

WBCS (Main) Exam Paper – IV Practice Set

Answers with Explanation

1. (c) Barak is an Israeli surface-to-air missile (SAM) designed to be used as a ship-borne point-defense missile system against aircraft, anti-ship missiles, and UAVs. The missile of Barak SAM system is designed to replace or complement gun-based CIWS platforms, such as the Phalanx CIWS, with a more flexible and longer-range SAM. The missiles are mounted in an eight cell container (which requires little maintenance) and are launched straight up. The launcher of Barak SAM system utilizes a compact vertical launching system, with an 8-cell module weighing 1,700 kg. Fire control is provided by an equally compact C3I system that weighs 1,300 kg, which can either operate independently or in conjunction with other onboard sensors. The radar system of C3I provides 360 degree coverage and the missiles can take down an incoming missile as close as 500 meters away from the ship. Note : Recently, India & Israel jointly developed most advanced long range surface to air missile Barak-8 was successfully test fired off the Odisha coast. Reports suggest the missile has been increased to a maximum range of 90 km following “range upgrade discussions” between India and Israel during November 2014. Barak 8 was jointly developed by Israel Aerospace Industries (IAI), India’s Defence Research & Development Organization (DRDO), Israel’s Administration for the Development of Weapons and Technological Infrastructure, Elta Systems, Rafael and other companies. Bharat Dynamics Limited (BDL) produces the missiles. ~~ଆମିକ୍ସ~~
2. (c) The Boeing B-52 Stratofortress is a long-range, subsonic, jet-powered strategic bomber. The B-52 was designed and built by Boeing, who have continued to provide support and upgrades. It has been operated by the United States Air Force (USAF) since the 1950s. The bomber carries up to 32,000 kg of weapons. Due to the late 1950s-era threat of surface-to-air missiles (SAMs) that could threaten high-altitude aircraft, seen in practice in the 1960 U-2 incident, the intended use of B-52 was changed to serve as a low-level penetration bomber during a foreseen attack upon the Soviet Union, as terrain masking provided an effective method of avoiding radar and thus the threat of the SAMs. Although never intended for the low level role, the B-52’s flexibility allowed it to outlast several intended successors as the nature of aerial warfare changed. ~~ଆମିକ୍ସ~~
3. (a) Dundigal Air Force Academy (ICAO: VODG) is located at Hyderabad, in the state of Andhra Pradesh, India. The Air Force Academy was established in 1969 and started in 1971. It is located at Dundigal, about 25 km away from the twin cities of Hyderabad and Secunderabad, spread over 7,000 acres of land. The academy was set up to train cadets from all streams at one location. It imparts training to the Flying, Technical and Ground Duty Branches as well as officers of the Army and Navy. This is a home for the officer trainees who learn their specialisation and are nurtured to become capable leaders. After one year’s training, officer cadets are commissioned into branches of the IAF. It is here that they are trained to learn flying through successive stages. ~~ଆମିକ୍ସ~~
4. (c) 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. A geostationary orbit, or Geostationary Earth Orbit (GEO), is a circular orbit 35,786 kilometres 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), and thus appears motionless, at a fixed position in the sky, to ground observers.
5. (d) The Apollo missions were a series of space missions, both manned and unmanned, flown by NASA between 1961 and 1975. They culminated with a series of manned Moon landings between 1969 and 1972. The first manned flight of Apollo was in 1968 and it

succeeded in landing the first humans on Earth's Moon in 1969 through 1972. It was during the Apollo 11 mission that astronauts Neil Armstrong and Buzz Aldrin landed their Lunar Module (LM) on the Moon on July 20, 1969 and walked on its surface while Michael Collins remained in lunar orbit in the command spacecraft, and all three landed safely on Earth on July 24.

অ্যাডভান্স

6. (c) 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.

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7. (d) A geostationary orbit, or Geostationary Earth Orbit (GEO), is a circular orbit 35,786 kilometres 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), and thus appears motionless, at a fixed position in the sky, to ground observers. Communications satellites and weather satellites are often given geostationary orbits, so that the satellite antennas that communicate with them do not have to move to track them, but can be pointed permanently at the position in the sky where they stay. A geostationary orbit is a particular type of geosynchronous orbit.

অ্যাডভান্স

8. (b) The Government of India launched the Integrated Guided Missile Development Program in 1983 to achieve self sufficiency in the development and production of wide range of Ballistic Missiles, Surface to Air Missiles etc. Prithvi was the first missile to be developed under the Program. DRDO attempted to build Surface-to-air Missile under Project Devil. The Prithvi missile project encompassed developing 3 variants for use by the Indian Army, Indian Air Force and the Indian Navy. Over the years these

specifications underwent a number of changes. While the codename Prithvi stands for any missile inducted by India into its armed forces in this category, the later developmental versions are codenamed as Prithvi II and Prithvi III. Prithvi I class was a surface-to-surface missile having a maximum warhead mounting capability of 1,000 kg, with a range of 150 km. It has an accuracy of 10–50 metres and can be launched from Transporter erector launchers. This class of Prithvi missile was inducted into the Indian Army in 1994.

9. (b) The Supernova is a stellar explosion that is more energetic than a nova. The explosion expels much or all of a star's material. Supernovae can be triggered in one of two ways: by the sudden reignition of nuclear fusion in a degenerate star; or by the collapse of the core of a massive star. The core of an aging massive star may undergo sudden gravitational collapse, releasing gravitational potential energy that can create a supernova explosion. Alternatively a white dwarf star may accumulate sufficient material from a stellar companion (either through accretion or via a merger) to raise its core temperature enough to ignite carbon fusion, at which point it undergoes runaway nuclear fusion, completely disrupting it.

অ্যাডভান্স

10. (c) We see colors because of the way light is reflected off of objects or substances. Light can either be absorbed into the object (or substance) or reflected. If an object or substance absorbs all wavelengths (colors) except blue, blue will be reflected and that is the color we see. If a substance absorbs all wavelengths except red and yellow the object will appear orange. If an object or substance absorbs no wavelengths but reflects them all, it is white not black, as you might think. The color white is a combination of all colors. Black is the absence of any color. Space is black because there are no substances or objects to reflect back any color (or all colors, 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 colors, so it is black.

অ্যাডভান্স

11. (d) 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, along with 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 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. 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, SLV-3, was launched in 1980. ISRO subsequently developed two other rockets: the Polar Satellite Launch Vehicle (PSLV) for putting satellites into polar orbits and the Geosynchronous Satellite Launch Vehicle (GSLV) for placing satellites into geostationary orbits. These rockets have launched numerous communications satellites, earth observation satellites, and, in 2008, Chandrayaan-1, India's first mission to the Moon.
 12. (b) Dr A.P.J. Abdul Kalam is the undisputed father of India's missile program. He has breathed life into ballistic missiles like the Agni and Prithvi, which put China and Pakistan well under India's missile range. It is too exhausting to track Dr Abdul 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.
 13. (c) Himadri Station is India's first Arctic research station located at Spitsbergen, Svalbard, Norway. It is located at the International Arctic Research base, Ny-Ålesund. The station is operated by National Centre for Antarctic and Ocean Research. The station was inaugurated in 2008 by Kapil Sibal, Minister for Science & Technology.
- Note : Himadri Station is India's first Arctic research station located at Spitsbergen,

Svalbard, Norway. It is located at the International Arctic Research base, Ny-Ålesund. At Arctic, meteorological, biological, glaciological and past climate studies are under taken in the vicinity of the station 'Himadri'. Local boats are hired for marine research.

অর্থাৎ

India presently has two research stations at Antarctica namely 'Maitri' and 'Bharati'. New station 'Bharati' has just been constructed and established in March, 2013. At both the stations, research and investigations are undertaken to understand the Polar processes and phenomenon. Observations and studies are carried out in atmospheric, biological, geological, ecological sciences etc. Maitri station has been in operation since 1989.

Dakshin Gangotri was the first scientific base station of India situated in Antarctica, part of the Indian Antarctic Program. It is currently being used as a supply base and transit camp.

14. (d) Subrahmanyan Chandrasekhar was an Indian-American astrophysicist who, with William A. Fowler, won the 1983 Nobel Prize for Physics for key discoveries that led to the currently accepted theory on the later evolutionary stages of massive stars. The Chandrasekhar limit is named after him. Chandrasekhar was the nephew of Sir Chandrasekhara Venkata Raman, who won the Nobel Prize for Physics in 1930. Chandrasekhar in distinct periods worked in various areas including stellar structure, theory of white dwarfs, stellar dynamics, theory of radiative transfer, quantum theory of the negative ion of Hydrogen, hydrodynamic and hydro-magnetic stability, equilibrium and the stability of ellipsoidal figures of equilibrium, general relativity, mathematical theory of black holes and theory of colliding gravitational waves.
15. (c) 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 downlink frequencies to receivers on Earth, often without changing the content of the received signal or signals.

- The term is a portmanteau for Transmitter-responder. অ্যাজিউর্ন
16. (a) The total annual external dose from sources in soil and cosmic rays in Mumbai, Kolkata, Chennai, Delhi and Bengaluru is 0.484, 0.81, 0.79, 0.70 and 0.825 milligray respectively. Gray is a unit for absorbed dose; when the radiation energy imparted to a kg of material is one joule, it is called a gray. Since gray is very large, milligray (one thousandth of a gray), and microgray (one millionth 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. At high altitudes, the protection from the column of air is less. The cosmic ray contributions are higher at 0.31 milligray and 0.44 milligray respectively at Delhi and Bengaluru as these cities are at altitudes of 216 metre and 921 metre. Air passengers receive 5 microgray per hour from cosmic rays. Parts of Kerala and Tamil Nadu are high background radiation areas (HBRA) because of the presence of large quantities of monazite in the soil. Thorium content in monazite ranges from 8-10.5 per cent. Researchers found that the radiation levels in 12 Panchayats in Karunagappally varied between 0.32 to 76 milligrays per year; the levels in 90 per cent of over 71,000 houses were more than one milligray per year. অ্যাজিউর্ন
17. (b) A geostationary satellite is an earth-orbiting satellite, placed at an altitude of approximately 35,800 kilometers (22,300 miles) directly over the equator, that revolves in the same direction the earth rotates (west to east). At this altitude, one orbit takes 24 hours, the same length of time as the earth requires to rotate once on its axis. The term geostationary comes from the fact that such a satellite appears nearly stationary in the sky as seen by a ground-based observer. অ্যাজিউর্ন
18. (c) 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 biosynthesize basic building blocks of plants, animals and other life forms, e.g., nucleotides for DNA and RNA and amino acids for proteins. অ্যাজিউর্ন
19. (d) Astra is an active radar homing beyond-visual-range air-to-air missile (BVRAAM) developed by the Defence Research and Development Organisation (DRDO), India. Astra is designed to be capable of engaging targets at varying range and altitudes allowing for engagement of both short-range targets (up to 20 km) and long-range targets (up to 80 km) using alternative propulsion modes.
20. (d) Ocean Thermal Energy Conversion (OTEC) uses the temperature difference between cooler deep and warmer shallow or surface ocean waters to run a heat engine and produce useful work, usually in the form of electricity. However, the temperature differential is small and this impacts the economic feasibility of ocean thermal energy for electricity generation. The most commonly used heat cycle for OTEC is the Rankine cycle using a low-pressure turbine. অ্যাজিউর্ন
21. (a) A renewable resource is an organic natural resource that can replenish in due time compared to the usage, either through biological reproduction or other naturally recurring processes. Examples include: solar energy, geothermal energy, wind energy, tidal energy, etc.
22. (c) Central Building Research Institute: Roorkee, Uttarakhand, Central Arid Zone Research Institute: Jodhpur, Rajasthan, Central Drug Research Institute: Lucknow, Uttar Pradesh, and Central Institute of Mining and Fuel Research: Dhanbad, Bihar.
23. (b) When the missile is launched with a velocity less than the escape velocity, it will be influenced by our gravitation. So it will constitute a bound system for which the total energy (sum of its kinetic energy and potential energy) will be negative. অ্যাজিউর্ন
24. (c) In physics, cryogenics is the study of the production and behaviour of materials at very low temperatures. It is not well-defined at what point on the temperature scale refrigeration ends and cryogenics begins, but scientists assume it starts at or below -150°C (123 K; -238°F). অ্যাজিউর্ন
25. (b) Non-conventional energy, also known as renewable energy, refers to energy that is collected from renewable resources, which

are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat. Non-conventional energy sources are infinite, natural, and restorable. Natural gas is a conventional source of energy.

26. (c) Organic farming is a form of agriculture that relies on techniques such as crop rotation, green manure, compost, and biological pest control. It uses fertilizers and pesticides if they are considered natural (such as bone meal from animals or pyrethrin from flowers), but it excludes the use of synthetic petrochemical fertilizers and pesticides, plant growth regulators, etc. ଆଚ୍ଛାଡ଼ିବିନି
27. (d) Most of environmental (air) pollution results from the burning of fossil fuels, such as coal, oil, natural gas, and gasoline to produce electricity and power. All these produce harmful CO₂ or its variants. On the contrary, when hydrogen burns in air, it produces nothing but water vapor. It is therefore the cleanest possible as it doesn't produce CO₂.
28. (a) Apple is a pome, a simple, fleshy but false fruit as it is surrounded by a fleshy thalamus which is edible while actual fruit lies within. Other examples are pear, loquat, etc.
29. (d) Newton's Law of Cooling states that the rate of temperature of the body is proportional to the difference between the temperature of the body and that of the surrounding medium. When a body cools by radiation, then rate of cooling depends upon the following factors:
 - Nature of the radiating surface, that is, emissivity;
 - Area of the radiating surface; ଆଚ୍ଛାଡ଼ିବିନି
 - Mass of the radiating surface;
 - Specific heat of the radiating body;
 - Temperature of radiating body and
 - Temperature of the surrounding.
30. (b) Biotic resources describe living or once living resources of a community; for example organisms, such as plants and animals. They are obtained from the biosphere and have life. The resources which are composed of non-living things are called Abiotic Resources. For example, water, minerals, metals, wind, solar energy etc. ଆଚ୍ଛାଡ଼ିବିନି
31. (d) The maximum 20% of the input of solar energy falling on leaves is converted into chemical energy by green plants. Green plants utilize solar energy and synthesize sugar from CO₂ and water through the process of

photosynthesis. However, they are able to utilize only 3% of the light energy that strikes on their green parts; the rest is dissipated as heat. ଆଚ୍ଛାଡ଼ିବିନି

32. (b) Since alpha particles are high in ionizing power, it is difficult for them to penetrate matter thoroughly. This is because alpha particles are likely to ionize the first thing they come into contact with; thus, they hold a small range of penetrating power. Beta rays have intermediate; while, Gamma Rays and X Rays have maximum penetrating power. ଆଚ୍ଛାଡ଼ିବିନି
33. (b) Biodiversity includes three main types: diversity within species (genetic diversity), between species (species diversity) and between ecosystems (ecosystem diversity). Ecological diversity is the intricate network of different species present in local ecosystems and the dynamic interplay between them. ଆଚ୍ଛାଡ଼ିବିନି
34. (a) An ecosystem is defined as any community of living and non-living things that work together. Biotic components are the living things that shape an ecosystem. All non-living components of an ecosystem is called abiotic components such as temperature, light, moisture, air currents, etc. ଆଚ୍ଛାଡ଼ିବିନି
35. (b) The ozone layer refers to a region of Earth's stratosphere that absorbs most of the Sun's ultraviolet (UV) radiation. It absorbs 97–99% of the Sun's medium-frequency ultraviolet light (from about 200 nm to 315 nm wavelength), which otherwise would potentially damage exposed life forms near the surface. ଆଚ୍ଛାଡ଼ିବିନି
36. (c) National Aeronautics and Space Administration (NASA) has developed a series of interactive maps and graphs to describe the global climate and how it has changed over time. They focus on 5 key climate indicators:
 - carbon dioxide concentration
 - global surface temperature
 - Arctic sea ice
 - land ice
 - sea level ଆଚ୍ଛାଡ଼ିବିନି
37. (d) Most of Earth's oxygen comes from tiny ocean plants – called phytoplankton – that live near the water's surface and drift with the currents. Like all plants, they photosynthesize – that is, they use sunlight and carbon dioxide to make food. Scientists believe that phytoplankton contribute between 50 to 85 percent of the

oxygen in Earth's atmosphere (*National Geographic*). অ্যাচিভার্স

38. (a) According to the US Environmental Protection Agency (EPA), automobile emissions are the number one source of carbon monoxide, lead, nitrogen oxides, and volatile organic compounds released into the atmosphere that are primarily responsible for air pollution. Industrial processes are the number two cause of lead pollution in the air, following automobile emissions. অ্যাচিভার্স
39. (c) Bioremediation is a waste management technique that involves the use of organisms to remove or neutralize pollutants from a contaminated site. It uses naturally occurring organisms to break down hazardous substances into less toxic or non-toxic substances. There are two classes of bioremediation used : In situ and Ex situ. অ্যাচিভার্স
40. (c) The greenhouse effect occurs when Earth's atmosphere traps solar radiation because of the presence of certain gases, causing the heating of the earth. These greenhouse gases include water vapor, CO₂, methane, nitrous oxide (N₂O) and other gases, according to the Environmental Protection Agency (EPA). অ্যাচিভার্স
41. (d) Reverse osmosis (RO) is a water purification technology that uses a semipermeable membrane to remove ions, molecules, and larger particles from drinking water. It can remove many types of dissolved and suspended species from water, including bacteria, and is used in both industrial processes and the production of potable water. It is most commonly known for its use in drinking water purification form. অ্যাচিভার্স
42. (c) DDT is a persistent organic pollutant that is readily adsorbed to soils and sediments, which can act both as sinks and as long-term sources of exposure affecting organisms. Besides, spraying pesticides like DDT on plants pollutes the ground water system which contaminates the entire food chain by severely affecting humans dependent on these. অ্যাচিভার্স
43. (d) Global Warming is the increase of Earth's average surface temperature due to effect of greenhouse gases, such as carbon dioxide emissions from burning fossil fuels or from deforestation, which trap heat that would otherwise escape from Earth. It will lead to increase in sea level due to melting of polar ice, desertification leading to changes in crop patterns, change in coastal line due to their submergence. অ্যাচিভার্স
44. (c) Ecotone regions (transitional zones) like mangroves, wetlands, estuaries, grasslands etc. have far greater productivity compared to natural ecosystems like forest ecosystem, ocean ecosystem, pond ecosystem, riverine ecosystem, desert ecosystem etc. This is because of the wide-ranging species from the adjacent ecosystems being present in the ecotone. Also, an estuary has very little wave action, so it provides a calm refuge from the open sea and hence becomes ideal for the survival of numerous aquatic species. Estuaries are most heavily populated areas throughout the world, with about 60% of the world's population living along estuaries and the coast. অ্যাচিভার্স
45. (a) Gases that trap heat in the atmosphere are called green house gases. Global Warming Potentials (GWPs) are used to compare the abilities of different green house gases to trap heat in the atmosphere. Carbon dioxide is used as the base for all the calculations, so its global warming potential is 1.2. The higher the GWP, the more heat the specific gas can keep in the atmosphere. Fluorinated gases : Chlorofluorocarbons, Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride : are synthetic, powerful greenhouse gases that have highest heat trapping abilities. These gases are 1,000; 10,000 even 20,000 times more powerful than Carbon dioxide (CO₂) at trapping heat and many can stay in our atmosphere for thousands of years. অ্যাচিভার্স
46. (b) The Centrally-Sponsored Scheme of District Primary Education Programme (DPEP) was launched in 1994 as a major initiative to revitalise the primary education system and to achieve the objective of universalisation of primary education. The remaining amount is required to be spent on quality improvement activities. It is supported by World Bank in India. অ্যাচিভার্স
47. (b) Individualism is the moral stance, political philosophy, ideology, or social outlook that stresses "the moral worth of the individual". Individualists promote the exercise of one's goals and desires and so value independence and self-reliance while opposing external interference upon one's own interests by society or institutions such as the government. অ্যাচিভার্স

48. (b) ADB has assisted the transport sector of India since the start of its operations there in 1987. The first ADB loan (US dollar 177 million) provided for development of national highways in three States, Andhra Pradesh, Haryana and Uttar Pradesh and state highways in Andhra Pradesh, Karnataka and Tamil Nadu. The second ADB loan (US dollar 250 million) provides for improvement in Karnataka, Kerala, Rajasthan and of state roads in Andhra Pradesh, Orissa, Uttar Pradesh and West Bengal. The NH projects in Andhra Pradesh and Orissa have been substantially completed. Remaining projects are in progress. The third ADB loan covers national highways projects in Andhra Pradesh, Haryana, Rajasthan, Bihar and West Bengal. শ্রীচর্চা
49. (a) The supercarrier USS Kitty Hawk (CV-63), formerly CVA-63, was the second naval ship named after Kitty Hawk, North Carolina, the site of the Wright brothers' first powered airplane flight. Kitty Hawk was both the first and last active ship of her class, and the last oil fired aircraft carrier in service with the US Navy. শ্রীচর্চা
50. (d) Paper Gold is measure of a country's reserve assets in the international monetary system. It is also called Special Drawing Rights (SDR) which are supplementary foreign exchange reserve assets defined and maintained by the International Monetary Fund (IMF). Not a currency, SDRs instead represent a claim to currency held by IMF member countries for which they may be exchanged.
51. (b) Al-Ahram, founded in 1875, is the most widely circulating Egyptian daily newspaper, and the second oldest after al-Waqa'i' al-Masriya (The Egyptian Events, founded 1828). It is majority owned by the Egyptian government. Izvestia is a long-running high-circulation daily broadsheet newspaper in Russia. It was a newspaper of record in the Soviet Union from 1917 until the dissolution of the USSR in 1991. The Daily News Newspaper is serving the Longview metropolitan area like New York in U.S. The People's Daily is a daily newspaper in the People's Republic of China. শ্রীচর্চা
52. (a) Shri Jamini Roy (April 1887 – 24 April 1972): an Indian painter; Bhuvneshwari Kumari: a former woman squash champion of India; Qureshi Alla Rakha Khan: popularly known as Alla Rakha (29 April 1919 – 3 February 2000) was an Indian tabla player; and Medha Patkar: is an Indian environmental activist. শ্রীচর্চা
53. (b) The World Intellectual Property Organization (WIPO) is one of the 17 specialized agencies of the United Nations. WIPO was created in 1967 "to encourage creative activity, to promote the protection of intellectual property throughout the world. WIPO currently has 185 member states, administers 24 international treaties, and is headquartered in Geneva, Switzerland. শ্রীচর্চা
54. (d) The Indus Waters Treaty is a water-sharing treaty between the Republic of India and Islamic Republic of Pakistan, brokered by the World Bank (then the International Bank for Reconstruction and Development). The treaty was signed in Karachi on September 19, 1960 by Indian Prime Minister Jawaharlal Nehru and President of Pakistan Mohammad Ayub Khan. the treaty gives India exclusive use of all of the waters of the Eastern Rivers the Sutlej, the Beas and the Ravi. Similarly, Pakistan has exclusive use of the Western Rivers the Indus, the Jhelum and Chenab.
55. (b) On May 18, 1974, India became the sixth nation to successfully explode an atomic bomb. After its first test in 1974, India spent another couple decades developing thermonuclear weapons, which it tested in 1998. শ্রীচর্চা
56. (a) The 7 July 2005 London bombings (often referred to as 7/7) were a series of co-ordinated suicide attacks in London which targeted civilians using the public transport system during the morning rush hour. On the morning of Thursday, 7 July 2005, four Islamist home-grown terrorists detonated four bombs, three in quick succession aboard London Under- ground trains across the city and, later, a fourth on a double decker bus in Tavistock Square. Fifty-two civilians and the four bombers were killed in the attacks, and over 700 more were injured. শ্রীচর্চা
57. (c) Ecomark or Ecomark is a certification mark issued by the Bureau of Indian Standards (the national standards organization of India) to products conforming to a set of standards aimed at the least impact on the ecosystem. The marking scheme was started in 1991. One of the purposes of the mark is increasing

- awareness among the consumers towards reducing environment impact. অ্যাডভান্স
58. (b) Guinness World Records, known until 2000 as The Guinness Book of Records (and in previous U.S. editions as The Guinness Book of World Records), is a reference book published annually, containing a collection of world records, both human achievements and the extremes of the natural world. Twins Norris and Ross McWhirter compiled The Guinness Book of Records in August 1954. After founding the Guinness Book of Records at 107 Fleet Street, London, the first 197-page edition was bound on 27 August 1955 and went to the top of the British bestseller lists by Christmas. অ্যাডভান্স
59. (b) The rock garden or Rock Garden of Chandigarh is a Sculpture garden in Chandigarh, India, also known as Nek Chand's Rock Garden after its founder Nek Chand, a government official who started the garden secretly in his spare time in 1957. The Rock Garden is made out of recycled materials; and with the government's help, Chand was able to set up collection centers around the city for waste, especially rags and broken ceramics.
60. (d) A lapidary (or lapidarist) is an artist or artisan who forms stone, mineral, gemstones into decorative items such as engraved gems, including cameos, or cabochons, and faceted designs, or who is an expert in precious stones; and can be a collector of or dealer in gems. Diamond cutters are generally not referred to as lapidaries, due to the specialized techniques which are required to work diamond.
61. (a) Rodney George "Rod" Laver MBE is an Australian former tennis player who holds the record for most singles titles won in the history of tennis, with 200 career titles. Chanda Kochhar is currently the Managing Director of ICICI Bank and Chief Executive Officer. Pandit Birju Maharaj is currently the leading exponent of the Lucknow Kalka-Bindadin gharana of Kathak dance in India. M. Balamuralikrishna: Carnatic vocalist, multi-instrumentalist, playback singer, composer and actor. অ্যাডভান্স
62. (c) The Wild life Institute of India (WII) is an autonomous institution under the Ministry of Environment and Forests, Government of India. The institute is based in Dehradun, India. It is located in Chandrabani, which is close to the southern forests of Dehradun.
63. (d) The Telecom Regulatory Authority of India (TRAI) is the independent regulator of the telecommunications business in India. It was established on 20 February 1997 by an act of parliament called "Telecom Regulatory Authority of India Act 1997". The mission of TRAI is to create and nurture an environment which will enable the quick growth of the telecommunication sector in the country.
64. (b) The Survey of India, headquartered at Dehradun, is India's central engineering agency in charge of mapping and surveying. Set up in 1767 to help consolidate the territories of the British East India Company, it is one of the oldest Engineering Departments of the Government of India. It is under the Department of Science & Technology which is a department within the Ministry of Science and Technology in India. অ্যাডভান্স
65. (c) Seoul is the capital and largest metropolis of South Korea. A megacity with a population of more than 10 million, it is the largest city proper in the OECD developed world. Pyongyang is the capital of the Democratic People's Republic of Korea, commonly known as North Korea, and the largest city in the country. অ্যাডভান্স
66. (d) Twin cities are a special case of two cities or urban centres that are founded in close geographic proximity and then grow into each other over time. Cities twinned geographically do not necessarily match demographically, economically, or politically. Examples of twin cities in India are: Ahmedabad and Gandhinagar, Gujarat, are looked upon as merging into a new twin city in-the-process; Kolkata and Howrah, West Bengal; Hyderabad and Secunderabad, Andhra Pradesh; Siliguri and Jalpaiguri, West Bengal; Durgapur and Asansol; etc. অ্যাডভান্স
67. (a) The Ghost and the Darkness is a 1996 historical adventure horror film starring Michael Douglas and Val Kilmer set in Africa at the end of the 19th century. Om Puri essayed the role of Abdulla in the movie.
68. (d) Chatrapati Shivaji International Airport: the primary international airport in Mumbai; Heathrow Airport: major international airport serving London, England; Paya Lebar Air Base: a military airbase of the Republic of Singapore Air Force located at Paya Lebar, in the central-

eastern part of Singapore; and Kai Tak Airport: international airport of Hong Kong from 1925 until 1998.

69. (d) The Teen Bigha Corridor is a strip of land belonging to India on the West Bengal–Bangladesh border, which in September, 2011, was leased to Bangladesh so that it can access its Dahagram–Angarpota enclaves. According to the Indira Gandhi–Sheikh Mujibur Rahman treaty of 1974, India and Bangladesh were to hand over the sovereignty of the Tin Bigha Corridor and South Berubari to each other, thereby allowing access to the Dahagram–Angarpota enclaves and the Indian enclaves adjacent to South Berubari. Bangladesh did hand over the sovereignty of the smaller South Berubari to India instantly in 1974. India, however, refused to transfer the Tin Bigha Corridor to Bangladesh.
70. (d) The Asian Development Bank (ADB) is a regional development bank established on 22 August 1966 to facilitate economic development of countries in Asia. The headquarters of the bank is at Manila, Philippines, and it has representative offices around the world.
71. (d) The Indian and Mongolian Armies conducted a joint training exercise, code-named Nomadic Elephant at Belgaum in Karnataka, India in August 2012. Nomadic Elephant aimed to improve the armies’ skills and interoperability while conducting counter-insurgency operations, and further enhance synergy between the two nations. The first Nomadic Elephant exercise was held in 2004, and was conducted almost annually until 2008 in Mongolia.
72. (c) Bull fighting: Spain; Cricket: Australia; and Baseball: United States; and Ju Jitsu: Japan.
73. (d) Man’s landing on Moon: 21 July 1969; Dolly: (5 July 1996; Completion of Human Genome Project: declared complete in April 2003; and Invention of Integrated Chip: The first ideas on how to build the chips were developed by Jack Kilby and Robert Noyce in 1958. In his patent application of 6 February 1959, Kilby described his new device as “a body of semiconductor material ... wherein all the components of the electronic circuit are completely integrated.”
74. (b) The Shaheed Minar, formerly known as the Ochterlony Monument, is a monument in

Kolkata that was erected in 1825 by Major general Sir David Ochterlony, commander of the British East India Company, commemorate both his successful defense of Delhi against the Marathas in 1804 and the victory of the East India Company’s armed forces over the Gurkhas in the Anglo-Nepalese War. In August 1969, it was rededicated to the memory of the martyrs of the Indian freedom movement and hence renamed the “Shaheed Minar”.

75. (a) Sabeer Bhatia is an Indian American entrepreneur who Founded the Hotmail email service and Jaxtr. He, along with his colleague Jack Smith, set up Hotmail on July 4, 1996 which remains the world’s largest e-mail provider with over 369 million registered users in the 21st century.
76. (b) Jawahar Navodaya Vidyalaya known as JNV are Indian schools for talented children and form a part of the system of gifted education. Its significance lies in the selection of talented rural children as the target group and the attempt to provide them with quality education comparable to the best in a residential school system, without regard to their family’s socio economic condition.
77. (d) Rail Bandhu is the first on-board magazine of the Railway which was launched by the then Railway Minister Mamata Banerjee in 2011. It is distributed free in the Rajdhani, Shatabdi and AC coaches of the Durantos.
78. (b) Sunderlal Bahuguna is a noted Garhwali environmentalist, Chipko movement leader and a follower of Mahatma Gandhi’s philosophy of Non-violence and Satyagraha. For years he has been fighting for the preservation of forests in the Himalayas.
79. (c) SAARC was established on 8 December 1985 when the government of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka formally adopted its charter. Afghanistan joined the organization in 2007, becoming the eighth member of the organization.
80. (d) Neil Armstrong, the first human to set foot on the moon, passed away on August 25, 2012. He set foot on the moon on July 20, 1969. Yuri Gagarin of the erstwhile USSR was the first man to go into space on April 12, 1961.
81. (b) Kotak Mahindra Bank has announced the launch of a two-month-long campaign called

- 'Kona Kona Umeed' to lift up hope and optimism among its customers in the midst of the COVID-19 pandemic. অ্যাচিভমেন্ট
82. (d) Confederation of Indian Industry organised the National Digital Conference on 'Easing Doing Business for Atmanirbhar Bharat' in partnership with the Department for Promotion of Investment and Internal Trade.
83. (d) Department of Defence, Ministry of Defence has signed a tripartite MoU with the Department of Administrative Reforms & Public Grievances (DARPG) and Indian Institute of Technology, Kanpur (IITK).
84. (a) Union Minister of Agriculture & Farmers' Welfare has launched the Sahakar Cooptube NCDC Channel, a new initiative of National Cooperative Development Corporation.
85. (a) The International Cricket Council has confirmed that India will host the ICC Men's T20 World Cup 2021.
86. (c) Maharashtra government has tied up with Google to provide online education to students in the state.
87. (d) The book titled 'Amazing Ayodhya' has been authored by Neena Rai. অ্যাচিভমেন্ট
88. (b) The 78th anniversary of the August Kranti Din or Quit India Movement, which is considered as one of the important milestones in the history of freedom struggle of our country, is being observed on 8 August 2020.
89. (d) Delhi government has launched the "Electric Vehicle Policy" for the national capital under which will waive registration fee, road tax, and provide an incentive of up to Rs 1.5 lakh for new cars. অ্যাচিভমেন্ট
90. (a) Union Minister of Youth and Sports, Kiren Rijju has launched "Fit India Youth Club" initiative to promote fitness among every citizen.
91. (a) Nagaland government has rolled out "Yellow Chain" a centralized e-commerce platform, to encourage local business and entrepreneurship in the state. অ্যাচিভমেন্ট
92. (a) Prime Minister Narendra Modi has announced the "One Sun, One World, One Grid (OSOWOG)" plan which will connect 140 countries through a common grid that will be used to transfer solar power.
93. (d) All India Football Federation (AIFF) has launched the web platform "E-Pathshala" in partnership with the Sports Authority of India (SAI).
94. (b) The 13th Session of the India-UAE Joint Commission Meeting on Trade, Economic and Technical Cooperation was held to review the continuing growth of broad based cooperation between the two countries. অ্যাচিভমেন্ট
95. (c) World Humanitarian Day (WHD) is observed globally on 19th August every year.
96. (d) Computer scientist Russell Kirsch who invented the "pixel" and scanned the world's first digital photograph, passed away.
97. (b) A mobile application has been launched for Urban Local Bodies (ULB) functionaries to source loan applications of street vendors under the Prime Minister Street Vendors AtmaNirbhar Nidhi Scheme.
98. (c) Indian rating agency, CARE Ratings has projected the GDP of India to contract in the range 8 to 8.2% for 2020-21 (FY21).
99. (b) The Ministry of Housing and Urban Affairs (MoHUA) has launched the Climate Smart Cities Assessment Framework (CSCAF) 2.0. The framework comprise of 28 indicators across five categories অ্যাচিভমেন্ট
100. (a) Japan's Naomi Osaka defeated Victoria Azarenka of Belarus to clinch the Women's Singles title in the 2020 US Open Tennis tournament.