides for DNA and RNA and amino acids for proteins.

42. A Nuclear Power Station is located at–

(a) Kolkata
(b) Tarapur
(c) Korba
(d) Neyveli

Ans. (b) [SSC Matric Level Exam 2002]

Expl:– Tarapur Atomic Power Station (TAPS), located in Tarapur in Maharashtra, was initially constructed with two Boiling Water Reactor (BWR) units of 210 MW each initially by bechtel and GE under the 1963.

Agreement between India, the United States and the International Atomic Energy Agency. Tarapur is the largest nuclear power station in India.

43. Who regulates the slots where the geosynchronous satellites should be placed?

(a) UN Secretary General
(b) International Telecommunication Union
(c) NASA
(d) Glaukosmos

Ans. (b) [SSC SO Exam 2001]

Expl:– The UN agency that regulates the use of geosynchronous orbitals is the International Telecommunications Union. Regulation of these satellites is necessary, because there are limited number of places to put them in orbit without the risk of interference with other satellites or collision with space debris.

In addition, the 'Orbital slots' (Where the satellites are placed) over industrialised areas are in much more demand than in lesser developed areas.

Slots over lesser developed countries with a location that would give a satellite coverage of industrialised countries are also in demand.

44. Indira Gandhi Centre for Atomic Research is situated in–

(a) Shriharikota
(b) Mumbai
(c) Thiruvananthapuram
(d) Kalpakkam

Ans. (d) [SSC Matric Level Exam 2000]

Expl:– The Reactor Research Centre was set-up at Kalpakkam, 80 km South of Chennai, in 1971 under the Department of Atomic Energy (DAE). It was renamed Indira Gandhi Center for Atomic Research (IGCAR). It is the first of its kind in the world to use Plutonium, Uranium mixed carbide as a driver fuel. The Director of IGCAR is Dr PR Vasudev Rao.

45. Who was the first person to set foot on the Moon?

(a) Yuri Gagarin (b) Valentina Tereshkova
(c) Neil Armstrong (d) Steven Sptelberg

Ans. (c) [SSC Matric Level Exam 2000]

Expl:– Neil Alden Armstrong was an American Astronaut and the first person to walk on the Moon.