

HINTS & SOLUTION

1. (d) Research is under process for presence of shale gas in Cambay basin at Mehsana, Ahmedabad and Bharuch districts of Gujarat, Cauvery basin at Nagapattinam in Tamil Nadu and in KG Basin at East and West Godavari districts of Andhra Pradesh.
2. (b) The API level is based on the level of 6 atmospheric pollutants, namely sulfur dioxide, nitrogen dioxide suspended particulates smaller than 10 μm (PM10), (PM2.5), carbon monoxide, and ozone measured at the monitoring stations. So by elimination we are left with option (b)
3. (d) A virus is a small infectious agent that replicates only inside the living cells of other organisms. Viruses can infect all types of life forms, from animals and plants to microorganisms, including bacteria and fungi
4. (a) The Swadeshi and Boycott Movement was an effort by Indian people to oppose British rule. It began when British officials separated the Bengal province.
5. (c) Satyashodhak Samaj is a society established by Jyotirao Phule in 1873. This was started as a group whose main aim was to liberate the social shudra and untouchable castes from exploitation and oppression.
6. (d) Montagu–Chelmsford Reforms were introduced in India to introduce self-governing institutions gradually to India. The reforms were outlined in the Montagu-Chelmsford Report prepared in 1918 and formed the basis of the Government of India Act 1919.
7. (b) In 1881, Keshab Chandra Sen established *NabaBidhan* (*New Dispensation*) meaning new universalist religion after having differences within BrahmoSamaj. He was also part of Indian reform association to legalize Brahmo marriage and to fix minimum age of marriage. Calcutta Unitarian Committee was formed by Raja Rammohan Roy, Dwarkanath Tagore and William Adam
8. (b) Extremists and moderates both seemed to be locking horns. The Extremists thought that the people had been encouraged and the battle for freedom had begun. They felt the time had come for the big push to drive the British out and considered the Moderates to be a stumbling block to the movement.
9. (b) James Prinsep decoded the edicts of emperor Ashoka.
10. (c) In Sanskrit the word Araghatta has been used in the ancient texts to describe the Persian Wheel. The ‘ara-

- ghatta' comes from the combination of the words 'ara' meaning spoke and 'ghatta' meaning pot.
11. (d) The Maagadha and the suutas were associated with memorizing of chronicles, dynastic histories and Epic tales.
 12. (c) Siddhas means the refined monotheistic creed existed. Sittar implies an expert in occultism, alchemy and so on with magic or superstitious powers. The lingayats believed that on death the devotee will be reunited with Shiva and not return to this world. Therefore instead of cremating the body, they ceremonially bury their dead. They criticised the caste system and questioned belief in the theory of rebirth. Certain practices were encouraged by the lingayats such as post-puberty marriages and widow remarriage.
 13. (c) In reign of Krishna Deva, land revenue was the main source of income of the government. To assess the proper revenue entire land was classified into four parts: the wet land, the dry land, the orchards and the woods. The government also levied other taxes like the grazing tax, the customs duty, tax on gardening and industries taxes on manufacture of various articles.
 14. (b) Saudi Arabia will host the 2034 FIFA world cup.
 15. (b) The Malavikagnimitra is a Sanskrit play by Kalidas. The play tells the love story of Agnimitra, the Shunga Emperor. He falls in love with the picture of an exiled servant girl named Malavika.
 16. (a) Iran is not the member of this middle eastern organization. Gulf Cooperation Council (GCC) is a political and economic alliance of six Middle Eastern countries—Saudi Arabia, Kuwait, the United Arab Emirates, Qatar, Bahrain, and Oman.
 17. (d) When Rajya Sabha Passes a Resolution If the Rajya Sabha declares that it is necessary in the national interest that Parliament should make laws on a matter in the State List, then the Parliament becomes competent to make laws on that matter. Such a resolution must be supported by two-thirds of the members present and voting.
 18. (b) For PRI Bodies minimum age is 21 years, to contest elections, so first statement is wrong.
 19. (b) A bill pending in the Rajya Sabha but not passed by the Lok Sabha does not lapse if the president has notified the holding of a joint sitting before the dissolution of Lok Sabha.
 20. (a) Under Article 168 of the Constitution of India: All executive actions of the Governor of a State shall

- be expressed to be taken in the name of Governor. Chief Secretary is "chosen" by Chief minister officially its expressed that chief Secretary is 'appointed' by the governor of the state
21. (d) Mechanical energy is the ability of an object to do work. This energy is equal to the sum of kinetic and potential energy, it is always constant.
 22. (d) X-rays are electro magnetic radiations. It has penetrating ability, so it is used in radiography, airport railway security and CT scanning. It is not affected by electric and magnetic fields.
 23. (b) An atomic clock uses an electron transition frequency in the microwave, optical, or ultraviolet region of the electromagnetic spectrum of atoms as a frequency standard for its timekeeping element. Caesium-based atomic clocks use the electromagnetic transitions of caesium-133 atoms as a reference point. Caesium is a chemical element with symbol Cs and atomic number 55. It is a soft, silvery-gold alkali metal.
 24. (a) Argon gas is used in fluorescent and incandescent light bulbs to stop the oxygen in the light bulbs from corroding the hot tungsten filament. The use of argon in light bulbs prevents the evaporation of the tungsten filaments, which results in increased light bulb life.
 25. (d) According to Rayleigh's law, the intensity of scattered light varies inversely as the fourth power of its wavelength. Sunlight consists of seven colours. Of these, red has the maximum wavelength. During sunrise and sunset, the rays have to travel a larger part of the atmosphere because they are very close to the horizon. Therefore, light other than red is mostly scattered away. Most of the red light, which is the least scattered, enters our eyes. Hence, the sun and the sky appear red.
 26. (c) The centre of mass of a body is the point where the whole mass of a body is considered to be concentrated. It may lie within or outside the body of an object. Fountain pen, cricket ball and book are all compact body and their centre of gravity lie within the body. The centre of mass of a ring is at its centre which is outside its body.
 27. (c) Semiconductors are solid substances that show electrical conductivity either with the addition of an impurity or because of temperature effects. Silicon, Germanium, and Galium Arsenide are semiconductors as they show electrical conductivity depending on the addition of impurity and temperature. Quartz is an insulator
 28. (d) In convex mirrors, the image is smaller than the object. This mirror provides a wider scope of view so it becomes easy for vehicles use.

29. (c) Liquids and gases show diamagnetic, paramagnetic and electromagnetic property, but it never show ferromagnetic property
30. (a) If any magnet is divided into two parts, every part will be a new magnet
31. (d) Nail varnish remover generally contains acetone.
32. (d) Baking soda has sodium bicarbonate as the chief constituent. It decomposes on heating giving carbon dioxide. This causes dough, cakes, biscuits etc. to expand and become light.
33. (a) Carbon occurs in its purest form of carbon black in nature.
34. (a) Rayon is made from naturally occurring cellulose. Rayon is also called artificial silk.
35. (b) Iodine is a powerful antiseptic. It is used as a tincture of iodine which is 2-3% iodine solution in alcohol- water.
36. (c) A chemical change a new substance is formed. During crystallisation of table salt from sea water no new substance is formed hence, it is not a chemical change.
37. (b) It increases the weight of iron nail due to the formation of rust.
38. (a) The coil in a heater is made up of nichrome because its melting point and resistivity are high.
39. (c) Silicosis is a chronic lung disease caused by breathing in silica dust. Silicosis (silico tuberculosis) occurs in workers whose occupation is related to pottery, ceramic, and glass industry.
40. (c) Substances like graphite and heavy water are used as moderator to slow down the speed of neutrons. Coolant like heavy water or molten sodium is used to carry away the heat. are used as control rods to control rate of fission by absorbing neutrons. Accelerator is not used.
41. (d) Titanium (Ti) metal is used for making boats because it does not corrode by the sea water.
42. (c) Contact lenses are made from lucite. It is a polymer of methyl methacrylate. The other names of lucite are plexiglass, acrylite and perspex.
43. (a) The water will freeze because on Moon the temperature is below the freezing point i.e., very low.
44. (d) Air would expand the most on being heated.
45. (c) Food cans are coated with tin instead of zinc because zinc is more reactive than tin. Tin is only reactive to

- powerful acids such as tri-sodium phosphate, while zinc is reactive towards acids.
46. (b) Water shows maximum density at 4°C. At freezing point it expands and density decreases.
47. (a) Oil become rancid due to oxidation. Oil contains fatty acid which react in presence of oxygen and become rancid. Rancid oil is a major source of destructive free radicals in our diet.
48. (d) Bakelite was invented by Leo Baekeland in New York in 1907. It is the first man made plastic.
49. (c) States of matter can be defined as the forms a substance can occur, and are of five types: solid, liquid, gas, plasma & Bose-Einstein condensates.
50. (a) A pearl is a hard object produced within the soft tissue of a living shelled mollusk. Just like the shell of a mollusk, a pearl is composed of calcium carbonate.
51. (b) Tincture of iodine, iodine tincture, or weak iodine solution is an antiseptic. It is usually 2–7% elemental iodine, along with potassium iodide or sodium iodide, dissolved in a mixture of ethanol and water. Tincture solutions are characterized by the presence of alcohol.
52. (a) The kidneys filter metabolic wastes, excess ions, and chemicals from the blood to form urine. The ureters are a pair of tubes that carry urine from the kidneys to the urinary bladder. The urethra is the tube through which urine passes from the bladder to the exterior of the body.
53. (b) Large intestine is the last part of alimentary canal where extra water is absorbed to prepare the waste as a solid stool. Renal tubule in kidney is responsible for absorption of water to produce proper concentration of urine.
54. (a) Carbohydrate
55. (a) Environmental changes affecting all regions the world and influence all organisms. Amphibians are one of the most sensitive groups to change, whether that is caused by habitat loss, invasive species, disease, trade or climate change.
56. (c) Carbon monoxide (CO) has strong affinity to combine/ bind with haemoglobin in blood to form carboxyhaemoglobin, which reduces oxygen carrying capacity of blood to cause headache, nausea, asphyxiation and fainting.
57. (a) Fluorine deficiency is a disorder which may cause increased dental caries.

58. (c) Insulin is a hormone made by the pancreas that allows your body to use sugar.
59. (a) Silk is a fibre produced by the silkworm in production of its cocoon. It consists mainly of two proteins, fibroin and sericin. Fibroin provides shiny appearance.
60. (d) Fresh urine has little to no odor. But if urine sits for a time — as can happen when a person is wearing protective underwear or an incontinence pad — the urine will begin to smell like ammonia. The smell is caused by bacteria that break down urea, a substance that is excreted in urine.
61. (a) Kidney directly controls water content of blood. Kidneys purify the blood by removing toxins from it, and in doing this water is excreted along with these toxins. Potassium and sodium elements are involved in the process.
62. (a) Adipocytes are cells that derive from multipotential mesenchymal cells; their main role is to store energy in the form of lipids to cushion and insulate the body from the outer environment.
63. (c) Lymph is also circulated by the blood circulating heart.
64. (b) In his book the “Rise of Marathas” M.G. Ramade explained about Maratha rule and its polity..
65. (d) India exported pearls, precious stones, cloth, perfumes, spices, indigo, silver, tin, lead, silk and horses.
66. (b) A guillotine is an apparatus designed for carrying out executions by beheading. The device is best known for its use in France, in particular during the French Revolution.
67. (b) The Tea Party was the culmination of a resistance movement throughout British America against the Tea Act, which had been passed by the British Parliament in 1773.
68. (d) Most of the South Indians participated in the movement except Karnataka which remained unaffected
69. (b) River Tungabhadra was the lifeline of Vijayanagar Kingdom. It provided sustenance to the empire.
70. (c) Yaudheyas were related with Johiya Kshatriyas residing near Muttan
71. (d) Dandin (8th century), a Sanskrit grammarian was a great writer and poet. His works are related with prose romance. His book Dashakumaracharita is a composition of tale of ten princes.

72. (c) Kamandaka's Nitisara is related to the subjects like political science, etc.
73. (a) The Lilavati is India Mathematician Bhaskara - II's treatise on mathematics
74. (d) The earlier name of Tokyo was Edo which literally means estuary.
75. (a) Harsha was first responsible for the compilation of 'Nibandhas' or digests of epic and Puranic texts.
76. (a) Mohandas Gandhi, who had resided in nearby Durban in 1893, established a small village-like settlement, Phoenix Settlement,
77. (a) The Mahavamsa spoke in glowing terms of an Indian king Ashoka who had ordained his own son and daughter and sent them to Sri Lanka to spread the Buddha's message.
78. (d) The script was deciphered in 1837 by James Prinsep, an archaeologist, philologist, and official of the East India Company.
79. (b) Seethalai Saathanaar is the author of the book 'Manimekalai'. The book is a poem in 30 cantos. Its story is a sequel of an epic 'Silappatikaram' that tells the story of the conversion to Buddhism
80. (c) Thailand does not have a border with China. The 14 countries touch the border of china which are India, Pakistan, Afghanistan, Tajikistan, Kyrgyzstan, Kazakhstan, Mongolia, Russia, North Korea, Vietnam, Laos, Myanmar, Bhutan and Nepal.
81. (c) Correct sequence is Rapids- Ox-bow Lake-Estuary.
82. (c) The temperature inside the earth's surface increases with depth. From 20 m below the earth's surface, the temperature increases at the rate of 1 degree Celsius for every 40 m of descent. This rapid increase of temperature continues up to a great depth.
83. (c) The horse latitudes are regions located at about 30 degrees north and south of the equator. These latitudes are characterized by calm winds and little precipitation.
84. (d) Any city north of the Tropic of Cancer will never have the sun directly overhead. Thus, Sri Nagar never gets vertical rays of the sun all through the year. Its latitude is approximately 34 degree north.
85. (c) Tapti does not flow in to the Bay of Bengal. The river rises in the eastern Satpura Range of southern Madhya Pradesh and flows into the Gulf of Cambay of the Arabian Sea.
86. (c) Africa and South America form a mirror image of each other.

87. (b) While the latitude of a particular location affects its climate, the longitude can determine the time zone a particular location is in.
88. (d) Loess soil is a wind-blown sedimentary deposit.
89. (b) The correct sequences of water bodies, from lower to higher salinity concentration, is Baltic sea- Arctic Sea- Gulf of California-Red sea.
90. (b) The Onges, a negrito tribe is inhabiting the Little Andaman Island in Andaman District. The Onges are pure hunter-gatherers. They are not aware of agriculture.
91. (c) The difference in time to the extent of 1 day on either side of the International Date Line is caused by rising of the sun in the east and not by inclined axis of the earth.
92. (c) Revolution of the earth is not associated with the generation of ocean current.
93. (b) Spring tides occur twice each lunar month all year long without regard to the season. Neap tides, which also occur twice a month happen when the sun and moon are at right angles to each other. During full or new moons- which occur when the earth, sun, and moon are nearly in alignment-average tidal ranges are slightly larger.
94. (b) Mercury, Mars, Venus, Earth, Uranus
95. (a) six states have a Legislative Council: Andhra Pradesh, Bihar, Karnataka, Maharashtra, Telangana and Uttar Pradesh. Tamil Nadu does not have Legislative Council.
96. (a) every Panchayat, unless sooner dissolved under any law for the time being in force, shall continue for five years from the date appointed for its first meeting and no longer.
97. (c) While a proclamation of emergency is in operation, this period may be extended by Parliament by law for a period not exceeding one year at a time. Under Article 352 the president can declare a national emergency when the security of India or part of it is threatened by war or external aggression or armed rebellion.
98. (b) After the general election and newly formed government, the legislative section prepares a list of senior Lok Sabha member (MPs), This list is submitted to the minister of parliamentary affairs through this process a protem Speaker is selected and is approved by the President.
99. (a) through the 86th amendment act, the Right to Education was added to the Fundamental Rights.

- 100.** (c) The sixth schedule to the constitution of India deals with Autonomous District Councils (ADCs).
- 101.** (d) The fundamental duties include to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem; to uphold and protect the sovereignty, unity and integrity of India; to defend the country and render national service when called upon to do so
- 102.** (c) The Drafting Committee had seven members: Alladi Krishnaswami Ayyar, N. Gopalaswami Ayyangar ; B.R. Ambedkar, K.M. Munshi, Mohammad Saadulla, B.L. Mitter and D.P. Khaitan. B. N. Rau was the Constitutional Advisor.
- 103.** (a) A Money Bill after having been passed by the Lok Sabha, and sent to Rajya Sabha for its recommendations, has to be returned to Lok Sabha by the Rajya Sabha, within a period of fourteen days from the date of its receipt, with or without recommendations.
- 104.** (a) Total membership of legislative assembly varies according to the state's population. Uttar Pradesh has the highest membership- 403 followed by West Bengal- 294 and Maharashtra- 288..
- 105.** (d) NIFTY is an Index computed from performance of top stocks from different sectors listed on NSE (National stock exchange). NIFTY consists of 50 companies from 24 different sectors. Indian Capital Markets are regulated and monitored by the Ministry of Finance, The Securities and Exchange Board of India and The Reserve Bank of India. It does not trade in mutual funds
- 106.** (d) In brief, the value of money varies inversely with the price level. It is reciprocal of price level.
- 107.** (d) Monopolistic competition is a form of market in which there are large numbers of sellers of a particular product but each seller sells somewhat differentiated but close products.
- 108.** (a) Electricity is not a public good but it is a club good including roads, bridges, gas, sewage, wires, telecom.
- 109.** (a) Devaluation of currency will be more beneficial if prices of domestic goods remain constant.
- 110.** (b) South eastern command is not a command of the Indian Army.
- 111.** (c) The word "vaccination," coined by Edward Jenner in 1796 is derived from the Latin root *vaccinus* which means from the cow or pertaining to cows.

- 112.** (b) Rear Admiral in India Navy.
- 113.** (c) Thermal power is the "largest" source of power in India. There are different types of thermal power plants based on the fuel used to generate the steam such as coal, gas, and Diesel.
- 114.** (a) The Lokपालas (also called Dikपालas) are known in Hinduism as the guardians of the directions. Each god or goddess represents a specific cardinal direction and are used in ritual for various purposes. Varuna, (the Lord of the West), Kubera, (the Lord of the North), Yama, (the Regent of the south) and Indra, (the Lord of the East) are the Gods known as the Lokपालas or the Guardian of the Universe.
- 115.** (d) The Andaman and Nicobar Command was set up in 2001. The Then Vice Admiral Arun Prakash was appointed as the first Commander-in-Chief of the Andaman & Nicobar Command.
- 116.** (d) Biosphere reserves are protected areas of terrestrial and coastal ecosystems which ensures the conservation of biodiversity and its sustainable use. There are 18 biosphere reserves in India, such as Agasthyamalai, Nokrek, and Great Nicobar. Great Himalayan is not a biosphere reserve, but a national park in Kullu district of Himachal Pradesh.
- 117.** (a) Copyright ensures protection of artistic and literary works. A copyright does not require registration and arises automatically as soon as work is created and lasts until 70 years after the death of the creator. Patent, industrial design, trademark, all need registration to provoke protection of intellectual property rights.
- 118.** (a) This is the solution with explanation for the question and here are few more sentences supporting the answer in detail.
(a)
- 119.** (a) This is the solution with explanation for the question and here are few more sentences supporting the answer in detail.
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