1. Correct Answer is: (d) State control

The gradual development and spread of important technologies is undoubtedly linked to more fundamental social processes that were going on during the initial phase of urban development (Helms 1993). The ability to create powerful symbols was something that could only be done through special technologies or by using specific raw materials that were not easily accessible to the common people (Kenoyer 2000). Therefore, the crafts that became most important for reinforcing social and ritual status were ones that could be efficiently controlled by new elites and powerful merchants of the Indus cities. While the knowledge of specific craft technologies were probably passed on from one generation to the next through kin networks and various forms of ritual practice (Kenoyer 1989), the access to specific materials could have been carefully regulated by controlling trade. At both Harappa and Nausharo, the building of massive mud brick walls around the settlements would have been the most effective way to control the access to raw materials. The walls and gateways would also have allowed for control of the export trade in finished commodities.

2. Correct Answer is: (d) 1, 3 and 4

The Edicts of Ashoka are a collection of 33 inscriptions on the Pillars of Ashoka as well as boulders and cave walls made by the Emperor Ashoka of the Mauryan Empire during his reign from 269 BCE to 232 BCE. These inscriptions were dispersed throughout the areas of modern-day Bangladesh, India, Nepal, Afghanistan and Pakistan and represent the first tangible evidence of Buddhism. The edicts describe in detail the Ashoka’s view about dhamma, an earnest attempt to solve some of problems that a complex society faced. According to the edicts, the extent of Buddhist proselytism during this period reached as far as the Mediterranean, and many Buddhist monuments were created.

The Edicts are divided into:

- Pillar Edicts
- Major Rock Edicts: 14 Edicts (termed 1st to 14th) and 2 separate ones found in Odisha
- Major Rock Inscriptions: Minor Rock Edicts, the Queen’s Edict, Barabar Caves inscriptions and the Kandahar bilingual inscription.

10th Major Rock Edict

The Beloved of the Gods, the king Piyadassi, sets no great store by fame or glory, except in, that he desires fame and glory both now and in the future, in order that his people may obey Dhamma with obedience and follow the way of Dhamma. To this extent the Beloved of the Gods desires fame and glory. Whatever efforts the Beloved of the Gods, the king Piyadassi, makes, it is all done with a view to
the after-life, that all men may escape from evil inclinations, for there can be no merit in evil inclinations. But this is difficult for men, whether humble or highly placed, without extreme effort and without renouncing everything else, and it is particularly difficult for the highly placed.

12th Major Rock Edict

The Beloved of the Gods, the king Piyadassi, honours all sects and both ascetics and laymen, with gifts and various forms of recognition. But the Beloved of the Gods do not consider gifts or honour to be as important as the advancement of the essential doctrine of all sects. This progress of the essential doctrine takes many forms, but its basis is the control of one's speech, so as not to extoll one's own sect or disparage another's on unsuitable occasions, or at least to do so only mildly on certain occasions. On each occasion one should honour another man's sect, for by doing so one increases the influence of one's own sect and benefits that of the other man; while by doing otherwise one diminishes the influence of one's own sect and harms the other man's. Again, whosoever honours his own sect or disparages that of another man, wholly out of devotion to his own, with a view to showing it in a favourable light, harms his own sect even more seriously. Therefore, concord is to be commanded, so that men may hear one another's principles and obey them. This is the desire of the Beloved of the Gods, that all sects should be well-informed, and should teach that which is good, and that everywhere their adherents should be told, 'The Beloved of the Gods does not consider gifts or honour to be as important as the progress of the essential doctrine of all sects.' Many are concerned with this matter - the officers of Dhamma, the women's officers, the managers of the state farms, and other classes of officers. The result of this is the increased influence of one's own sect and glory to Dhamma.

13th Major Rock Edict

When he had been consecrated eight years the Beloved of the Gods, the king Piyadassi, conquered Kalinga. A hundred and fifty thousand people were deported, a hundred thousand were killed and many times that number perished. Afterwards, now that Kalinga was annexed, the Beloved of the Gods very earnestly practised Dhamma, desired Dhamma, and taught Dhamma. On conquering Kalinga the Beloved of the Gods felt remorse, for, when an independent country is conquered the slaughter, death, and deportation of the people is extremely grievous to the Beloved of the Gods, and weighs heavily on his mind.

3. Correct Answer is: (c) Places where Buddhist Councils were held

1st Buddhist council (5th century BC)

The first Buddhist council was held soon after the death of the Buddha under the patronage of king Ajatasatru, and presided by a monk named Mahakasyapa, at Rajagaha (today's Rajgir). Its objective was to record the Buddha's sayings (sutra) and codify monastic rules (vinaya).
2nd Buddhist council (383 BC)

The second Buddhist council was convened by king Kalasoka and held at Vaisali, following conflicts between the conservative and liberal elements of Sangha.

The conservative schools insisted on strict adherence to monastic rules (vinaya). The secessionist Mahasangikas argued for more relaxed monastic rules, which could appeal to a large majority of monastic and lay people (hence their name "majority" assembly).

The council ended with the rejection of the Mahasanghikas. They left the council and maintained themselves for several centuries in northwestern India and Central Asia according to Kharoshti inscriptions found near the Oxus and dated c. 1st century AD.

In time, up to 18 schools of the traditional Buddhist thought arose, the only remaining one today being the Eastern Theravada school. Other schools included the Sarvastivadin and the Dharmaguptaka in Northwestern India.

3rd Buddhist council (c. 250 BC)

The third Buddhist council was convened by the Mauryan king Ashoka (260–218 BC) at Pataliputra (today's Patna), and held by the monk Moggaliputta Tissa. Its objective was to reconcile the different schools of Buddhism, and to purify the Buddhist movement, particularly from opportunistic factions which had been attracted by the royal patronage. The responses to doctrinal questions and disputes formulated at the Third Council were recorded by Moggaliputta Tissa in the Kathavatthu, one of the books of the Abhidhamma Pitaka.

4. Correct Answer is : (b) Ajivikas

Ajivika (IAST: Ājīvika) is one of the nāstika or "heterodox" schools of Indian philosophy. Purportedly founded in the 5th century BCE by Makkhali Gosala, it was a śramaṇa movement and a major rival of early Buddhism and Jainism. Ājīvikas were organised renunciates who formed discrete communities.

5. Correct Answer is : (d) 1, 2 and 4

Printing Press

European movable metal types were brought to Goa around AD 1550 by the Portuguese. The latter started printing books on Christian saints, Sermons, grammars and vocabularies in the
Marathi and Konkani languages and dialects, but in Roman script rather than in the Devanagari script.

Another Spaniard to play a major role in the history of printing in India was Joao Gonsalves, who is credited with preparing the first printing types of an Indian script—Tamil. However, since they were not satisfactory, new casts were made in Quilon (Kollam) by Father Joao da Faria. On 20 October 1578, these types were used to print the first book in an Indian language in India (the first Tamil book was printed in Lisbon in 1554 in Romanized Tamil script.)—Henrique Henriques's *Doctrina Christam en Lingua Malauar Tamul – Tampiran Vanakam*, a Tamil translation of St Francis Xavier’s *Doutrina Christam*.

In A.D. 1670s, Bhimji Parak, the chief broker of the English Company at Surat, took a keen interest in this technology. A printer was sent to India in A.D. 1674 at Bhimji’s request, along with a press. Bhimji intended to contrive types in “banian characters after our English manner”, but it could not be feasible since the English printer did not know type-cutting and founding.

6. Correct Answer is : (d) 1 and 3

**Olympe de Gouges** (7 May 1748 – 3 November 1793), born *Marie Gouze*, was a French playwright and political activist whose feminist and abolitionist writings reached a large audience.

She began her career as a playwright in the early 1780s. As political tension rose in France, Olympe de Gouges became increasingly politically engaged. She became an outspoken advocate for improving the condition of slaves in the colonies of 1788. At the same time, she began writing political pamphlets. Today she is perhaps best known as an early feminist who demanded that French women be given the same rights as French men. In her *Declaration of the Rights of Woman and the Female Citizen* (1791), she challenged the practice of male authority and the notion of male–female inequality. She was executed by guillotine during the Reign of Terror for attacking the regime of the Revolutionary government and for her close relation with the Girondists.

7. Correct Answer is : (b) 2, 1, 4, 3

The spinning jenny is a multi-spindle spinning frame, and was one of the key developments in the industrialization of weaving during the early Industrial Revolution. It was invented in 1764 by *James Hargreaves* in Stanhill, Oswaldtwistle.

**John Kay**, (born July 16, 1704, near Bury, Lancashire, England—died c. 1780, France) English machinist and engineer, inventor of the flying shuttle, which was an important step toward automatic weaving.

On May 26, 1733, he received a patent for a “New Engine or Machine for Opening and Dressing Wool” that incorporated his flying shuttle.
In 1779, Samuel Crompton invented the spinning mule that combined the moving carriage of the spinning jenny with the rollers of the water frame. The water frame is the name given to a water-powered spinning frame which was an easy way to create cotton. The first time the machine was used in 1768 it was able to spin 128 threads at a time, which was the easiest and fastest ever before. It was developed by Richard Arkwright, who patented the technology in 1767.

8. Correct Answer is: (a) Motilal Nehru

Once again the Swarajists passed a series of adjournment motions and defeated the Government on a number of bills. Noteworthy was the defeat of the Government on the Public Safety Bill in 1928. Frightened by the spread of socialist and communist ideas and influence and believing that the crucial role in this respect was being played by British and other foreign agitators sent to India by the Communist International, the Government proposed to acquire the power to deport ‘undesirable’ and ‘subversive’ foreigners. Nationalists of all colours, from the moderates to the militants, united in opposing the Bill. Lala Lajpat Rai said, ‘Capitalism is only another name for Imperialism . . . We are in no danger from Bolshevism or Communism. The greatest danger we are in, is from the capitalists and exploiters.’ Motilal Nehru narrated his experiences in the Soviet Union and condemned anti-Soviet propaganda. He described the Public Safety Bill as ‘a direct attack on Indian nationalism, on the Indian National Congress’ and as ‘the Slavery of India, Bill No. 1.’ T. Prakasam said that the Bill’s main aim was to prevent the spread of nationalism among workers and peasants. Diwan Chaman Lall, then a firebrand protege of Motilal, declared: ‘If you are trying to preach against socialism, if you are demanding powers to suppress socialism, you will have to walk over our dead bodies before you can get that power.’ Even the two spokesmen of the capitalist class.

9. Correct Answer is: (b) Lord Dufferin

After 1890 the Indian National Congress founded in London the British Committee to mobilize public opinion and lobby in the British Parliament. It published a journal “India” and was dominated by Hume and Wedderburn after their final return from India. During nineties the congress adopted resolutions and called for the increase of representations in legislatures.

They further demanded for the admission of more Indians to the Civil Service. The Government’s unfair tariff policy was opposed and by the Indian Mill-owners entered into the stream of national movement. Gradually representation from different parts of India increased and the congress became a body of the Hindus, Muslims, Paris and Christians.

Its message reached the ears of the people. Even though the leadership was confined to the middle class intellectuals it raised voice on behalf of the masses of India. Thus this congress turned to be a broad based one liked and supported by the masses. The statement of Lord Dufferin “Congress as a microscopic minority” turned false.
10. Correct Answer is : (d) They were associated with Kakori Conspiracy case

The Kakori Revolution (also called, the Kakori Conspiracy or Kakori train robbery or Kakori Case) was a train robbery that took place between Kakori and Almangar, near Lucknow, on 9 August 1925 during the Indian Independence Movement against the British Indian Government. The robbery was organised by the Hindustan Republican Association.

The robbery was conceived by Ram Prasad Bismil and Ashfaqullah Khan who belonged to the Hindustan Republican Association (HRA), which later became the Hindustan Socialist Republican Association. This organisation was established to carry out revolutionary activities against the British Empire in India with the objective of achieving independence. Since the organisation needed money for purchase of weaponry, Bismil and his party decided to plunder a train on one of the Northern Railway lines. The robbery plan was executed by Ram Prasad Bismil, Ashfaqulla Khan, Rajendra Lahiri, Chandrashekar Azad, Sachindra Bakshi, Keshab Chakravarty, Manmathnath Gupta, Murari Lal Khanna (fake name of Murari Lal Gupta), Mukundi Lal (Mukundi Lal Gupta) and Banwari Lal. One passenger was killed by an accidental shot.

Following the arrest of Ashfaqullah Khan, the police tried to make him provide evidence against his accomplices, but he refused. Another supplementary case was filed against Ashfaqulla Khan and Sachindra Bakshi in the court of Special Sessions Judge J.R.W. Bennett. An appeal was filed in the then Chief Court of Oudh (now in U.P.) on 18 July 1927.

Despite protests by the defence committee, which was chaired by Gobind Ballabh Pant, four of the accused, namely Ram Prasad Bismil, Ashfaqullah Khan, Rajendra Nath Lahiri and Roshan Singh, were sentenced to death by the Court of Justice. 16 others were either given life sentences or long prison terms varying from 3 years to 14 years. Banwari Lal, who became approver, was also sentenced for 2 years.

As per court documents, the final punishments given by the trial court were as follows -

- Death sentence: Pandit Ram Prasad Bismil, Thakur Roshan Singh, Rajendra Nath Lahiri and Ashfaqullah Khan

11. Correct Answer is : (c) 2 only

The seven fundamental rights recognized by the Indian constitution are:

1. **Right to equality**: Which includes equality before law, prohibition of discrimination on grounds of religion, race, caste, gender or place of birth, and equality of opportunity in matters of employment, abolition of untouchability and abolition of titles.

2. **Right to freedom**: Which includes freedom of speech and expression, assembly, association or union or cooperatives, movement, residence, and right to practice any profession or occupation (some of these rights are subject to security of the State, friendly relations with foreign countries, public order, decency or morality), right to life and liberty, protection in respect to conviction in offences and protection against arrest and detention in certain cases.

3. **Right against exploitation**: Which prohibits all forms of forced labour, child labour and traffic of human beings
4. **Right to freedom of religion**: Which includes freedom of conscience and free profession, practice, and propagation of religion, freedom to manage religious affairs, freedom from certain taxes and freedom from religious instructions in certain educational institutes.

5. **Cultural and Educational rights**: Preserve the right of any section of citizens to conserve their culture, language or script, and right of minorities to establish and administer educational institutions of their choice.

6. **Right to constitutional remedies**: Which is present for enforcement of Fundamental Rights.

7. **Right to education**: It is the latest addition to the fundamental rights

12. **Correct Answer is : (c) an invocation to Indians to free themselves from the British**


Mohandas Gandhi wrote this book in his native language, Gujarati, while traveling from London to South Africa onboard SS *Kildonan Castle* between November 13 and November 22, 1909. In the book Gandhi gives a diagnosis for the problems of humanity in modern times, the causes, and his remedy. The Gujarati edition was banned by the British on its publication in India. Gandhi then translated it into English. The English edition was not banned by the British, who concluded that the book would have little impact on the English-speaking Indians' subservience to the British and British ideas. It has also been translated to French.

Gandhi’s *Hind Swaraj* takes the form of a dialogue between two characters, The Reader and The Editor. The Reader essentially serves as the typical Indian countryman whom Gandhi would have been addressing with *Hind Swaraj*. The Reader voices the common beliefs and arguments of the time concerning Indian Independence. Gandhi, The Editor, explains why those arguments are flawed and interjects his own arguments. As ‘The Editor’ Gandhi puts it, "it is my duty patiently to try to remove your prejudice."

In the dialogue that follows, Gandhi outlines four themes that structure his arguments.

1. First, Gandhi argues that ‘Home Rule is Self Rule’. He argues that it is not enough for the British to leave only for Indians to adopt a British-styled society. As he puts it, some “want English rule without the Englishman … that is to say, [they] would make India English. And when it becomes English, it will be called not Hindustan but Englishtan. This is not the Swaraj I want.”

2. Gandhi also argues that Indian independence is only possible through passive resistance. In fact, more than denouncing violence, Gandhi argues that it is counter-productive; instead, he believes, “The force of love and pity is infinitely greater than the force of arms. There is harm in the exercise of brute force, never in that of pity.” This is essential throughout *Hind Swaraj*.

3. To exert passive resistance, Gandhi reasons that Swadeshi (self-reliance) be exercised by Indians, meaning the refusal of all trade and dealings with the British. He addresses the English when he states, “If you do not concede our demand, we shall be no longer your petitioners. You can govern us only so long as we remain the governed; we shall no longer have any dealings with you.” Gandhi makes an intriguing argument here: if the British want India for trade, remove trade from the equation.

4. Finally, Gandhi argues that India will never be free unless it rejects Western civilization itself. In the text he is deeply critical of western civilization, claiming, “India is being ground down, not under the English heel, but
under that of modern civilization." He speaks about civilization not just in relation to India, though. He argues that “Western civilization is such that one has only to be patient and it will be self destroyed." It is a profound repudiation. Not only is western civilization unhealthy for India, but western civilization is by its own virtue unhealthy.

13. Correct Answer is : (b) the Union List, the State List and the Concurrent List

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<thead>
<tr>
<th>Seventh Schedule</th>
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<tbody>
<tr>
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<td>Gives allocation of powers and functions between Union &amp; States. It contains 3 lists</td>
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<tr>
<td></td>
<td>1. Union List (For central Govt) 97 Subjects.</td>
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<td>2. States List (Powers of State Govt) 66 subjects</td>
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<td></td>
<td>3. Concurrent List (Both Union &amp; States) 47 subjects.</td>
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14. Correct Answer is : (a) the Bhoodan movement was launched there by Vinoba Bhave

On 18 April 1951, the historic day of the very genesis of the Bhoodan movement, Vinoba Bhave entered the Pochampally mandal in Nalgonda district, the centre of Communist activity. The organisers had arranged Vinoba's stay at Pochampally, a large village with about 700 families, of whom two-thirds were landless. Pochampally villagers gave Vinoba a warm welcome. By early afternoon villagers began to gather around Vinoba at Vinoba's cottage. The Villagers asked for eighty acres of land, forty wet, forty dry for forty families that would be enough. Then Vinoba asked, "If it is not possible to get land from the government, is there not something villagers themselves could do?" To everyone's surprise, Vedre Ramchandra Reddy a local landlords got up & said in a rather excited voice: "I will give you 100 acres for these people" Ram Chandra Reddy got up & repeated his promise to offer 100 acres of land to the villagers. This incident neither planned nor imagined was the very genesis of the Bhoodan movement & it made Vinoba think that there in lay the potentiality of solving the land problem of India. This movement later on developed into a village gift or Gramdan movement. As the huge, massive and magnificent movement called Bhoodan Movement was born at this village Pochampally, the village renamed to Bhoodan Pochampally.

15. Correct Answer is : (d) G V Apparao

Gandhi’s ideals have lasted well beyond the achievement of one of his chief projects, Indian independence (swaraj). His followers in India (notably, Vinoba Bhave) continued working to promote the kind of society that he envisioned, and their efforts have come to be known as the Sarvodaya Movement. Anima Bose has referred to the movement's philosophy as "a fuller and richer concept of people's democracy than any we have yet known." Sarvodaya workers associated with Vinoba, Jaya Prakash Narayan, Dada Dharmadhikari, Dhirendra Mazumdaar, Shankarao Deo, K. G. Mashruwala undertook various projects aimed at encouraging popular self-organisation during the 1950s and 1960s, including Bhoodan and Gramdan movements. Many groups descended from these networks continue to function locally in India today.

Beginning on the one year anniversary of the immersion of Gandhi’s ashes, an annual Sarvodaya mela or festival has been held at Srirangapatna and at Tirunavaya. At the latter site, it was instituted by K. Kelappan (Kelappaji).
16. Correct Answer is : (a) the powers of the Parliament of India to amend the Constitution

Article 368 in The Constitution Of India 1949

368. Power of Parliament to amend the Constitution and procedure therefor
Notwithstanding anything in this Constitution, Parliament may in exercise of its constituent power amend by way of addition, variation or repeal any provision of this Constitution in accordance with the procedure laid down in this article.....

17. Correct Answer is : (d) The unquestioned right of the Parliament to amend any part of the Constitution

The "basic features" principle was first expounded in 1964, by Justice J.R. Mudholkar in his dissent, in the case of Sajjan Singh v. State of Rajasthan. He wrote, "It is also a matter for consideration whether making a change in a basic feature of the Constitution can be regarded merely as an amendment or would it be, in effect, rewriting a part of the Constitution; and if the latter, would it be within the purview of Article 368 ?"

The basic features of the Constitution have not been explicitly defined by the Judiciary. At least, 20 features have been described as "basic" or "essential" by the Courts in numerous cases, and have been incorporated in the basic structure. In Indira Nehru Gandhi v. Raj Naraian and also in the Minerva Mills case, it was observed that the claim of any particular feature of the Constitution to be a "basic" feature would be determined by the Court in each case that comes before it. Some of the features of the Constitution termed as "basic" are listed below:

1. Supremacy of the Constitution
2. Rule of law
3. The principle of Separation of Powers
4. The objectives specified in the Preamble to the Constitution
5. Judicial Review
6. Articles 32 and 226
7. Federalism (including financial liberty of states under Articles 282 and 293)
8. Secularism
9. The Sovereign, Democratic, Republican structure
10. Freedom and dignity of the individual
11. Unity and integrity of the Nation
12. The principle of equality, not every feature of equality, but the quintessence of equal justice;
13. The "essence" of other Fundamental Rights in Part III
14. The concept of social and economic justice — to build a Welfare State: Part IV in toto
15. The balance between Fundamental Rights and Directive Principles
16. The Parliamentary system of government
17. The principle of free and fair elections
18. Limitations upon the amending power conferred by Article 368
19. Independence of the Judiciary
20. Effective access to justice
21. Powers of the Supreme Court under Articles 32, 136, 141, 142
22. Legislation seeking to nullify the awards made in exercise of the judicial power of the State by Arbitration Tribunals constituted under an Act

18. Correct Answer is: (d) To render compulsory military service

List of Fundamental Duties: Art. 51A, Part IVA of the Indian Constitution, specifies the list of fundamental duties of the citizens. It says “it shall be the duty of every citizen of India:

1. to abide by the constitution and respect its ideal and institutions;
2. to cherish and follow the noble ideals which inspired our national struggle for freedom;
3. to uphold and protect the sovereignty, unity and integrity of India;
4. to defend the country and render national service when called upon to do so;
5. to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional diversities, to renounce practices derogatory to the dignity of women;
6. to value and preserve the rich heritage of our composite culture;
7. to protect and improve the natural environment including forests, lakes, rivers, and wild-life and to have compassion for living creatures;
8. to develop the scientific temper, humanism and the spirit of inquiry and reform;
9. to safeguard public property and to abjure violence;
10. to strive towards excellence in all spheres of individual and collective activity, so that the nation constantly rises to higher levels of endeavor and achievement.
   Further, one more Fundamental duty has been added to the Indian Constitution by 86th Amendment of the constitution in 2002.
11. who is a parent or guardian, to provide opportunities for education to his child, or as the case may be, ward between the age of six and fourteen years.

19. Correct Answer is: (c) 1, 2, 3 and 4

Three Tiers of Panchayati Raj Part IX provides for a 3 tier Panchayat system, which would be constituted in every state at the village level, intermediate level and district level. This provision brought the uniformity in the Panchayati Raj structure in India. However, the states which were having population below 20 Lakh were given an option to not to have the intermediate level.
Reservation in Panchayats There is a provision of reservation of seats for SCs and STs at every level of Panchayat. The seats are to be reserved for SCs and STs in proportion to their population at each level. Out of the Reserved Seats, 1/3rd have to be reserved for the women of the SC and ST. Out of the total number of seats to be filled by the direct elections, 1/3rd have to be reserved for women.

Elections Article 243K enshrines the provisions with respect to elections of the Panchayats. This article provides for constitution of a State Election Commission in respect of the Panchayats. This State Election Commission would have the power to supervise, direct and control the elections to the Panchayats and also prepare the electoral rolls. The article maintains the independence of the election commission by making provisions that the election commissioner of this commissioner would be removed only by manner and on same grounds as a Judge of the High Court.

Powers and Functions: 11th Schedule The state legislatures are needed to enact laws to endow powers and authority to the Panchayats to enable them functions of local government. The 11th schedule enshrines the distribution of powers between the State legislature and the Panchayats. There are 29 subjects in this list.

20. Correct Answer is : (d) both convex of different focal lengths

Bifocals are eyeglasses with two distinct optical powers. Bifocals are commonly prescribed to people with presbyopia who also require a correction for myopia, hyperopia, and/or astigmatism. Benjamin Franklin is generally credited with the invention of bifocals. Original bifocals were designed with the most convex lenses (for close viewing) in the lower half of the frame and the least convex lenses on the upper.

21. Correct Answer is : (d) high melting point

Pure tungsten has some amazing properties including the highest melting point (3695 K), lowest vapor pressure, and greatest tensile strength out of all the metals. Because of these properties it is the most commonly used material for light bulb filaments. It can reach high temperature before melting and therefore emit a brighter light than nichrome can. Nichrome on the other hand, although it has a pretty high melting point (1673 K) it is not as high as tungsten, but it is often used for heating devices, such as a blowdryer. An electric current can heat the filament around 2000-3300 K, which stays below the melting point of tungsten but above that of nichrome. Check out this website on light bulbs.

22. Correct Answer is : (b) increase the life of the filament
23. **Correct Answer is:** (b) slowed down and refracted the most

The index of refraction values are dependent upon the frequency of light. For visible light, the \( n \) value does not show a large variation with frequency, but nonetheless it shows a variation. For instance for some types of glass, the \( n \) value for frequencies of violet light is 1.53; and the \( n \) value for frequencies of red light is 1.51. The absorption and re-emission process causes the higher frequency (lower wavelength) violet light to travel slower through crown glass than the lower frequency (higher wavelength) red light. It is this difference in \( n \) value for the varying frequencies (and wavelengths) that causes the dispersion of light by a triangular prism. Violet light, being slowed down to a greater extent by the absorption and re-emission process, refracts more than red light. Upon entry of white light at the first boundary of a triangular prism, there will be a slight separation of the white light into the component colors of the spectrum. Upon exiting the triangular prism at the second boundary, the separation becomes even greater and **ROYGBIV** is observed in its splendor.

24. **Correct Answer is:** (c) sound

Oscilloscopes are used by everyone from television repair technicians to physicists. They are indispensable for anyone designing or repairing electronic equipment.

The usefulness of an oscilloscope is not limited to the world of electronics. With the proper transducer, an oscilloscope can measure all kinds of phenomena. A transducer is a device that creates an electrical signal in response to physical stimuli, such as sound, mechanical stress, pressure, light, or heat. For example, a microphone is a transducer.

An automotive engineer uses an oscilloscope to measure engine vibrations. A medical researcher uses an oscilloscope to measure brain waves. The possibilities are endless.
Ultrasonic waves can also be used to dislodge dirt from delicate objects like jewelry - cleaning them. These special, high frequency, sound waves are called **ultrasonic waves**.

25. **Correct Answer is : (c) 2 electrons in the K-orbit, 8 electrons in the L-orbit, 18 electrons in the M-orbit**

These orbits or shells are called energy levels. Energy levels in an atom are shown in Fig.

The distribution of electrons into different orbits of an atom was suggested by Bohr and Bury. The following rules are followed for writing the number of electrons in different energy levels or shells:

- The maximum number of electrons present in a shell is given by the formula $2n^2$, where $n$ is the orbit number or energy level index, 1, 2, 3,… Hence the maximum number of electrons in different shells are as follows:
  
  - first orbit or K-shell will be $2 \times 1^2 = 2$,
  - second orbit or L-shell will be $2 \times 2^2 = 8$,
  - third orbit or M-shell will be $2 \times 3^2 = 18$,
  - fourth orbit or N-shell will be $2 \times 4^2 = 32$, and so on.

26. **Correct Answer is : (c) the neutrons are made slow**

In nuclear engineering, a **neutron moderator** is a medium that reduces the speed of fast neutrons, thereby turning them into thermal neutrons capable of sustaining a nuclear chain reaction involving uranium-235 or a similar fissile nuclide.

Commonly used moderators include regular (light) water (roughly 75% of the world's reactors), solid graphite (20% of reactors) and heavy water (5% of reactors). Beryllium has also been used in some experimental types, and hydrocarbons have been suggested as another possibility.
27. **Correct Answer is : (b) The object is at rest**

With increase in time there is no change in distance so the object is at rest.

28. **Correct Answer is : (d) an ellipse**

An ellipse

Assuming the mass is constant, the momentum-displacement graph is the same shape as the velocity-displacement graph - look at the ellipse on the diagram in the link.

It is easy to work this out. Just imagine a pendulum swinging backwards and forwards for one cycle. Consider its x coordinate and its velocity at different points through the cycle.

When the pendulum is at max. displacement on the right, $x$ is positive max. and $v=0$. This is the rightmost point on the ellipse.

When the pendulum is at its mid-point moving the left, $x =0$ and $v$ is max. and negative. Bottom point of ellipse.

When the pendulum is max displacement on the left, $x$ is negative max. and $v=0$. Leftmost point on ellipse.

When the pendulum is at its mid-point and moving the right, $x =0$ and $v$ is max, and positive. Top point of ellipse.

Then the process is repeated during the next cycle and so on. Each cycle corresponds to moving once around the ellipse.

29. **Correct Answer is : (a) Filaria**

**Elephantiasis** refers to a parasitic infection that causes extreme swelling in the arms and legs.

The disease is caused by the filarial worm, which is transmitted from human to human via the female mosquito when it takes a blood meal. The parasite grows into an adult worm that lives in the lymphatic system of humans.

Examples of nematode parasites that cause lymphatic filariasis includes *Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori*. The larvae (microfilariae) of the parasite are taken up by the mosquito when it feeds. When the larvae reach the third stage of development, they are introduced to a new host, who then develops the infection.

30. **Correct Answer is : (c) Cereals are very poor source of carbohydrates**

**Benefits of wholegrain cereals**

Wholegrain cereals are a rich source of many essential vitamins, minerals and phytochemicals. The typical wholegrain cereal food is:

- low in saturated fat, but is a source of polyunsaturated fats, including omega-3 linolenic acid
- cholesterol-free
- high in both soluble and insoluble fibre, and resistant starch
- an excellent source of carbohydrates
• a significant source of protein
• a good source of Bb group vitamins, including folate
• a good source of many minerals, such as iron, magnesium, copper, phosphorus and zinc
• a good source of antioxidants and phytochemicals that can help lower blood cholesterol levels.

31. Correct Answer is: (d) 1 and 3

- **Group A** – has only the A antigen on red cells (and B antibody in the plasma)
- **Group B** – has only the B antigen on red cells (and A antibody in the plasma)
- **Group AB** – has both A and B antigens on red cells (but neither A nor B antibody in the plasma)
- **Group O** – has neither A nor B antigens on red cells (but both A and B antibody are in the plasma)

There are very specific ways in which blood types must be matched for a safe transfusion. See the chart below:

In addition to the A and B antigens, there is a third antigen called the Rh factor, which can be either present (+) or absent (−). In general, Rh negative blood is given to Rh-negative patients, and Rh positive blood or Rh negative blood may be given to Rh positive patients.

- The universal red cell donor has Type O negative blood type.
- The universal plasma donor has Type AB blood type.

32. Correct Answer is: (a) Kidneys, Ureters, Bladder, Urethra
The urinary tract is a pathway that includes the:

- **kidneys**: two bean-shaped organs that filter waste from the blood and produce urine
- **ureters**: two thin tubes that take pee from the kidney to the bladder
- **bladder**: a sac that holds pee until it’s time to go to the bathroom
- **urethra**: the tube that carries urine from the bladder out of the body when you pee

33. **Correct Answer is : (c) Cell membrane, Cytoplasm, Nucleus**

**Similarities**

In spite of the basic differences, a plant cell and an animal cell have many parts and structures in common. The primary cell organelles such as the nucleus, mitochondria, ribosomes, etc., are present in both types of cells.

Mentioned below is a list of common parts and organelles shared by these cells:

34. **Correct Answer is : (d) 1, 2 and 4**

The heart receives its own supply of blood from the coronary arteries. Two major coronary arteries branch off from the aorta near the point where the aorta and the left ventricle meet. These arteries and their branches supply all parts of the heart muscle with blood.
Pulmonary circulation is the portion of the cardiovascular system which carries deoxygenated blood away from the heart, to the lungs, and returns oxygenated (oxygen-rich) blood back to the heart. The common hepatic artery is a short blood vessel that supplies oxygenated blood to the liver, pylorus of the stomach, duodenum and pancreas.

The renal veins are veins that drain the kidney. They connect the kidney to the inferior vena cava. They carry the blood filtered by the kidney.

The renal arteries normally arise off the side of the abdominal aorta, immediately below the superior mesenteric artery, and supply the kidneys with blood. Each is directed across the crus of the diaphragm, so as to form nearly a right angle with the aorta. The renal arteries carry a large portion of total blood flow to the kidneys.

35. Correct Answer is: (b) Go Wild for Life

WED 2016 TO BE GLOBALLY HOSTED BY ANGOLA

This year’s World Environment Day celebration are hosted by Angola, a country seeking to restore its elephant herds, conserve Africa’s biodiversity-rich wildlife, and safeguard the environment as it continues to rebuild after more than a quarter century of civil war.

The Theme for 2016 is “Go Wild for Life” (ZERO TOLERANCE FOR THE ILLEGAL WILDLIFE TRADE). Angola is the host country of this year.

36. Correct Answer is: (b) Fumigants

The use of fumigants

Fumigants are toxic gases used to disinfest a commodity in an enclosure which, ideally, is completely gaslight. Fumigation enclosures should certainly be sufficiently gaslight for the gas to penetrate and remain in the commodity for long enough to kill all stages of the insects present in or amongst the grains. A gas or vapour that does not have the ability to penetrate the grain is not, strictly speaking, a true fumigant.

The purpose of a fumigation is thus to obtain a more-or-less immediate disinfestation of the commodity and the space enclosing it. Fumigation is the only chemical treatment that can achieve this effect and this relative immediacy of disinfestation, together with its completeness if done properly, are the main advantages of this particular chemical control technique. Its main disadvantages are that the treatment confers no residual protection against reinfestation, once the commodity is again exposed, and the fact that the most effective fumigants are all highly toxic to humans and other non-target organisms. The precautions required to ensure the safe use of
fumigants are, necessarily, much more stringent than those required to ensure the safe use of most other insecticides.

37. **Correct Answer is: (a) A-3, B-4, C-2, D-1**

**Ascaris** is a genus of parasitic nematode worms known as the "small intestinal roundworms"

**Malaria parasites** belong to the genus **Plasmodium** (phylum Apicomplexa). In humans, **malaria** is caused by *P. falciparum*, *P. malariae*, *P. ovale*, *P. vivax* and *P. knowlesi*. Among those infected, *P. falciparum* is the most common species identified (~75%) followed by *P. vivax* (~20%).

<table>
<thead>
<tr>
<th>Housefly</th>
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<table>
<thead>
<tr>
<th>Conservation status</th>
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*Not evaluated (IUCN 3.1)*

<table>
<thead>
<tr>
<th>Scientific classification</th>
</tr>
</thead>
</table>

Kingdom: **Animalia**

Phylum: **Arthropoda**

Class: **Insecta**

| Cattle |
A Swiss Braunvieh cow wearing a cowbell.

Conservation status

Domesticated

Scientific classification

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
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<tr>
<td>Phylum</td>
<td>Chordata</td>
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<tr>
<td>Class:</td>
<td>Mammalia</td>
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</tbody>
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38. Correct Answer is: (d) Mushrooms : Autotroph

Santalum album commonly called sandal wood tree is an important example of partial root parasite. It grows on the roots of Dalbergia, Eucalyptus, and Albizzia.

Cuscuta (dodder) is a genus of about 100–170 species of yellow, orange, or red (rarely green) parasitic plants.

Nepenthes also known as tropical pitcher plants or monkey cups, is a genus of carnivorous plants in the monotypic family Nepenthaceae.
Organisms are divided into autotrophs and heterotrophs according to their energy pathways. Autotrophs are those organisms that are able to make energy-containing organic molecules from inorganic raw material by using basic energy sources such as sunlight. Plants are the prime example of autotrophs, using photosynthesis. All other organisms must make use of food that comes from other organisms in the form of fats, carbohydrates and proteins. These organisms which feed on others are called heterotrophs.

A heterotroph is an organism that obtains its energy from carbs and other organic material. All animals and most bacteria & fungi are heterotrophic. Mushrooms are fungi, so they would be a heterotroph.

39. Correct Answer is : (b) Holstein

There are the top cattle breeds that produce most milk which are the world's top production dairy farm animals. Holstein full name is Holstein-Friesian Cattle or Friesian Cattle that is Holstein amazing milk producer and it is the highest milk production dairy farm animal in the world.

40. Correct Answer is : (b) paper

Bagasse is the fibrous matter that remains after sugarcane or sorghum stalks are crushed to extract their juice. It is dry pulpy residue left after the extraction of juice from sugar cane. Bagasse is utilized as a biofuel and in the manufacture of pulp and building materials.

"Agave bagasse" is a similar material that consists of the tissue of the blue agave after extraction of the sap.

41. Correct Answer is : (b) Methane

These plants can be fed with energy crops such as maize silage or biodegradable wastes including sewage sludge and food waste. During the process, the microorganisms transform biomass waste into biogas (mainly methane and carbon dioxide) and digestate.

42. Correct Answer is : (b) Graphite powder

Dry lubricants or solid lubricants are materials which despite being in the solid phase, are able to reduce friction between two surfaces sliding against each other without the need for a liquid oil medium.

The two main dry lubricants are graphite and molybdenum disulfide. They offer lubrication at temperatures higher than liquid and oil-based lubricants operate. Dry lubricants are often used in applications such as locks or dry lubricated bearings. Such materials can operate up to 350 °C (662 °F) in oxidizing environments and even higher in reducing / non-oxidizing environments (molybdenum disulfide up to 1100 °C, 2012 °F). The low-friction characteristics of most dry lubricants are attributed to a layered structure on the molecular level with weak bonding between layers. Such layers are able to slide relative to each other with minimal applied force, thus giving them their low friction properties.
43. Correct Answer is : (b) 1 P and 2 N

Tritium (symbol T or 3H, also known as hydrogen-3) is a radioactive isotope of hydrogen. The nucleus of tritium (sometimes called a triton) contains one proton and two neutrons, whereas the nucleus of protium (by far the most abundant hydrogen isotope) contains one proton and no neutrons.

44. Correct Answer is : (a) the calcium carbonate formed initially is converted to soluble calcium bicarbonate on passage of more carbon dioxide

It is observed that lime water, Ca(OH)$_2$ turns milky initially when carbon dioxide is passed through it and becomes clear after passing excess of carbon dioxide. Initially an insoluble white solid, CaCO$_3$ is formed. Hence lime water turns milky. It is then converted to water soluble bicarbonate, Ca(HCO$_3$)$_2$ upon passing excess of carbon dioxide by making the solution clear again.

45. Correct Answer is : (c) is better electrical conductor than diamond

Graphite is a naturally-occurring form of crystalline carbon. It is a native element mineral found in metamorphic and igneous rocks. Graphite is a mineral of extremes. It is extremely soft, cleaves with very light pressure and has a very low specific gravity. In contrast, it is extremely resistant to heat and nearly inert in contact with almost any other material. These extreme properties give it a wide range of uses in metallurgy and manufacturing.

Graphite, named by Abraham Gottlob Werner in 1789, from the Greek γράφειν (graphein, "to draw/write", for its use in pencils) is one of the most common allotropes of carbon. Unlike diamond, graphite is an electrical conductor. Thus, it can be used in, for instance, electrical arc lamp electrodes. Likewise, under standard conditions, graphite is the most stable form of carbon. Therefore, it is used in thermochemistry as the standard state for defining the heat of formation of carbon compounds.

Graphite conducts electricity, due to delocalization of the pi bond electrons above and below the planes of the carbon atoms. These electrons are free to move, so are able to conduct electricity. However, the electricity is only conducted along the plane of the layers. In diamond, all four outer electrons of each carbon atom are 'localised' between the atoms in covalent bonding. The movement of electrons is restricted and diamond does not conduct an electric current. In graphite, each carbon atom uses only 3 of its 4 outer energy level electrons in covalently bonding to three other carbon atoms in a plane. Each carbon atom contributes one electron to a delocalised system of electrons that is also a part of the chemical bonding. The delocalised electrons are free to move throughout the plane. For this reason, graphite conducts electricity along the planes of carbon atoms, but does not conduct in a direction at right angles to the plane.

Graphite powder is used as a dry lubricant.

46. Correct Answer is : (b) The boiling of gasoline
Gasoline burning is an example of a **chemical change**, because this process produces water vapor and carbon dioxide. For something to be categorized as a **chemical change**, it must form **new chemical** substances. It also entails making and breaking molecular bonds. Another example is iron rusting, which forms iron oxide.

47. **Correct Answer is : (b) It is added for faster cooking**

**Baking Soda Uses**: NATURAL HEALTH. 13. Heartburn and Indigestion Relief – **Baking soda** is a cost-effective way to reduce heartburn and indigestion, as opposed to other options like Tums and Rolaids, which also contain bicarbonate

Most flames require oxygen, fuel, and sufficient heat to ignite and stay lit. These three components of fire are referred to as the fire triangle or combustion triangle. Removal of any of the three components will cause the flame to extinguish or “go out.”

The secret to extinguishing fire is the removal of one of the three components. In CO2 Fire Extinguisher experiment, that lies in the bubbling mixture in the container. The baking soda (also known as sodium bicarbonate) is a base. The vinegar, or acetic acid, is a weak acid. When baking soda and vinegar are combined, the immediate acid-base reaction creates carbonic acid. Carbonic acid is unstable and decomposes into carbon dioxide (CO2) and water (H2O). The bubbling that you see inside of the container is the production of the CO2 gas. When you “pour out” the container, you're exposing the flame to concentrated CO2 gas. The lack of oxygen extinguishes the flame.

How can you possible pour a gas? The air that we breathe is comprised largely of nitrogen gas, a very light gas. The CO2 that was created inside of the cylinder is much heavier and, therefore, able to be poured like a liquid, out of the container.

48. **Correct Answer is : (a) Green**

**Chrome Oxide Green for Paint**

Chromium oxide green is used in manufacturing paint. The resultant colour made out of chrome oxide green varies from yellowish shade green to blue shade green. It is due to difference in manufacturing techniques and granularity.

The following properties of Chrome Oxide Green make it one of the most widely used pigments for paints:

- Intensive chemical inertia
- Powerful colorant
- Excellent physical resistance
- Insoluble in water
- Excellent Light Fastness
- Resistance to erode
- Resistance to heat
49. Correct Answer is: (b) 1 and 2

Population

It is estimated that at least 630 million people live in the GBM river basin. This is almost two-thirds of the population of Africa, while the size of Africa is about 18 times the size of the GBM river basin.

The region also suffers from natural and manmade hazards like floods, drought, deforestation, landslides, soil erosion and sedimentation.

50. Correct Answer is: (a) 2 - 4 - 3 - 1

Arunachal Pradesh also known as the 'Land of the rising sun', which was granted statehood on 20th February, 1987

Subsequently, Nagaland attained statehood with the enactment of the state of Nagaland Act in 1962 by the Parliament. The interim body was dissolved on 30 November 1963 and the state of Nagaland was formally inaugurated on 1 December 1963 and Kohima was declared as the state capital.

On 16 May 1975, Sikkim became the 22nd state of the Indian Union, and the monarchy was abolished.

Meghalaya was formed by carving out two districts from the state of Assam: the United Khasi Hills and Jaintia Hills, and the Garo Hills on 21 January 1972. Before attaining full statehood, Meghalaya was given semi-autonomous status in 1970.

51. Correct Answer is: (d) Neither 1 nor 2

APEC is regional economic forum comprising of 21 member countries accounting nearly half of the world’s trade and about 57 per cent of global gross domestic product (GDP).

21 Members are: Australia, Brunei Darussalam, Canada, Indonesia, Japan, South Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, United States, Taiwan, Hong Kong, China, Mexico, Papua New Guinea, Chile, Peru, Russian and Vietnam.

India is observer of APEC since 2011 and has applied for membership.

52. Correct Answer is: (d) All of these

The General Theory of Employment, Interest and Money was written by the English economist John Maynard Keynes. The book, generally considered to be his magnum opus, is largely credited with creating the terminology and shape of modern macroeconomics.

Indian Currency And Finance by John Maynard Keynes
**The Economic Consequences of the Peace** (1919) is a book written and published by John Maynard Keynes.

*A Treatise on Money* is a work on economics by English economist John Maynard Keynes.

53. **Correct Answer is : (c) 1965**

Green Revolution

First Published: June 10, 2011 | Last Updated: September 26, 2015

The significant increase in agricultural production in 1960s consequent upon the adoption of new agricultural strategy and use of HYV seeds and chemical fertilizers is called Green Revolution. The key pillars of this revolution were high yielding variety (HYV) seeds, chemical fertilizers, pesticides and promoted irrigation facilities. Green revolution was introduced as a package programme with seed-water-fertilizer-pesticide-technology components and was originally called High Yielding Variety Programme (HYVP). It was launched in Kharif of 1966-67 with an objective to attain self-sufficiency in food by 1970-71.

The Green Revolution was initiated in India in the 1960’s to increase food production and feed the millions of malnourished people throughout the nation. It has been credited with increasing yields in many of the places where the technology has been adopted, but the benefits experienced have been unequal across regions and groups.

54. **Correct Answer is : (c) Ministry of Overseas Indian Affairs**

The Union Minister for the Ministry of Overseas Indian Affairs (MoIA) and the Ministry of External Affairs (MEA) Smt. Sushma Swaraj today launched the “Bharat Ko Janiye” an online quiz program for the Indian Diaspora.

The “Bharat Ko Janiye” Quiz is targeted for the Indian Diaspora youth across the globe. It is intended to educate them about India’s progress in various fields like, Science & Technology, Manufacturing, Industry, Communication & Information Technology etc. and also about the different facets Indian life. The aim of this quiz program is also to create awareness about India’s rich cultural heritage and it’s Diversity. With this quiz program, the Ministry would like to help the diaspora youth and NRIs to learn and understand the culture, history and the development of their ancestral country. The Quiz is open for both PIOs and NRIs between the age group of 18 – 35 years.

55. **Correct Answer is : (b) 1 and 2**

The Cairns Group *(Cairns Group of Fair Trading Nations)* is an interest group of 20 agricultural exporting countries, composed of Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Costa...
Rica, Guatemala, Indonesia, Malaysia, New Zealand, Pakistan, Paraguay, Peru, the Philippines, South Africa, Thailand, Uruguay, and Vietnam.

The Cairns Group seeks to liberalize global trade in agricultural produce. In particular, its members aim to abolish export subsidies and trade-distorting (“amber box”) domestic support for agricultural products and seek to improve market access for agricultural exports. The coalition attempts to present a common front in multilateral trade negotiations at the World Trade Organization (WTO), tabling joint proposals and occasionally working with like-minded groups such as the G20 group of developing nations.

56. Correct Answer is: (d) 1, 2 and 3

Explaining green bonds

Rapid growth of the green labelled market

The green bond market took off in 2014 with $36.6bn issued; triple the amount issued in 2013 ($11bn).

Using debt capital markets to fund climate solutions

Green bonds were created to fund projects that have positive environmental and/or climate benefits. The majority of the green bonds issued are green “use of proceeds” or asset-linked bonds. Proceeds from these bonds are earmarked(link is external) for green projects but are backed by the issuer’s entire balance sheet. There have also been green “use of proceeds” revenue bonds(link is external), green project bonds and green securitized(link is external) bonds.

What is a ‘Green Bond’

A green bond is a tax-exempt bond which is issued by federally qualified organizations and/or municipalities for the development of brownfield sites. Brownfield sites are areas of land that are under utilized, have abandoned buildings, or are under developed. They often contain low levels of industrial pollution.

Green Bonds are short-hand for Qualified Green Building and Sustainable Design Project Bonds.

57. Correct Answer is: (b) Malaria

Swine flu (H1N1 and H3N2v influenza virus) facts

- Swine flu is a respiratory disease caused by influenza viruses that infect the respiratory tract of pigs and result in a barking cough, decreased appetite, nasal secretions, and listless behavior; the virus can be transmitted to humans.
- Swine flu viruses may mutate (change) so that they are easily transmissible among humans.
Influenza, commonly known as "the flu", is an infectious disease caused by an influenza virus. Symptoms can be mild to severe. The most common symptoms include: a high fever, runny nose, sore throat, muscle pains, headache, coughing, and feeling tired. These symptoms typically begin two days after exposure to the virus and most last less than a week.

Malaria is a mosquito-borne infectious disease affecting humans and other animals caused by parasitic protozoans (a group of single-celled microorganisms) belonging to the Plasmodium type. Malaria causes symptoms that typically include fever, fatigue, vomiting, and headaches. In severe cases it can cause yellow skin, seizures, coma, or death. Symptoms usually begin ten to fifteen days after being bitten.

Dengue fever is a mosquito-borne tropical disease caused by the dengue virus. Symptoms typically begin three to fourteen days after infection. This may include a high fever, headache, vomiting, muscle and joint pains, and a characteristic skin rash. Recovery generally takes two to seven days. In a small proportion of cases, the disease develops into the life-threatening dengue hemorrhagic fever, resulting in bleeding, low levels of blood platelets and blood plasma leakage, or into dengue shock syndrome, where dangerously low blood pressure occurs.

58. Correct Answer is : (c) Vinoba Bhave

On October 17, 1940, the Father of the Nation, Mahatma Gandhi had chosen Acharya Vinoba Bhave as the first satyagrahi (proponent of satyagraha) to start personal satyagraha (movement which meant holding to the truth) and Jawaharlal Nehru as the second.

59. Correct Answer is : (c) Legal practitioner

Bhulabhai Desai (13 October 1877 – 6 May 1946) was an Indian independence activist and acclaimed lawyer. He is well-remembered for his defence of the three Indian National Army soldiers accused of treason during World War II, and for attempting to negotiate a secret power-sharing agreement with Liaquat Ali Khan of the Muslim League.

60. Correct Answer is : (b) 1927

Royal Commission on Agriculture in India (1926–28)
61. Correct Answer is : (d) Nainital

At a distance of 10 km from Tallital Bus Stand, Naina Peak, also known as China Peak, is the highest peak and a famous attraction in the town of Nainital. A trek to Naina Peak is one of the top things to do in Nainital and it's also a nice place for short trekking in Nainital.

Naina Peak is situated at an altitude of 2615 m. The peak was renamed from China peak to Naina peak after the 1962 war with China. Due to high altitude and lush green forest path, Naina Peak is also a favorite place in Nainital for trekking. This highest point of this mountain is widely known for its amazing natural surroundings and the snow covered mountains all around. Naina Peak is a quiet place from where the Nanda Devi peak and the mountains on the Tibet border can be viewed.

62. Correct Answer is : (b) Prithviraj Raso - Chandbardai

Ab'ul Hasan Yamīn ud-Dīn Khusrau (1253–1325 CE) Amir Khusrau wrote a historic masnavi "Tughlaq Nama" about his reign and that of other Tughlaq rulers.

Chand Bardai was an Indian poet, who composed Prithviraj Raso, an epic poem in Brajbhasa about the life of the Chahamana king Prithviraj Chauhan.

Rajatarangini is a metrical legendary and historical chronicle of the north-western Indian subcontinent, particularly the kings of Kashmir. It was written in Sanskrit by Kashmiri historian Kalhana in the 12th century CE.

The Gita Govinda is a work composed by the 12th-century Indian poet, Jayadeva. It describes the relationship between Krishna and the gopis of Vrindavana, and in particular one gopi named Radha. The Gita Govinda is organized into twelve chapters.

63. Correct Answer is : (c) Both 1 and 2

The National Doctors’ Day is celebrated every year on July 1 in India to honour the legendary physician and the 2nd Chief Minister of West Bengal, Dr Bidhan Chandra Roy.

64. Correct Answer is : (b) Convection

Radiators are heat exchangers used to transfer thermal energy from one medium to another for the purpose of cooling and heating. The majority of radiators are constructed to function in automobiles, buildings, and electronics.
"Radiation and convection
One might expect the term "radiator" to apply to devices that transfer heat primarily by thermal radiation (see: infrared heating), while a device which relied primarily on natural or forced convection would be called a "convector". In practice, the term "radiator" refers to any of a number of devices in which a liquid circulates through exposed pipes (often with fins or other means of increasing surface area), notwithstanding that such devices tend to transfer heat mainly by convection and might logically be called convectors. The term "convector" refers to a class of devices in which the source of heat is not directly exposed.

65. Correct Answer is : (d) It can map the spread of tumour in the body

The CyberKnife is a frameless robotic radiosurgery system invented by John R. Adler, a Stanford University Professor of Neurosurgery and Radiation Oncology, and Peter and Russell Schonberg of Schonberg Research Corporation. The two main elements of the CyberKnife are (1) the radiation produced from a small linear particle accelerator and (2) a robotic arm which allows the energy to be directed at any part of the body from any direction.

The CyberKnife system is a method of delivering radiotherapy, with the intention of targeting treatment more accurately than standard radiotherapy.

CYBERKNIFE SYSTEM

The Standard of Radiosurgery
In the field of radiation oncology, the CyberKnife® Robotic Radiosurgery System is universally recognized as the premier radiosurgery system capable of delivering radiation with sub-millimeter accuracy anywhere in the body. As validated and proven in numerous peer-reviewed publications, the precision and accuracy of the system combines with continual image guidance and robotic mobility to deliver treatments characterized by exquisite conformality and steep dose gradients.

Recognizing that tumors move even when the patient is immobilized, the CyberKnife System employs continual image guidance throughout the treatment. Combining this unique capability with the robotic mobility inherent to the system, every beam position is automatically corrected for any target motion without user intervention and without treatment interruptions.

66. Correct Answer is : (d) Myanmar

Myanmar has launched the country’s first United Nation Educational, Scientific and Cultural Organisation (UNESCO) Biosphere Reserve at Inle Lake in Shan state.

67. Correct Answer is : (c) Salma Dam

Salma Dam, officially the Afghan-India Friendship Dam, is a hydroelectric and irrigation dam project located on the Hari River in Chishti Sharif District of Herat Province in western Afghanistan. The Afghan cabinet renamed the Salma Dam to the Afghan-India Friendship Dam in a move to strengthen relations between the two countries.
The hydroelectric plant produces 42 MW of power in addition to providing irrigation for 75,000 hectares of farmland (stabilising the existing irrigation of 35,000 hectares and development of irrigation facilities to an additional 40,000 hectares of land).

The dam was opened on 4 June 2016 by Indian Prime Minister Narendra Modi along with Afghan President Ashraf Ghani.

68. Correct Answer is : (a) 1 only

North India’s first cable-stayed bridge named Atal Setu was inaugurated on Dunera-Basohli-Bhadharwah road in Basohali town in Kathua district of Jammu and Kashmir.

69. Correct Answer is : (d) Afghanistan

Prime Minister Narendra Modi inaugurated the new building of Afghanistan Parliament in the capital city Kabul built by India. It was inaugurated during Narendra Modi’s first official visit to Afghanistan after becoming Prime Minister. He also named one block of Parliament as Atal Block after former Prime Minister Atal Bihari Vajpayee.

70. Correct Answer is : (a) Mathematics

The *Lilāvati* is Indian mathematician Bhāskara II's treatise on mathematics, written in 1150. It is the first volume of his main work, the *Siddhānta Shiromani*, alongside the *Bijaganita*, the *Grahaganita* and the *Golādhyāya*.

His book on arithmetic is the source of interesting legends that assert that it was written for his daughter, Lilavati. A Persian translation of the Lilavati was commissioned in 1587 by Emperor Akbar and it was executed by Faizi. According to Faizi, Lilavati was Bhaskara II’s daughter.

71. Correct Answer is : (b) 1, 2 and 3

List of prime ministers defeated by votes of no confidence

**India**

- Morarji Desai (1979)
- Vishwanath Pratap Singh (1990)
- H. D. Deve Gowda (1997)
72. Correct Answer is : (b) 1, 2 and 3

The Rajya Sabha should consist of not more than 250 members - 238 members representing the States and Union Territories, and 12 members nominated by the President. Rajya Sabha is a permanent body and is not subject to dissolution. However, one third of the members retire every second year, and are replaced by newly elected members. Each member is elected for a term of six years. The Vice President of India is the ex-officio Chairman of Rajya Sabha.

However, the Rajya Sabha exercises three special powers jointly with the Lok Sabha. These powers relate to:

(a) the election and impeachment of the President of India, election and removal of the Vice-President and removal of Supreme Court Judges and the comptroller and Auditor-General of India;

(b) amendment of the Constitution, and

(c) approval of the Proclamation of Emergency issued by the President.

Exclusively it can under Article 249, empower Parliament to legislate on any subject in the State List. Under Article 312, the Rajya Sabha has the power to authorise Parliament to create one or more All India Services common to both the Union and the States. It will be seen that these are significant powers in so far as they can materially affect the autonomy of the States.

73. Correct Answer is : (c) 3 and 4

Pardoning Powers

*See also: Presidential pardon*

As mentioned in Article 72 of the Indian Constitution, the President is empowered with the powers to grant pardons in the following situations:

- Punishment is for an offence against Union Law
- Punishment is by a Military Court
- Sentence is that of death
The decisions involving pardoning and other rights by the President are independent of the opinion of the Prime Minister or the Lok Sabha majority. In most cases, however, the President exercises his executive powers on the advice of the Prime Minister and the cabinet.

When either of the two Houses of the Parliament of India is not in session, and if the government feels the need for an immediate procedure, the President can promulgate ordinances which have the same force and effect as an act passed by Parliament under its legislative powers. These are in the nature of interim or temporary legislation and their continuance is subject to parliamentary approval. Ordinances remain valid for no more than six weeks from the date the Parliament is convened unless approved by it earlier.

Article 85 of the constitution of India, while discussing "Sessions of Parliament, prorogation and dissolution" states:

85. (1) The President shall from time to time summon each House of Parliament to meet at such time and place as he thinks fit, but six months shall not intervene between its last sitting in one session and the date appointed for its first sitting in the next session.

(2) The President may from time to time—

(a) prorogue the Houses or either House;

(b) dissolve the House of the People.

Further article 83 of the constitution says following about "Duration of Houses of Parliament"

83. (1) The Council of States shall not be subject to dissolution, but as nearly as possible one-third of the members thereof shall retire as soon as may be on the expiration of every second year in accordance with the provisions made in that behalf by Parliament by law.

Also Part XVIII of the constitution, which specially deals with Emergency Provisions, does not talk about dissolution of Rajya Sabha.

74. Correct Answer is: (a) Yogis

Guru Gorakshanath (also known as Gorakhnath; estimated c. early 11th century) was an influential founder of the Nath Hindu monastic movement in India. He is considered as one of the two notable disciples of Matsyendranath. His followers are found in India's Himalayan states, the western and central states and the Gangetic plains as well as in Nepal. These followers are called yogis, Gorakhnathi, Darshani or Kanphata.
There was strong criticism of rituals and other aspects of conventional religion and social order by a number of religious groups that emerged during the period. They used simple logical arguments to support their ideas. Nathpanthis, Siddhacharas and Yogis were few such groups who criticized rituals as mentioned above. They became particularly popular among ‘low’ castes and their criticism of existing practices created the ground for devotional religion to become a popular force in north India.

75. **Correct Answer is : (a) 1, 2 and 3**

**Article 44 in The Constitution Of India 1949**

44. Uniform civil code for the citizens The State shall endeavour to secure for the citizens a uniform civil code throughout the territory of India

On the 28th of January, 1950, two days after India became a Sovereign Democratic Republic, the Supreme Court came into being. The inauguration took place in the Chamber of Princes in the Parliament building which also housed India's Parliament, consisting of the Council of States and the House of the People. It was here, in this Chamber of Princes, that the Federal Court of India had sat for 12 years between 1937 and 1950. This was to be the home of the Supreme Court for years that were to follow until the Supreme Court acquired its own present premises.
76. Correct Answer is: (c) 1, 3 and 4

In economics, a transfer payment (or government transfer or simply transfer) is a redistribution of income in the market system. These payments are considered to be non-exhaustive because they do not directly absorb resources or create output. In other words, the transfer is made without any exchange of goods or services. Examples of certain transfer payments include welfare (financial aid), social security, and government making subsidies for certain businesses (firms). By far the biggest transfer payment is that for scarce natural resources, in particular valuable locations, which would therefore include the greater part of rent, mortgage repayments and selling prices.

What Are Transfer Payments?

Government transfer payments span a wide range of uses and organizations. The funds for these payments also come from many different sources. However, the most common form of transfer payment is retirement and disability insurance benefits. These payments are made to those who qualify for OASDI benefits, railroad retirement and disability benefits, workers compensation programs and others.

77. Correct Answer is: (c) Sixth Schedule

WHAT IS AUTONOMOUS DISTRICT COUNCILS (ADC)

⇒ ADC are the districts within a state to which central government has given varying degrees of autonomy within the state legislature.
⇒ The establishment and functions of these ADC’s are based on the sixth schedule of the Constitution of India.

WHAT ARE THE FIFTH AND SIXTH SCHEDULES OF INDIAN CONSTITUTION
⇒ In order to protect tribal interest government had enacted these schedules.

HISTORICAL BACKGROUND
⇒ British people were the first to recognize the interests of the tribal people.
⇒ They purposefully isolated the tribal areas particularly in the North East of India from the jurisdiction of Civil, Criminal & Revenue Court.

78. Correct Answer is: (b) 1 and 2
**Aadhaar** is a 12 digit unique-identity number issued to an Indian resident based on their biometric and demographic data. The data is collected by "Unique Identification Authority of India (UIDAI)", a central government agency of India, and stored into a central database. It is considered the world's largest national identification number project.

On 23 September 2013, the Supreme Court of India issued an interim order saying that "no person should suffer for not getting Aadhaar" as the government cannot deny a service to a resident if s/he does not possess Aadhaar, as it is voluntary and not mandatory. In another interim order on 11 August 2015, the Supreme Court of India ruled that "UIDAI/Aadhaar will not be used for any other purposes except PDS, kerosene and LPG distribution system", and made it clear that even for availing these facilities Aadhaar card will not be mandatory.

The Government of India in a notification dated 16 December 2010 recognizes the letter issued by Unique Identification Authority of India (UIDAI) containing details of name, address and Aadhaar number, as an officially valid document. It neither aims to replace any existing identity cards nor it is a cognizance of citizenship. Aadhaar neither confers citizenship nor guarantees rights, benefits, or entitlements. Aadhaar is a random number which never starts with a 0 or 1, and is not loaded with profiling or intelligence into identity numbers that makes it insusceptible to fraud and theft.

79. Correct Answer is : (a) 1, 2 and 4

The **Comptroller and Auditor General (CAG) of India** is an authority, established by the Constitution under Constitution of India/Part V - Chapter V/Sub-part 7B/Article 148, who audits all receipts and expenditure of the Government of India and the state governments, including those of bodies and authorities substantially financed by the government. The CAG is also the external auditor of Government-owned corporations and conducts supplementary audit of government companies, i.e., any non-banking/ non-insurance company in which Union Government has an equity share of at least 51 per cent or subsidiary companies of existing government companies. The reports of the CAG are taken into consideration by the Public Accounts Committees (PACs) and Committees on Public Undertakings (COPUs), which are special committees in the Parliament of India and the state legislatures. The CAG is also the head of the Indian Audit and Accounts Department, the affairs of which are managed by officers of Indian Audit and Accounts Service, and has over 58,000 employees across the country.

The CAG is mentioned in the Constitution of India under Article 148 – 151. The CAG is ranked 9th and enjoys the same status as a judge of Supreme Court of India in Indian order of precedence.
The Comptroller and Auditor-General of India is appointed by the President of India following a recommendation by the Prime Minister. On appointment, he/she has to make an oath or affirmation before the President of India.

The CAG can be removed only on an address from both house of parliament on the ground of proved misbehaviour or incapacity. The CAG vacates the office on attaining the age of 65 years age even without completing the 6 years term.

80. Correct Answer is : (c) Lothal

Lothal is on the top of the Gulf of Khambat in Gujarat, India, near the Sabarmati River and the Arabian Sea. It is the most extensively researched Harappan coastal site. A bead factory and Persian Gulf seal have been found here suggesting that, like many sites on the Gulf of Khambat, it was deeply involved in trade.

81. Correct Answer is : (b) Ragi

How did this civilization make its living? Like the older civilizations proceeding Indus in Egypt and Mesopotamia, these ancient people farmed. The people of Indus prospered on the foundations of an agriculture based system of irrigation and fertility, maintained by silt-bearing floods. Wheat and six-row barley were grown, as were melon seeds, oil crops like sesame and mustard, and dates (petrified dates have been found in the excavation of the Valley). As for vegetables, the only apparent source was the field pea. The earliest traces of cotton known anywhere in the world have been found in the Valley. The people of Indus may have cultivated rice on the west coast, though this is not exactly certain (there is not enough evidence to prove this statement entirely true).

82. Correct Answer is : (a) Rangpur : Rice Husk
Apart from Lothal there is only one site where rice husk has been found and that is Rangpur. Surkotada site contains horse remains dated to ca. 2000 BCE, which is considered a significant observation with respect to Indus Valley Civilisation.

The most important discovery of Kalibangan is a ploughed field.

At Kalibangan, fire altars have been discovered, similar to those found at Lothal which S.R. Rao thinks could have served no other purpose than a ritualistic one. These altars suggest fire worship or worship of Agni, the Hindu god of fire. It is the only Indus Valley Civilization site where there is no evidence to suggest the worship of the "mother goddess".

Within the fortified citadel complex, the southern half contained many (five or six) raised platforms of mud bricks, mutually separated by corridors.

83. Correct Answer is : (d) Khila

Classification of Land

In Vedic age land was classified as Urvara (cultivable land), Khila (barren land), Dhanva (waste land) and Aranya (forest). In Amarakosha land has been grouped according to fertility, physical composition and situation like-

1. Urvara- fertile land
2. Usara- barren land
3. Maru- desert land
4. Aprahata- fallow land
5. Saadvala- grassy land
6. Pankila- muddy land
7. Jalapraayamanupam- wet land
8. Nadimaatraka- land watered by river
9. Devamaatraka- land watered by rain
10. Kachcha- land contiguous to water
11. Sarkara- Land full of pebbles
12. Sakravati- sandy land

84. Correct Answer is: (d) providing Internet access to rural and remote areas

Project Loon is a research and development project being developed by X (formerly Google X) with the mission of providing Internet access to rural and remote areas. The project uses high-altitude balloons placed in the stratosphere at an altitude of about 18 km (11 mi) to create an aerial wireless network with up to 4G-
LTE speeds. It was named Project Loon, since Google itself found the very idea of providing internet access to the remaining 5 billion population unprecedented and "crazy."

85. Correct Answer is: (b) Two Tribes

Mandala VI also mentions a number of events where Indra has assisted or come to the rescue of his worshipers. Again, these could be actual events, the positive outcome however credited to their God. Some of these events include:
- Assistance to Usana, son of Kavi
- The miraculous recovery or rescue of Navavasta who is then returned to his grandfather
- The voyage/migration of Yadu and Turvasa tribes over the sea.

86. Correct Answer is: (d) Bhikkhu

A bhikkhu is an ordained male monastic ("monk") in Buddhism. Male and female monastics ("nun", bhikkhuni (Sanskrit bhikṣuṇī) are members of the Buddhist community. The lives of all Buddhist monastics are governed by a set of rules called the prātimokṣa or pātimokkha. Their lifestyles are shaped to support their spiritual practice: to live a simple and meditative life and attain nirvana.

A person under the age of 20 cannot be ordained as a bhikkhu or bhikkhuni but can be ordained as a śrāmaṇera or śrāmaṇeri.

87. Correct Answer is: (b) Ganga river

The Aryans pushed their way along the river Ganga and Yamuna from Sapt Sindhu and by and by occupied the whole of Northern India from the Himalayas to the Vindhayas. The area was called as Aryavartha or 'the land of the Aryans'. The period between 100 B.C. and 600 B.C. during which the Aryans settled in the Gangetic valley, was known as the later Vedic age. During this period the Aryans occupied vast areas in Uttar Pradesh, Bihar, Orissa, Bengal and other parts of North India. The events relating to Ramayana and Mahabharata took place during the later part of the Vedic period.

88. Correct Answer is: (c) Coastal area
Four of the geographical landscapes are described as being landscapes that occur naturally in the Tamil lands. These are: kuṟṟiñci - mountainous regions, associated with union, mullai - forests, associated with waiting, marutam - cropland, associated with quarreling, and neytal - seashore, associated with pining. The fifth - pālai or desert, associated with separation - is described in the Tolkappiyam as not being a naturally existing landscape.

89. Correct Answer is : (c) Bimbisara

Chandragupta Maurya was the founder of the Maurya Empire and the first emperor to unify north and south west of present-day India into one state. He ruled from 324 BCE until his voluntary retirement and abdication in favour of his son, Bindusara. Dasharatha was Mauryan Emperor from 232 to 224 BCE. He was a grandson of Ashoka.

Bimbisara was the first great king of the Haranyaka Dynasty. Most sources agree that Bimbisara was son of Bhattiya who made his son Bimbisara, a king at the age of 15 years.

90. Correct Answer is : (c) Sikandar Lodhi

Though the heritage of Agra city is linked with the Mughal dynasty, numerous other rulers also contributed to the rich past of this city. Agra was founded by Sikandar Lodhi (Lodhi dynasty; Delhi Sultanate) in the 16th century.

91. Correct Answer is : (b) Peasants
92. Correct Answer is: (b) Indo Pakistan war of 1971

Operation Trident and the follow-up Operation Python were offensive operations launched by the Indian Navy on Pakistan's port city of Karachi during the Indo-Pakistani War of 1971.

93. Correct Answer is: (c) House tax

Kharaj is a type of individual Islamic tax on agricultural land and its produce developed under Islamic law.

94. Correct Answer is: (c) Srinivasa Ramanujan

Every year 22nd December is observed as National Mathematics Day to celebrate birth anniversary of great Indian autodidact Mathematician Srinivasa Ramanujan. This year, it will be the 128th birth anniversary of Srinivasa Ramanujan.

95. Correct Answer is: (c) Both 1 and 2

24th December: National Consumer Day

In India, 24th December is being observed as National Consumer Day. On this day the Consumer Protection Act, 1986 had received the assent of the President. The enactment of this Act was considered as a historic milestone in the consumer movement in the country.
25th December: National Good Governance Day
In India, National Good Governance Day is observed every year on 25th December on the birth anniversary of former Prime Minister and Bharat Ratna recipient Atal Bihari Vajpayee.

96. Correct Answer is: (c) Iran

Iran has successfully carried out test of medium range Ghadr-110 ballistic missile near the Chabahar, a port city in southeast of country along the Gulf of Oman. With this, Iran so far has breached of two United Nations Security Council (UNSC) resolutions which compels it to refrain from any work on ballistic missiles for 8 years.

97. Correct Answer is: (d) Israel

The Arrow or Hetz is a family of anti-ballistic missiles designed to fulfill an Israeli requirement for a theater missile defense system that would be more effective against ballistic missiles than the MIM-104 Patriot surface-to-air missile. Jointly funded and produced by Israel and the United States, development of the system began in 1986 and has continued since, drawing some contested criticism. Undertaken by Israel Aerospace Industries (IAI) and Boeing, it is overseen by the Israeli Ministry of Defense’s “Homa” administration and the U.S. Missile Defense Agency.

98. Correct Answer is: (d) Saudi Arabia

Saudi Arabia has launched Islamic Military Coalition, a new military alliance of 34 nations mainly Muslim nations to fight terrorism.

The Islamic Military Alliance to Fight Terrorism (IMAF), alternative translation Islamic Military Counter Terrorism Coalition, is an intergovernmental military alliance of countries in the Muslim world united around military intervention against ISIL and other counter-terrorist activities. When the coalition was announced there were 34 members; by March 2016 this had risen to 39.

The organization is based at a joint command center in Riyadh, Saudi Arabia. Its creation was first announced by Mohammad bin Salman Al Saud, Saudi Arabia’s Minister of Defense, on December 15, 2015.

99. Correct Answer is: (d) Russia

Defence Acquisition Council (DAC) has cleared the purchase of Russian advance S-400 Trium Air Defence Missile Systems at an estimated cost of 40,000 crore rupees.

100. Correct Answer is: (c) Both 1 and 2

Five months after leasing Assumption Island, one of the 115 islands that constitute Seychelles, India has begun preparations for infrastructure development, including quarters for the Seychelles Coast Guard and fixing the airstrip on the remote island where there is very little human activity.
Prime Minister Narendra Modi, in a media statement after talks with visiting Seychelles President James Alix Michel here on Wednesday, said: "We have begun preparations for infrastructure development on Assumption Island in Seychelles."

Seychelles government allowed India to build its first Naval Base on the Assumption Island in the Indian Ocean region (IOR) as a joint project between both countries.