1. Correct Answer is: (a) more

Relative humidity – Relative humidity (RH) is the amount of water vapor in the air compared to the amount of water vapor that air could hold at a given temperature. A hydrated leaf would have a RH near 100%, just as the atmosphere on a rainy day would have. Any reduction in water in the atmosphere creates a gradient for water to move from the leaf to the atmosphere. The lower the RH, the less moist the atmosphere and thus, the greater the driving force for transpiration. When RH is high, the atmosphere contains more moisture, reducing the driving force for transpiration.

2. Correct Answer is: (d) Vitamin A

Golden rice is a variety of rice (Oryza sativa) produced through genetic engineering to biosynthesize beta-carotene, a precursor of vitamin A, in the edible parts of rice. The research was conducted with the goal of producing a fortified food to be grown and consumed in areas with a shortage of dietary vitamin A, a deficiency which is estimated to kill 670,000 children under the age of 5 each year.

3. Correct Answer is: (b) Triticum aestivum

What are the main species of Wheat cultivated in India?
- Triticum aestivum-95%
- Triticum durum-4% and Triticum dicoccum- 1%(Production)

4. Correct Answer is: (a) Older leaves

Plants were grown hydroponically to characterize the deficiency symptoms caused by the absence of calcium (Ca) or boron (B). Primary symptoms occurred on the youngest tissue for both elements, but distinct differences between Ca and B deficiencies were observed. Plants responding to Ca deficiency exhibited discoloration and upward rolling of leaves and
ultimately necrosis. Plants responding to B deficiency exhibited minor chlorosis, upward curling, and thickening of leaves, distorted meristems, and strap-like leaves.

Plants exhibiting an initial deficiency had leaves that had some bronzing on the margins of older leaves and younger leaves were curled and necrotic on the edges (Fig. 3A). The bronzing color was more pronounced on plants with moderate symptoms and necrosis was more pronounced on younger leaves. Plants with advanced symptoms had fewer leaves and bronzing on older leaves and younger leaves were completely necrotic.

5. **Correct Answer is : (a) Residential school at primary levels for girls belonging to Scheduled Castes, Scheduled Tribes, Other Backward Classes and minorities**

The **Kasturba Gandhi Balika Vidyalaya** scheme was introduced by the **Government of India** in August 2004, then integrated in the **Sarva Shiksha Abhiyan** program, to provide educational facilities for girls belonging to **Scheduled Castes, Scheduled Tribes, Other Backward Classes**, minority communities and families below the **poverty line** in Educationally Backward Blocks.

6. **Correct Answer is : (b) Long bone**

Lymphocytes are the cells that determine the specificity of the immune response to infectious microorganisms and other foreign substances. In humans lymphocytes make up 25 to 33% of the total number of leukocytes. They are found in central lymphoid organs and tissues such as the spleen, tonsils and lymph nodes and large bones.

7. **Correct Answer is : (c) A is true but R is false**

Assertion is true because a balance diet is a diet which contains the correct amount of carbohydrates, proteins and fats. But the reason is false, because human body cells synthesize various fatty acids except iinoleic and linolenic fatty acids.

8. **Correct Answer is : (a) 1 and 2**

   i. The largest bone in human body is femur.
   
   ii. Cholera is caused by a bacteria Vibrio cholerae,
   
   iii. Athlete's foot disease is caused by parasitic fungus of genus Trichophyton.
9. Correct Answer is : (b) Rosaceae

Rosaceae (the rose family) is a medium-sized family of flowering plants, including about 2830 species in 95 genera. The name is derived from the type genus Rosa. Among the most species-rich genera are Alchemilla (270), Sorbus (260), Crataegus (260), Cotoneaster (260), Rubus (250), and Prunus (plums, cherries, peaches, apricots, and almonds) with about 200 species. However, all of these numbers should be seen as estimates - much taxonomic work remains.

Rosaceae includes herbs, shrubs and trees. Most species are deciduous, but some are evergreen. They have a worldwide range, but are most diverse in the Northern Hemisphere.

Several economically important products come from the Rosaceae, including many edible fruits (such as apples, pears, quinces, apricots, plums, cherries, peaches, raspberries, loquats, and strawberries), almonds, and ornamental trees and shrubs (such as roses, meadowsweets, photinias, firethorns, rowans, and hawthorns)

10. Correct Answer is : (b) Glucose

Cellulose is an organic compound with the formula \( (C_6H_{10}O_5)^n \), a polysaccharide consisting of a linear chain of several hundred to many thousands of \( \beta(1\rightarrow4) \) linked D-glucose units. Cellulose is an important structural component of the primary cell wall of green plants, many forms of algae and the oomycetes. Some species of bacteria secrete it to form biofilms. Cellulose is the most abundant organic polymer on Earth. The cellulose content of cotton fiber is 90%, that of wood is 40–50% and that of dried hemp is approximately 45%.

Cellulose is mainly used to produce paperboard and paper. Smaller quantities are converted into a wide variety of derivative products such as cellophane and rayon. Conversion of cellulose from energy crops into biofuels such as cellulosic ethanol is under investigation as an alternative fuel source. Cellulose for industrial use is mainly obtained from wood pulp and cotton.

11. Correct Answer is : (b) 3 only
Dengue viruses are transmitted to humans through the bites of infective female Aedes mosquito. The symptoms of disease are characterized by high fever, severe muscle pain, joint pain and rashes in body.

12. Correct Answer is: (b) Shirdi

World’s largest solar steam system has been installed at Sri Sai Baba Sansthan, Shirdi in Maharashtra, an official release said.

The solar steam system, which was recently inaugurated by New and Renewable Energy Minister Farooq Abdullah, has been designed for cooking food for devotees visiting the Sai temple, according to the release. By installing the solar powered cooker, at a cost of Rs 1.33 crore, the organiser can cook food for 20,000 people per day incurring cheaper cost on fuel.

13. Correct Answer is: (a) Mechanical energy

The principle of the electromagnet - AC Electric Bell

The electric bell is a small electrical devices that convert electrical energy into mechanical energy in the form of sound.

After pressing a button that connects the bell circuit, the electromagnet pulls anchor. Anchor oscillates between two poles of the electromagnet core rhythm in the frequency of alternating current, which is powered by the bell. This arrangement creates an electric spark, the current does not break mechanically. Prolonged vibrating armature strikes the bell metal (resonator) and the shock caused by sound effect. Some electric bells have two resonators, which alludes to the mallet, each in one extreme position, and may have a different resonant frequency.

14. Correct Answer is: (d) Solar Energy is converted into Electrical energy

Solar (or photovoltaic) cells convert the sun’s energy into electricity. Whether they’re adorning your calculator or orbiting our planet on satellites, they rely on the the photoelectric effect: the ability of matter to emit electrons when a light is shone on it. 

Silicon is what is known as a semi-conductor, meaning that it shares some of the properties of metals and some of those of an electrical insulator, making it a key ingredient in solar cells. Let’s take a closer look at what happens when the sun shines onto a solar cell.
Sunlight is composed of miniscule particles called photons, which radiate from the sun. As these hit the silicon atoms of the solar cell, they transfer their energy to loose electrons, knocking them clean off the atoms. The photons could be compared to the white ball in a game of pool, which passes on its energy to the coloured balls it strikes.

15. Correct Answer is: (c) Cotton

Silver Fiber Revolution – Cotton

16. Correct Answer is: (b) Gibberellic acid

Cycocel®

Plant Growth Regulator

Cycocel is among the most reliable and widely used plant growth regulators on the market today. Cycocel may be used on any crop in the greenhouse or nursery including but not limited to, poinsettias, hibiscus, azaleas, and geraniums to reduce stem elongation, induce early flowering, improve flowering, and to produce compact plants with multiple buds per shoots.

17. Correct Answer is: (b) 71

Article 71 in The Constitution Of India 1949

71. Matters relating to, or connected with, the election of a president or Vice President

(1) All doubts and disputes arising out of or in connection with the election of a president or vice President shall be inquired into and decided by the Supreme court whose decision shall be final

(2) If the election of a person as President or Vice President is declared void by the Supreme court, acts done by him in the exercise and performance of the powers and duties of the office of President or Vice President, as the case may be, on or before the date of the decision of the Supreme Court shall not be invalidated by reason of that declaration

(3) Subject to the provisions of this constitution, Parliament may by law regulate any matter relating to or connected with the election of a President or Vice President
The election of a person as President or Vice President shall not be called in question on the ground of the existence of any vacancy for whatever reason among the members of the electoral college electing him.

18. Correct Answer is: (d) 31st

<table>
<thead>
<tr>
<th></th>
<th>Amend articles 81, 330 and 332.</th>
<th>17 October 1973</th>
<th>Increase size of Parliament from 525 to 545 seats. Increased seats going to the new states formed in North East India and minor adjustment consequent to 1971 Delimitation exercise</th>
</tr>
</thead>
</table>

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

Gibberellic acid (also called Gibberellin A3, GA, and GA₃) is a hormone found in plants and fungi. Its chemical formula is C₁₉H₂₂O₆. When purified, it is a white to pale-yellow solid.

However, plants produce low amount of GA₃, therefore this hormone can be produced industrially by microorganisms. Nowadays, it is produced by submerse fermentation, but this process presented low yield with high production costs and hence higher sale value. One alternative process to reduce costs of the GA₃ production is Solid-State Fermentation (SSF) that allows the use of agro-industrial residues

20. Correct Answer is: (d) Saving tendency is reduced

Why is price stability better than inflation or deflation?
Price stability helps create an environment where economic growth may occur more easily. It does this by enabling money to work as the means by which people and businesses transact and contract with one another. When inflation is high, firms and businesses face uncertainty about the future, and this changes the way in which they behave.

Consider, for example, how people may change the way in which they save. When inflation is high, there are good reasons to avoid placing deposits with financial institutions. The amount deposited is expressed in units of money, and if money is losing its buying power, the real value of the amount saved will decline. Even if the institution pays a rate of interest that includes compensation for the loss of buying power, that interest will be treated as income for income tax purposes, so in after-tax terms, the saver is still disadvantaged. In these circumstances it
makes sense for savers not to place deposits with saving institutions, but to buy assets whose prices can be expected to rise with inflation, such as real estate.

The result is savers invest directly, instead of depositing funds with financial institutions that on-lend those deposits to households and firms with borrowing needs (for housing and to develop their businesses). In effect, the tendency is for savers to adopt a ‘do-it-yourself’ approach to investing their savings, rather than have a specialised institution do this. While that is sensible from the standpoint of the individual saver - in that it enables them to avoid being penalised by inflation - it almost certainly results in the country's economic resources being used less effectively and efficiently than they could be. Economic growth suffers as a result.

21. Correct Answer is : (b) Only 2

Constitution of India prohibits child labour in hazardous industries (but not in non-hazardous industries) as a Fundamental Right under Article 24. UNICEF estimates that India with its larger population, has the highest number of labourers in the world under 14 years of age, while sub-saharan African countries have the highest percentage of children who are deployed as child labour.

International Labour Organisation estimates that agriculture at 60 percent is the largest employer of child labour in the world, while United Nation's Food and Agriculture Organisation estimates 70% of child labour is deployed in agriculture and related activities. Outside of agriculture, child labour is observed in almost all informal sectors of the Indian economy.

Article 24 in The Constitution Of India 1949

Prohibition of employment of children in factories, etc No child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment Provided that nothing in this sub clause shall authorise the detention of any person beyond the maximum period prescribed by any law made by Parliament under sub clause (b) of clause (7); or such person is
detained in accordance with the provisions of any law made by Parliament under sub clauses (a) and (b) of clause ( 7 ).

22. Correct Answer is : (c) Linear momentum

Rockets can propel themselves through the nothingness of space because of two fundamental laws of physics: Newton’s Third Law and the Conservation of Linear Momentum. Both ideas are essential to understanding how nearly everything in the universe moves. When an ice skater takes off from a dead stop, she digs her blade into the ice and the ice pushes back with an equal and opposite force, sending her gliding across the rink. When a cannon is fired, the cannonball goes hurtling through the air while the cannon recoils backward in response. Both of these principles stem from the same general idea: that the universe likes to keep everything in balance.

23. Correct Answer is : (b) 1 and 2

Independent Labour Party (ILP) was an Indian political organization formed under the leadership of Dr. B. R. Ambedkar in August 1936 against the brahmanical and capitalist structures in the society. ILP argued for Indian labour class while also stressing on the nature of caste structures and need for its annihilation.

The formation of ILP was not welcomed or supported by the communist leaders arguing that this will lead to a split in the working-class votes. Ambedkar replied that communist leaders were working for the rights for the worker but not for the human rights of dalit workers. In his work “Annihilation of Caste” Ambedkar put forth the idea that caste is not merely the 'division of labour' but 'division of labourers' based upon the graded inequality.

24. Correct Answer is : (c) Bacillus anthrasis

What is anthrax?
Anthrax is a life-threatening infectious disease that normally affects animals, especially ruminants (such as goats, cattle, sheep, and horses). Anthrax can be transmitted to humans by contact with infected animals or their products. In recent years, anthrax has received a great deal of attention as it has become clear that the infection can also be spread by a bioterrorist attack or by biological warfare. Anthrax does not spread from person to person.

What causes anthrax?
The agent of anthrax is a bacterium called Bacillus anthracis. While other investigators discovered the anthrax bacillus, it was a German physician and scientist, Dr. Robert Koch,
who proved that the anthrax bacterium was the cause of a disease that affected farm animals in his community.

25. **Correct Answer is : (c) Pentamidine**

**Pentamidine** (formulated as a salt, pentamidine diisethionate or dimesilate) is an antimicrobial medication given for prevention and treatment of Pneumocystis pneumonia (PCP) caused by *Pneumocystis jirovecii* (formerly known as *Pneumocystis carinii*), a severe interstitial type of pneumonia often seen in patients with HIV infection. The drug is also the mainstay of treatment for stage I infection with *Trypanosoma brucei gambiense* (West African Trypanosomiasis).

It is on the World Health Organization's List of Essential Medicines, a list of the most important medications needed in a basic health system.

26. **Correct Answer is : (c) Medium term loan**

**Agri Medium-Term Loan**

An Agri Medium-Term Loan can be used for the establishment of production capacity, such as the purchase of livestock, establishing orchards and farm buildings, and other projects that take time to generate an income.

27. **Correct Answer is : (b) Amboli**

**Amboli** is a hill station in south Maharashtra, India. At an altitude of 690 m it is the last hill station before the coastal highlands of Goa and a relatively unexplored one.

The main attraction for tourists is the incredibly high rainfall (7 m average per year) and the numerous waterfalls and mist during the monsoons. Legend has it that there are 108 Shiva temples in and around Amboli of which only a dozen have been uncovered, one as recently as 2005. There aren't too many places to see or things to do but it is quiet, unpolluted and the local residents are good natured and helpful.

28. **Correct Answer is : (a) A.C.**

**Alternating Current (AC)**

Alternating current describes the flow of charge that changes direction periodically. As a result, the voltage level also reverses along with the current. AC is used to deliver power to houses, office buildings, etc.
here are two important factors that determine the use of AC instead of DC:

1) Power: Power is defined by the voltage x current (V x I = W). This equation indicates that the higher the voltage, the lower the current, and that the lower the voltage, the greater the current, for the same power (consumption). If using a very high current, the thickness of larger diameter wire must, therefore more expensive. The transmission lines would be very expensive, so high voltages are used (thousands of volts) to transmit from the generating plants, with relatively thin wires.

2) Transformers: These work only with AC power (for induction), and are necessary to lower the voltage and current to raise the nominal levels used in homes.

Both factors are complementary, DC cables using low voltages, it would be too expensive (cable diameter should be large), as could not be used transformers.

In the case of using their own sources of energy such as solar, wind, chemistry, etc.. The use of AC would only be for reasons of standards, and this is solved by voltage inverters (DC to AC),

29. **Correct Answer is : (b) phloem cells**

Translocation is the movement of materials from leaves to other tissues throughout the plant. Plants produce carbohydrates (sugars) in their leaves by photosynthesis, but nonphotosynthetic parts of the plant also require carbohydrates and other organic and nonorganic materials. For this reason, nutrients are translocated from sources (regions of excess carbohydrates, primarily mature leaves) to sinks (regions where the carbohydrate is needed). Some important sinks are roots, flowers, fruits, stems, and developing leaves. Leaves are particularly interesting in this regard because they are sinks when they are young and become sources later, when they are about half grown.

The tissue in which nutrients move is the **phloem**. The phloem is arranged in long, continuous strands called vascular bundles that extend through the roots and stem and reach into the leaves as veins. Vascular bundles also contain
the **xylem**, the tissue that carries water and dissolved minerals from the roots to the shoots. When plants increase in diameter (secondary growth) they do so by divisions of a layer of cells just under the bark; this cell layer makes new **xylem** to the inside (forming the wood of the tree trunk) and a thin, continuous cylinder of new phloem to the outside.

30. **Correct Answer is : (b) 24 December** The National Consumers Right Day day is being observed on 24 December, since the Consumer Protection Act, 1986 was enacted on this day in 1986.

31. **Correct Answer is : (c) Kepler's Laws of motion**

In **astronomy**, **Kepler's laws of planetary motion** are three **scientific laws** describing the motion of **planets** around the **Sun**.

1. The **orbit** of a planet is an **ellipse** with the Sun at one of the two **foci**.
2. A line segment joining a planet and the Sun sweeps out equal areas during equal intervals of time.
3. The square of the **orbital period** of a planet is proportional to the cube of the **semi-major axis** of its orbit.

32. **Correct Answer is : (d) b and c both**

In **economics**, the **law** states that, **all else being equal**, as the price of a product increases (↑), quantity demanded falls (↓); likewise, as the price of a product decreases (↓), quantity demanded increases (↑). There is an **INVERSE** relationship between **quantity demand** and its **price**.

In other words, the **law of demand** states that the quantity demanded and the price of a **commodity** are inversely related, other things remaining constant. If the **income** of the consumer, prices of the related **goods**, and preferences of the consumer remain unchanged, then the change in quantity of good demanded by the consumer will be negatively correlated to the change in the price of the good. There are, however, some possible exceptions to this rule (see **Giffen goods** and **Veblen goods**).

33. **Correct Answer is : (d) Russia**

Today, Russia is the largest buyer of Indian tea, with its imports around 41 million kg tea per annum, mainly as bulk tea, which constitutes 25 percent of Indian tea exports.
34. **Correct Answer is : (a) Lycopene**

The red colour of fruits and vegetables such as tomato, watermelon, or grapefruit, is due to the compound lycopene (also belonging to the carotenoids, like α- and β-carotene), and the red-purple colour of grapes, berries, raspberries and cranberries is caused by anthocyanins.

35. **Correct Answer is : (c) 1 and** Green leafy vegetables also contain high amounts of iron and folic acid, and the ascorbic acid or vitamin C present in them facilitates iron absorption.

36. **Correct Answer is : (d) Octroi**

**Local Body Tax**, popularly known by its abbreviation as **LBT**, is the tax imposed by the local civic bodies of India on the entry of goods into a local area for consumption, use or sale therein. The tax is imposed based on the point 52 of the **State List** from the Schedule VII of the **Constitution of India** which reads; "Taxes on the entry of goods into a local area for consumption, use or sale therein." The tax is to be paid by the trader to the civic bodies and the rules and regulations of these vary from **state to state within India**.

The tax supersedes the "octroi" and "Cess" system of taxing. The octroi system, which originates from the **ancient Roman times**, levied tax on the goods while they entered the limits of the civic body. In it, the trucks or goods carriers had to pay tax while they entered the city limits at the octroi check posts. As of 2013, the Indian state of **Maharashtra** and one state in the **Northeast African** country of **Ethiopia** are the only known regions to impose octroi. The system was in practice in Maharashtra since 1965. In March 2013, in a joint session of the **Maharashtra Legislative Assembly** and the **Maharashtra Legislative Council**, the **Chief Minister of Maharashtra Prithviraj Chavan** announced that the octroi and cess will be cancelled and LBT would be levied in the municipalities of **Mumbai, Thane, Pune, Nagpur** and **Pimpri-Chinchwad** in the same year. The LBT was in action in other 20 municipalities at that time.

37. **Correct Answer is : (c) To practice family planning and control population**

**Article 51A. Fundamental Duties.**-

It shall be the duty of every citizens of India-

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;
(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

38. Correct Answer is : (b) 1 and 2

A type of elastic wave, the S-wave, secondary wave, or shear wave (sometimes called an elastic S-wave) is one of the two main types of elastic body waves, so named because they move through the body of an object, unlike surface waves.

The S-wave moves as a shear or transverse wave, so motion is perpendicular to the direction of wave propagation. The wave moves through elastic media, and the main restoring force comes from shear effects. These waves do not diverge, and they obey the continuity equation for incompressible media:

Its name, S for secondary, comes from the fact that it is the second direct arrival on an earthquake seismogram, after the compressional primary wave, or P-wave, because S-waves travel slower in rock. Unlike the P-wave, the S-wave cannot travel through the molten outer core of the Earth, and this causes a shadow zone for S-waves opposite to where they originate. They can still appear in the solid inner core: when a P-wave strikes the boundary of molten and solid cores, called the Lehmann discontinuity, S-waves will then propagate in the solid medium. And when the S-waves hit the boundary again they will in turn create P-waves. This property allows seismologists to determine the nature of the inner core.
39. **Correct Answer is : (a) $10^{-9}$**

The term “nano” refers to the metric prefix $10^{-9}$. It means one billionth of something. “Nano” can be ascribed to any unit of measure. For example, you may report a very small mass in nanograms or the amount of liquid in one cell in terms of nanoliters.

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

He was one of the first members of the Prarthana Samaj, founded in 1867, following Keshab Chandra Sen's visits to Bombay. Under his guidance the Samaj engaged in a campaign of reformation without alienating the more orthodox elements of the society. Despite the opposition of Tilak, this campaign met with success.

His judgeship precluded Ranade from actively entering politics. As a result, his contribution to the nationalist movement came largely through his reformist campaigns. In 1887 he founded the Indian National Social Conference, whose meetings were concurrent with the annual Congress sessions. In 1890 he inaugurated the Industrial Association of Western India, having come to the conclusion that a constructive solution to India's problems lay in a vigorous policy of industrial and commercial development.
41. Correct Answer is: (a) ISO-9000 and BIS-14000

This policy provides a number of facilities for deemed exports viz., tax free scheme, duty drawback scheme, exemption from quarterly excise duty and special import licensing for the value of deemed exports. Export promotion councils have played a significant role in the area of exports and the registration of exporters with these organisations has continued. It has been made essential to produce registration and membership certificate for any importers to get benefits or concessions or to submit applications for any licenses. Certain categories of export and exporters are accepted to be eligible for special import licences. In this category, deemed exports, export houses, trade house, star houses and manufacturers having L.S.O.-9000 (series) or B.I.S.-14000 (series) of quality are included. In this policy special attention has been paid to simplification and transparency. For this purpose, export procedures are reduced to the minimum. There is a provision for amendment once in three months, barring cases where amendments have necessarily to be notified earlier.

42. Correct Answer is: (c) Stump method

Nursery practices -
Raised beds (30 cm high, supported with split areca stems) of 10 x 1 m are formed. Sand and soil mixed with farmyard manure form the top layer. Sowing is done after the bed is watered. Usually the sowing is done by broadcast method or dibbling in April-May. Seed rate is 3-5 kg of seeds per bed. After sowing, the seeds may be pressed into the beds. A thin layer of soil also can be sprinkled to cover the seeds. The beds are also mulched with green leaves to reduce evaporation losses. The bed is then dusted with carbaryl 10% to prevent insect attack.

One-year-old seedlings of 1-2 cm (thumb thickness) at the thickest portion below the collar are removed from mother beds and used for making stumps. Stumps with 15-20 cm of root at 2-3 cm of stem prepared with sharp knives are commonly used for planting. Teak seedlings can be produced in shorter duration by using polythene bags or root trainers. Three to four month old teak seedlings are pricked out from the germination beds into polythene bags (30 cm x 20 cm) in the month of March/April.
43. Correct Answer is : (c) Land Tax

The income of the panchayat samiti comes from three sources:

1. taxes levied upon land and water usage, professional taxes, liquor taxes and others
2. income generating programmes
3. grants-in-aid and loans from the State Government and the local zila parishad
4. voluntary contributions

For many of the panchayat samiti the main source of income becomes state aid. For others, the traditional taxing function provides the bulk of revenues. Tax revenues are often shared between the gram panchayats and the panchayat samiti.

44. Correct Answer is : (b) among young women

MISSION

Providing opportunities for professionally qualified women to take to a career of remunerative self-employment through the organization of environment friendly biotechnological enterprises.

45. Correct Answer is : (a) India

Using a novel approach, scientists in India have developed a live oral cholera vaccine that is not only more efficacious and hence more protective than the currently available ones but also able to elicit better protection with just one dose. The results of the human clinical trial of the vaccine have been published in July this year in the journal *PLoS ONE*.

“We were able to achieve 65.9 per cent sero-conversion using only one dose of the vaccine,” said Amit Ghosh who is currently an Emeritus Scientist at the National Institute of Cholera and Enteric Diseases (NICED) in Kolkata. An Indian cholera vaccine now available produces only 53 per cent protection after two doses.

The difference between the existing three vaccines and the candidate vaccine — VA1.4 — being tested goes beyond the level of protection achieved. The most important one from the
public health perspective is that the higher protection was achieved using only one dose of the vaccine.

‘Shanchol’, marketed by Hyderabad-based Shantha Biotechnics requires two doses to achieve 53 per cent protection, with the second dose given 14 days after the first. The other two vaccines too need to be given in two doses.

46. **Correct Answer is : (b) 1, 2 and 4**

On 1st September 1947 the Indian Standard Time (IST) was introduced as the official time for the whole country.

The Indian Standard Time is observed throughout India, with a time offset of UTC+5:30. This means that India is five and a half hours ahead of Greenwich Mean Time. Unlike other countries, India does not observe Daylight Saving Time. Indian Standard Time is computed on the basis of 82.5 degrees East longitude from a clock tower in Mirzapur near Allahabad, as it near the corresponding longitude reference line.

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

A **progressive tax** is a tax where the tax rate increases as your income increases. The United States currently has a progressive income tax that requires higher income citizens to pay a larger percentage of their income in taxes.

**Pros**

**Income Equality** - This is one of the biggest pros that progressive tax advocates promote. A progressive tax system really acts as a tool for redistributing income from the upper class to the lower and middle class. Those individuals who earn more pay more into the federal government. This helps keep the income gap from growing wider between the rich and the poor.

**Social Justice** - Some argue that it is morally right that those who can afford to pay more in taxes should do so. Those that have very little income should be helped out by those who can afford to help. A progressive tax allows governments to collect money from those who can afford to pay, and uses it to help create a society that is more happy as a result. Those taxes are used to fund education, medical services, housing assistance and other welfare programs for those people who really need help. Because so many people need help with these things, society is better off as a whole.

**More Government Revenue** - A progressive system allows governments to collect more money from higher income earners. This results in more money collected, rather than if
everyone paid the same percentage. As a result, the government can provide more programs and services that benefit society.

48. Correct Answer is: (b) Mutagenic and carcinogenic compounds

49. Correct Answer is: (a) CFC emission

Global Warming Causes

Global warming is primarily a problem of too much carbon dioxide (CO2) in the atmosphere—which acts as a blanket, trapping heat and warming the planet. As we burn fossil fuels like coal, oil and natural gas for energy or cut down and burn forests to create pastures and plantations, carbon accumulates and overloads our atmosphere. Certain waste management and agricultural practices aggravate the problem by releasing other potent global warming gases, such as methane and nitrous oxide. See the pie chart for a breakdown of heat-trapping global warming emissions by economic sector.
50. Correct Answer is: (d) All the above

Tax Incidence:

The relative burden, or incidence, of an indirect tax is determined by the price elasticity of demand (PED) of the consumer in response to a price rise. If the consumer is unresponsive, and PED is inelastic, the burden will fall mainly on the consumer. However, if the consumer is responsive to the price rise, and PED is elastic, the burden will fall mainly on the firm.

**Tax burden on the consumer**

When demand is inelastic, the tax burden is mainly on the consumer.

**Tax burden on producer**

When demand is elastic, the tax burden is mainly on the producer.

**Tax burden evenly split**

In this case, the tax burden is split evenly between the consumer and producer.

**Example - the incidence of a tax on cigarettes**

If a government puts a £1 tax on each packet of cigarettes, the legal incidence is on the cigarette smoker. However, the local market may have many sellers, and be highly competitive. This means that a retailer, fearing they will lose sales, may decide to put up the price by only 50p, and pay the balance of 50p to the government themselves. In this case, the economic incidence is shared because both are worse off.

51. Correct Answer is: (b) Reservations in educational institutions

THE CONSTITUTION (NINETY-THIRD AMENDMENT) ACT, 2005
(5) Nothing in this article or in sub-clause (g) of clause (1) of article 19 shall prevent the State from making any special provision, by law, for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes or the Scheduled Tribes in so far as such special provisions relate to their admission to educational institutions including private educational institutions, whether aided or unaided by the State, other than the minority educational institutions referred to in clause (1) of article 30."

52. Correct Answer is : (d) 2020

53. Correct Answer is : (b) 250 gram

For one litre of buffalo milk having 7-8 % fat gains 80gms of ghee than 35 to 40 gms of ghee from cow milk.
For making:-
1 kg Khoa- Buffalo milk-(fat 6.5 to 7) -3.5-4 litre
Cow milk (3.5 to 4.0 fat) -6 litre

54. Correct Answer is : (c) Nitrogen
55. Correct Answer is : (d) All above

**Based on utility, Indian breeds of sheep can be classified into the following:**

a) Apparel wool breeds : Hissardale, Nilgiri, Kashmir Merino, Avivastra, Bharat Merino. These are crossbreeds of native sheep with exotic fine wool/dual-purpose/mutton breeds.


c) Coarse carpet wool breeds : Malpura, Sonadi, Muzaffaranagari, Jalauni, Deccani, Bellary, Coimbatore, Chhotanagpuri, Balangiri, Ganjam, Bhakarwal, Shahabadi

d) Hairy meat breeds : Nellore, Hassan, Mecheri, Kilakarsal, Vembur, Ramnad White, Madras Red, Tiruchi Black, Kenguri. These sheep are maintained primarily for meat almost in the whole of Southern Peninsular region. The wool produced is very coarse, hairy and coloured; below 36s quality; and suitable only for extremely rough carpets, barrack blankets and kamblies.

56. Correct Answer is : (d) Laterite soils

Laterite and lateritic soils have a unique distinction of providing valuable building material. These soils can be easily cut with a spade but hardens like iron when exposed to air. Because it is the end-product of weathering, it cannot be weathered much further and is indefinitely durable.

57. Correct Answer is : (d) 3 and 4
The forest soils are very rich in humus but are deficient in potash, phosphorus and lime. Therefore, they require good deal of fertilizers for high yields. They are especially suitable for plantations of tea, coffee, spices and tropical fruits in Karnataka, Tamil Nadu and Kerala and wheat, maize, barley and temperate fruits in Jammu and Kashmir, Himachal Pradesh and Uttaranchal.

58. Correct Answer is: (c) Saline soil

**Saline and Alkaline Soils:**
These soils are found in Andhra Pradesh and Karnataka. In the drier parts of Bihar, Uttar Pradesh, Haryana, Punjab, Rajasthan and Maharashtra, there are salt-impregnated or alkaline soils occupying 68,000 sq km of area. These soils are liable to saline and alkaline efflorescences and are known by different names such as reh, kallar, usur, thur, rakar, karl and chopan.

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

Energy generated by using wind, tides, solar, geothermal heat, and biomass including farm and animal waste as well as human excreta is known as non-conventional energy. All these sources are renewable or inexhaustible and do not cause environmental pollution. Moreover they do not require heavy expenditure.

60. Correct Answer is: (d) Geo-Thermal Energy

**Geo-Thermal Energy:**
Geo-thermal energy is the heat of the earth's interior. This energy is manifested in the hot springs. India is not very rich in this source.

61. Correct Answer is: (b) Private loans received
DEFINITION of 'Capital Account'

A national account that shows the net change in asset ownership for a nation. The capital account is the net result of public and private international investments flowing in and out of a country.

May also refer to an account showing the net worth of a business at a specific point in time.

The capital account includes foreign direct investment (FDI), portfolio and other investments, plus changes in the reserve account. The capital account and the current account together constitute a nation's balance of payments.

Since large capital inflows or outflows can have destabilizing effects on a nation's economy, many countries have controls in place to regulate capital account flows.

The capital account in macroeconomics

At high level:

\[
\text{Capital account} = \text{Change in foreign ownership of domestic assets} - \text{Change in domestic ownership of foreign assets}
\]

Breaking this down:

\[
\text{Capital account} = \text{Foreign direct investment} + \text{Portfolio investment} + \text{Other investment} + \text{Reserve account}
\]
The International Finance Centre in Hong Kong, where many capital account transactions are processed.

- **Foreign direct investment** (FDI) refers to long-term capital investment, such as the purchase or construction of machinery, buildings, or whole manufacturing plants. If foreigners are investing in a country, that represents an inbound flow and counts as a surplus item on the capital account. If a nation's citizens are investing in foreign countries, that represents an outbound flow and counts as a deficit. After the initial investment, any yearly profits that are not reinvested will flow in the opposite direction but will be recorded in the current account rather than as capital.

- **Portfolio investment** refers to the purchase of shares and bonds. It is sometimes grouped together with "other" as short-term investment. As with FDI, the income derived from these assets is recorded in the current account; the capital account entry will just be for any buying or selling of the portfolio assets in the international capital markets.

- **Other investment** includes capital flows into bank accounts or provided as loans. Large short-term flows between accounts in different nations commonly occur when the market can take advantage of fluctuations in interest rates and/or the exchange rate between currencies. Sometimes this category can include the reserve account.
• *Reserve account.* The reserve account is operated by a nation's central bank to buy and sell foreign currencies; it can be a source of large capital flows to counteract those originating from the market. Inbound capital flows (from sales of the nation's foreign currency), especially when combined with a current account surplus, can cause a rise in value (*appreciation*) of a nation's currency, while outbound flows can cause a fall in value (depreciation). If a government (or, if authorized to operate independently in this area, the central bank itself) does not consider the market-driven change to its currency value to be in the nation's best interests, it can intervene.

62. **Correct Answer is : (a) Wood charcoal**

**Wood charcoal:**

Wood charcoal is obtained by the destructive distillation of dry wood in a hard glass test-tube.

The physical properties of wood charcoal are as follows:

1. It is black, porous and brittle.
2. It floats on water, because of its porosity. It also has an unpleasant smell.
3. Its specific gravity varies depending on the method of preparation. Usually it has a specific gravity of 1.5 to 1.9.
4. Wood charcoal is a bad conductor of heat and electricity.

**Some important uses of wood charcoal are as follows:**

1. Wood charcoal is mainly carbon and thus, a better fuel than wood due to the following reasons.
   a. Its calorific value is higher than that of wood.
   b. Its ignition temperature is less than wood.
   c. It causes less air pollution.
2. Wood charcoal is porous and can adsorb liquids and gases on its porous surface. Therefore, it is used in water filters, gas masks and antigastric tablets for people suffering from indigestion.

3. Charcoal is also used as a decolourizing agent as it can adsorb colouring matter. It is used for decourizing sugar solutions, organic preparations, alcohol and petroleum products.

4. Gun powder is a mixture of charcoal, potassium nitrate (KNO₃) and sulphur.

63. **Correct Answer is : (c) Dodabetta**

The **Nilgiri** *(blue mountains)*, are a range of mountains forming a part of the **Western Ghats** situated in the western part of **Tamil Nadu** state at the junction of **Karnataka** and **Kerala** states in **Southern India**. There are at least 24 peaks above 2,000 metres (6,600 ft) which make the southwestern edge of the **Deccan Plateau**.

**Dodabetta** is the highest mountain in the **Nilgiri Hills** at 2,637 metres (8,650 feet). There is a reserved forest area around the peak. It is 9 km from **Ooty**, on the Ooty-Kotagiri Road in the **Nilgiris District** of **Tamil Nadu**, **South India**.

64. **Correct Answer is : (d) 0.7 V**

A **p–n diode** is a type of **semiconductor diode** based upon the **p–n junction**. The diode conducts current in only one direction, and it is made by joining a **p**-type semiconducting layer to an **n**-type semiconducting layer. Semiconductor diodes have multiple uses including rectification of alternating current to direct current, detection of radio signals, emitting light and detecting light.

In the simple **p–n diode** the forward current increases exponentially with forward bias voltage due to the exponential increase in carrier densities, so there is always some current at even very small values of applied voltage. However, if one is interested in some particular current level, it will require a "knee" voltage before that current level is reached. For example, a very common choice in texts about circuits using silicon diodes is **$V_{Knee} = 0.7$ V**. Above the knee, the current continues to increase exponentially. Some special diodes, such as some varactors, are designed deliberately to maintain a low current level up to some knee voltage in the forward direction.

65. **Correct Answer is : (b) Nano material**
Studies about metal oxide nanostructures have shown that nanostructures (e.g., semiconductor nanowires) could improve gas sensors' sensitivity and response time.

**Carbon Nanotubes**

Conventional sensing materials like metal oxide semiconductors have to deal with the problem of poor sensitivity at room temperature, while carbon nanotubes (CNTs) attract more attention because of their unique properties and have become the most promising materials for high-sensitive gas sensors. As a kind of promising sensing material, CNTs, have been found to possess electrical properties and are highly sensitive to extremely small quantities of gases, such as alcohol, ammonia (NH$_3$), carbon dioxide (CO$_2$) and nitrogen oxide (NO$_x$) at room temperature, while other materials like metal oxides have to be heated by an additional heater in order to operate normally.

66. **Correct Answer is : (d) Louis Pasteur**

**Louis Pasteur** (December 27, 1822 – September 28, 1895) was a French chemist and microbiologist renowned for his discoveries of the principles of vaccination, microbial fermentation and pasteurization. He is remembered for his remarkable breakthroughs in the causes and preventions of diseases, and his discoveries have saved countless lives ever since. He reduced mortality from puerperal fever, and created the first vaccines for rabies and anthrax. His medical discoveries provided direct support for the germ theory of disease and its application in clinical medicine. He is best known to the general public for his invention of the technique of treating milk and wine to stop bacterial contamination, a process now called pasteurization. He is regarded as one of the three main founders of bacteriology, together with Ferdinand Cohn and Robert Koch, and is popularly known as the "father of microbiology".

67. **Correct Answer is : (c) 1 and 2**

The foundation of INTUC on 3 May 1947-just 3 months before India attained independence. **Acharya JB Kripalani**, who was then President of the Indian National Congress inaugurated the Founding conference of INTUC which was presided over by Sardar Vallabhai Patel. Among the distinguished leaders who attended the opening session were Pandit Jawaharlal Nehru, Shankarrao Deo, Jagjivan Ram, B. G. Kher, OP Mehtab, Aruna Asaf Ali, Ram
Manohar Lohia, Ashoka Mehta, Ramchandra Sakharam Ruikar, Maniben Patel and other prominent trade unionists.

Under the guidance of Mahatma Gandhi, the founding fathers in their wisdom preferred to let the INTUC have an independent identity with its own constitution, while at the same time functioning as an arm of the Congress.

68. Correct Answer is : (b) Sardar Patel

Jivatram Bhagwandas Kripalani (Elventh November 1888 – Nineteenth March 1982), popularly known as Kripalani, was an Indian politician, noted particularly for holding the presidency of the Indian National Congress during the transfer of power in 1947. During the election for the post of the future Prime Minister of India held by the Congress party, he had the second highest number of votes after Sardar Patel. However, on Gandhi’s insistence, both Patel and Kripalani backed out to allow Jawahar Lal Nehru to become the first Prime Minister of India.

69. Correct Answer is : (c) Purushottam Das Tandon

Purushottam Das Tandon (pronunciation (help·info), (1 August 1882 – 1 July 1962), was a freedom fighter from Uttar Pradesh in India. He is widely remembered for his efforts in achieving the Official Language of India status for Hindi. He was customarily given the title Rajarshi (etymology: Raja + Rishi = Royal Saint). He was awarded the Bharat Ratna, India’s highest civilian award, in 1961.

70. Correct Answer is : (a) Cargo transport

OPEN SKY POLICY FOR CARGO FLIGHTS FROM INDIA
1. Earlier Open Sky Policy for foreign cargo carriers was declared for a period of three years ending December 1992. In order to facilitate cargo carriers to make their investment decisions and undertake commitments on long terms basis, it has been decided to place this Open Sky Policy for cargo operations on a permanent basis. 2. The cargo flights may be cleared freely from airports where customs/immigrations facilities are available Scheduled and non-scheduled operators, both Indian and Foreign may submit application/proposal to the Director General of Civil Aviation for getting clearances for such flights. Cargo flights into India are also permitted. 3. Government will give favourable consideration to private operators, associations of exporters etc., to run air cargo operations on their own or on a consortium basis through purchased or leased freighter aircraft. 4. Carriers are free to charge rates according to the demand and supply situation. 5. Operators are required to meet the operational, and safety requirements while operating such adhoc cargo flights.
71. Correct Answer is : (b) 1 and 4

Cold air is denser than warm air and, therefore, has a greater refractive index. As light travels at a shallow angle along a boundary between air of different temperature, the light rays bend towards the colder air. If the air near the ground is warmer than that higher up, the light ray bends upward, effectively being totally reflected just above the ground.

Once the rays reach the viewer’s eye, the visual cortex interprets it as if it traces back along a perfectly straight "line of sight". However, this line is at a tangent to the path the ray takes at the point it reaches the eye. The result is that an "inferior image" of the sky above appears on the ground. The viewer may incorrectly interpret this sight as water that is reflecting the sky, which is, to the brain, a more reasonable and common occurrence.

In the case where the air near the ground is cooler than that higher up, the light rays curve downward, producing a "superior image".

The "resting" state of the Earth's atmosphere has a vertical gradient of about -1°C Celsius per 100 metres of altitude. (The value is negative because it gets colder as altitude increases.) For a mirage to happen, the temperature gradient has to be much greater than that. According to Minnaert, the magnitude of the gradient needs to be at least 2°C per metre, and the mirage does not get strong until the magnitude reaches 4° or 5°C per metre. These conditions do occur with strong heating at ground level, for example when the sun has been shining on sand or asphalt, commonly generating an inferior image.

72. Correct Answer is : (a) 50 : 25 : 25

The air and water occupying these “empty” spaces are both vital. Seeds require oxygen and water to germinate. For healthy plant and root development, roots must have oxygen in order to take up nutrients. Water is an essential component of photosynthesis, the process responsible for building plant structures, and soil nutrients must be in solution before roots can absorb them.
Soil with good structure, or “tilth,” is physically looser than compacted soil. To penetrate the soil, seedlings require a loose soil structure. Roots develop stronger and more extensive systems in porous soil; they meet less resistance and can follow the spaces between aggregates where water and nutrients in solution can be found and used.

73. **Correct Answer is : (d) Carotene**

**Pigments:** These are 1) fat soluble, such as carotene and xanthophyll, and 2) water soluble, such as riboflavin. Carotene is the colouring matter of all green leaves, where it is masked by chlorophyll. Carotene (the pure substance of which has a reddish-brown colour) is fat soluble and responsible for the yellow colour of milk, cream, butter, ghee and other fat-rich dairy products. Besides contributing to the colour of cow milk, carotene acts as an anti-oxidant and also as a precursor of vitamin A. Riboflavin, besides being a vitamin, is a greenish-yellow pigment, which gives the characteristic colour to whey.

74. **Correct Answer is : (b) 1, 3 and 4**
Most fruit trees do well in soil with pH ranging between 6.5 to 7.5. The maximum availability of primary nutrients like nitrogen, phosphorus and potassium and of secondary nutrients like sulphur, calcium and magnesium lies within this range. The availability of micro-nutrients like iron, manganese, boron, copper and zinc is more in acid range. There are fruit trees like date-palm, ber and guava which have been found to grow successfully even in soil above pH 8.5 and even up to pH 9.5. Normally when pH is higher than 8.7, application of gypsum is recommended for successful cultivation of fruit trees.

Fruits trees vary in their tolerance to salt present in the soil. Only the fruits which are able to tolerate salt may be planted in such soils. In response to salt tolerance the fruit trees are grouped as follows:

**High salt tolerant** fruits: Date-palm, guava, ber, amla, bael and coconut.

**Medium salt tolerant** fruits: Pomegranate, fig, olive, phalsa, jamun, cashewnut, grapes, almond and oranges.

**Low salt tolerant** fruits: Pear, peach, apple, mango grapefruit, lemon, mandarin, plum, apricot, strawberry and avocado.

75. **Correct Answer is : (d) 45 to 50%**

Protein content, amino acid and oil composition of two cultivars of *Sesamum indicum* L. were studied. The cultivars (dark and white) showed ash content in the range of 6.54–7.71%, nitrogen 3.70–4.03%, protein 23.13–25.18% and oil 47.02–49.07%, respectively. Seventeen amino acids were determined including most of the essential and limiting amino acids.

76. **Correct Answer is : (a) Shoot fly**

**Jowar Shoot Fly**

**Economic Importance:** It is one of the serious pests of sorghum in India. The pest attacks the crop only in early stage of growth and infestation goes up to 80%. The high yielding hybrids are more susceptible to the attack of this fly. The total loss in yield is sometimes as high as 60%. The pest is very serious on kharif and Rabi crops in Maharashtra State.

**Management Practices:**

1. Sow the crop as early as possible i.e. immediately after the onset of rains or within 15 days after receiving of rains. Increase the seed rate to make up the loss.

77. **Correct Answer is : (c) Sindhu**
First came seedless grapes. Now, Indian scientists have developed what could be the ultimate delicacy - a seedless mango which is finely textured and juicy, with a rich, sweet and distinctive flavour when mature.

"We have developed a seedless mango variety from hybrids of mango varieties Ratna and Alphonso," V.B. Patel, chairman of the horticulture department at the Bihar Agriculture University (BAU) at Sabour in Bhagalpur district, told IANS.

Trials of the new variety, named Sindhu, are under way at different locations in the country but the result of the one at BAU suggests it could be suitable for both integrated horticulture and kitchen gardening.

78. **Correct Answer is : (a) Rohu**

Rohu is the natural inhabitant of freshwater sections of the rivers. Rohu thrives well in all fresh waters below an altitude of approximately 549 m. Rohu is a bottom feeder and prefers to feed on plant matter including decaying vegetation. Rohu attains maturity towards the end of the second year in ponds. The spawning season of rohu generally coincides with the southwest monsoon. Spawning takes place in flooded rivers. The fecundity of rohu varies from 226,000 to 2,794,000, depending upon the length and weight of the fish and weight of the ovary. The spawn of this fish is collected from rivers during monsoon and reared in tanks and lakes.

79. **Correct Answer is : (a) Bombay duck**

The young ones of **Bombay duck feeds chiefly on prawns**. But adult fishes feed on other small fishes, zooplankton and a small quantity of prawns too. This fish moves in shoals following their feed animals. This fish spends most of its life in off-shore region. It comes to the shore when its food organisms are abundant in the near shore areas. Out of the total marine fish landing of Gujarat state the **Bombay duck** alone contributes 40%. This fish stands 4th place in the total sea fish catch of India.

80. **Correct Answer is : (d) Bangladesh**
The idea of co-operation in South Asia was discussed in at least three conferences: the Asian Relations Conference held in New Delhi on April 1947; the Baguio Conference in the Philippines on May 1950; and the Colombo Powers Conference held in Sri Lanka in April 1954.

In the ending years of the 1970s, the seven inner South Asian nations that included Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka agreed upon the creation of a trade bloc and to provide a platform for the people of South Asia to work together in a spirit of friendship, trust and understanding. President Ziaur Rahman later addressed official letters to the leaders of the countries of the South Asia, presenting his vision for the future of the region and the compelling arguments for region. During his visit to India in December 1977, President Ziaur Rahman discussed the issue of regional cooperation with the then Indian Prime Minister, Morarji Desai. In the inaugural speech to the Colombo Plan Consultative Committee which met in Kathmandu also in 1977, King Birendra of Nepal gave a call for close regional cooperation among South Asian countries in sharing river waters. After the USSR's intervention in Afghanistan, the efforts to established the union was accelerated in 1979 and the resulting rapid deterioration of South Asian security situation. Responding to the President Zia Rehman and King Birendra's convention, the officials of the foreign ministries of the seven countries met for the first time in Colombo in April 1981. The Bangladesh's proposal was promptly endorsed by Nepal, Sri Lanka, Bhutan and the Maldives but India and Pakistan were sceptical initially. The Indian concern was the proposal's reference to the security matters in South Asia and feared that President Zia Rehman's proposal for a regional organisation might provide an opportunity for new smaller neighbours to renationalised all bilateral issues and to join with each other to gang up against India. Pakistan assumed that it might be an Indian strategy to organise the other South Asian countries against Pakistan and ensure a regional market for Indian products, thereby consolidating and further strengthening India’s economic dominance in the region.

81. Correct Answer is : (d) 12

INTERNATIONAL AIRPORTS OF INDIA

There are 12 international airports in India.

1. Airport Name: Amritsar International Airport

City: Amritsar
State: Punjab

2. Airport Name: Indira Gandhi International Airport
   New Delhi

3. Lokpriya Gopinath Bordolio International Airport
   Guwahati

4. Airport Name: Sardar Vallabhbhai Patel International Airport
   City: Ahmedabad
   State: Gujarat

5. Netaji Subhash Chandra Bose International Airport
   Kolkata

6. Chhatrapati Shivaji International Airport
   Mumbai

7. Airport Name: Hyderabad Airport
   City: Hyderabad
   State: Andhra Pradesh

8. Airport Name: Goa Airport
   City: Vasco da Gama
   State: Goa

9. Airport Name: Chennai International Airport
   Chennai
10. Airport Name: Bangalore International Airport
City: Bangalore
State: Karnataka

11. Airport Name: Cochin International Airport
City: Cochin
State: Kerala

12. Airport Name: Trivandrum International Airport
City: Thiruvananathapuram
State: Kerala

82. Correct Answer is: (b) 1 and 2

The **Bombay Plan** is the name commonly given to a World War II-era set of proposals for the development of the post-independence economy of India. The plan, published in 1944/1945 by eight leading Indian industrialists, proposed state intervention in the economic development of the nation after independence from the United Kingdom (which occurred in 1947).

Titled *A Brief Memorandum Outlining a Plan of Economic Development for India*, the signatories of the Plan were Jehangir Ratanji Dadabhoy Tata, Ghanshyam Das Birla, Ardeshir Dalal, Sri Ram, Kasturbhai Lalbhai, Ardeshir Darabshaw Shroff, Sir Purshottamdas Thakurdas, and John Mathai. The Plan went through two editions: the first was published in January 1944. This first edition became "Part I" of the second edition, published in 2 volumes in 1945 under the editorship of Purushottamdas Thakurdas.

Although Jawaharlal Nehru, the first Prime Minister of India, did not officially accept the plan, "the Nehruvian era witnessed [what was effectively] the implementation of the Bombay Plan; a substantially interventionist state and an economy with a sizeable public sector. Its perceived influence has given it iconic status, and "it is no exaggeration to say that the Bombay Plan has come to occupy something of a mythic position in Indian historiography. There is scarcely a study of postwar Indian economic history that does not point to it as an indicator of the developmental and nationalistic aspiration of the domestic capitalist class."
THE INDIA LEAGUE (1875)

In the late sixties and early seventies of the nineteenth century, the Indian national movement became more broad-based and received wider publicity through the medium of the press. In 1868 Sisir Kumar Ghose published the Amrita Bazar Patrika, the most powerful organ of national opinion. Describing the misrule of the English, he wrote on December 31, 1868: ‘The Bengalis are determined to oppose the tyranny of Englishmen at every step.’ In some of the articles published in 1870, he held out parliamentary Government in India as the only solution of the problem. Sisir Kumar Ghose along with a group of progressive leaders, founded the India League in 1875. The League aspired to represent not only the middle classes but the masses as well and to stimulate a sense of nationalism among the people. Yet within a year of its foundation, the League was superseded by the Indian Association.
agitation. The foundation of the Indian Association in 1876 provided the much needed relief to the political aspirations of the people. It was formed at a public meeting held at Calcutta on July 26, 1876, with Ananda Mohan Bose, a Barrister, as Secretary and an executive committee consisting of 28 members. This new organisation was headed by Surendranath Banerjea (1848-1925), who had earlier been dismissed from the Civil Service on frivolous grounds. The Indian Association was meant to be ‘the centre of an all-India movement.’ Its objects were (i) the creation of a strong body of public opinion (ii) the integration of the Indian people on the basis of common political interests (iii) the promotion of friendly feeling between Hindus and Muslims and (iv) the participation of the masses in public movements. The new political body was essentially composed of the educated middle class, professionals and lawyers. The Bengalee, a daily newspaper founded by Surendra Nath Banerjea, became the chief organ of the Indian Association. In addition, his method of agitation was to undertake tours, to hold public meetings and to secure signatures on the memorials to be presented to the authorities.

85. Correct Answer is: (d) Henry Cotton
86. Correct Answer is: (a) fall in body temperature to below 35°C

Hypothermia is defined as a body core temperature below 35.0 °C (95.0 °F). Symptoms depend on the temperature. In mild hypothermia there is shivering and mental confusion. In moderate hypothermia shivering stops and confusion increases. In severe hypothermia there may be paradoxical undressing, where a person removes their clothing, as well as an increased risk of the heart stopping. Hypothermia has two main types of causes. It classically occurs from extreme exposure to cold. It may also occur from any condition that decreases heat production or increases heat loss. Commonly this includes alcohol intoxication but may also include low blood sugar, anorexia, and advanced age among others. Body temperature is usually maintained near a constant level of 36.5–37.5 °C (97.7–99.5 °F) through thermoregulation. Efforts to increase body temperature involves shivering, increased voluntary activity, and putting on warmer clothing. Hypothermia may be diagnosed based on either a person symptoms in the presence of risk factors or by measuring a person's core temperature.

87. Correct Answer is: (d) hypothesis

The functions of science
1. Its problem-seeking, question-asking, hunch-encouraging, hypotheses-producing function.

2. Its testing, checking, certifying function; its trying out and testing of hypotheses; its repetition and checking of experiments; its piling up of facts.

3. Its organizing, theorizing, structuring, function; its search for larger and larger generalizations.

4. Its history-collecting, scholarly function.

5. Its technological side; instruments, methods, techniques.


7. Its publicizing and educational functions.

8. Its applications to human use.

9. Its appreciation, enjoyment, celebration, and glorification.

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

Some of the top calcium-rich foods are:

1. Cheese

2. Yogurt

3. Milk

4. Sardines

5. Dark leafy greens like spinach, kale, turnips, and collard greens

6. Fortified cereals such as Total, Raisin Bran, Corn Flakes (They have a lot of calcium in one serving.)

7. Fortified orange juice

8. Soybeans
9. Fortified soymilk (Not all soymilk is a good source of calcium, so it's best to check the label.)

10. Enriched breads, grains, and waffles

89. Correct Answer is: (a) Allium

The **onion** (*Allium cepa* L.) (Latin 'cepa' = onion), also known as the **bulb onion** or **common onion**, is a **vegetable** and is the most widely cultivated species of the genus **Allium**.

90. Correct Answer is: (c) sucrose

### Carbohydrates

Glucose, also called dextrose, is a simple sugar. It is the main product of photosynthesis. Another simple six-carbon plant sugar is fructose (fruit sugar). Some plants join a glucose and a fructose unit together to form sucrose—the sugar we use to sweeten foods and drinks.

Other important carbohydrates that are made by plants include starch and **cellulose**. Cellulose is not a food for plants but a building material. Other carbohydrates produced are forms of stored food. In some plants, such as sugar beet, sugarcane, and onion, sucrose is stored as food. But in most plants, starch is

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

**Sonar** (originally an acronym for **S**ound **N**avigation **A**nd **R**anging) is a technique that uses **sound** propagation (usually underwater, as in submarine navigation) to **navigate**, communicate with or detect objects on or under the surface of the water, such as other vessels. Two types of technology share the name "sonar": passive sonar is essentially listening for the sound made by vessels; active sonar is emitting pulses of sounds and listening for echoes. Sonar may be used as a means of **acoustic location** and of
measurement of the echo characteristics of "targets" in the water. Acoustic location in air was used before the introduction of radar. Sonar may also be used in air for robot navigation, and SODAR (an upward looking in-air sonar) is used for atmospheric investigations. The term sonar is also used for the equipment used to generate and receive the sound. The acoustic frequencies used in sonar systems vary from very low (infrasonic) to extremely high (ultrasonic). The study of underwater sound is known as underwater acoustics or hydroacoustics.

92. Correct Answer is : (b) M.N. Roy

Further discussions on the 22 Theses and the manifesto led Roy to the conclusion that party-politics was inconsistent with his ideal of organized democracy. This resulted in the dissolution of the Radical Democratic Party in December 1948 and launching of a movement called the Radical Humanist Movement. At the Calcutta Conference, itself where the party was dissolved, theses 19 and 20 were amended to delete all references to party. The last three paragraphs of the manifesto were also modified accordingly. Thus, the revised versions of the 22 Theses and the manifesto constitute the essence of Roy's New Humanism.

Roy's advocacy of party-less democracy, too, is open to criticism. Freedom of association is a fundamental democratic freedom. In any democracy worth the name, citizens with similar political ideas and programs are bound to come together and cooperate with one another by forming political parties and other non-party organizations. The only possible way to prevent them from doing so will be to deny the fundamental right to association, which will be an undemocratic act in itself. Therefore, the ideal of “party-less democracy” seems to be self-contradictory, impractical and
His Concept of **Partyless Democracy**. Jaya Prakash Narayan was influenced not only by the writings of Gandhi and Vinoba, but also by those of M.N. Roy, in his views on partyless democracy. In fact, as Dr. Goyal writes, ‘the contents of their programmes indicate clear ideological affinities... both M.N. Roy and Jaya Prakash had the common Marxist experience and both of them were disillusioned with the theory and practice of communism. Both of them had the experience of elections and political parties as they operated in the Indian situation: both of them find that the general direct elections do not lead to choice of capable and wise candidates and that rationality has a very little role to play in election politics’. To quote

In India, two great leaders, M.N. Roy and Jayaprakash Narayan, have at different times advocated partyless democracy. Neither the Soviet Union nor Nepal have been good examples of partyless democracy. Direct democracy is only suitable for small states and a small body of electors. A combination of direct democracy and representative democracy can be as bad for the same reasons as party democracy except by a referendum on policy issues whatever it costs.

JP’s later ideas, evolved in course of the JP movement, are more relevant and worthwhile, namely, an electoral college of panchayat mukhiyas to select a candidate unanimously and becoming the people’s candidate with whom the parties could compete.

**Advocate of "Saintly Politics"**

After India gained independence, violence and Marxism waned in Narayan. He led his socialist group out of the Congress party in 1948 and later merged it with a Gandhian-oriented party to form the People’s Socialist party. Narayan was considered Nehru’s heir apparent, but in 1954 he renounced party politics to follow the teachings of Vinoba Bhave, an ascetic who called for voluntary redistribution of land. He embraced a Gandhian type of revolutionary action in which he sought to change the minds and hearts of people. An advocate of "saintly politics," he urged Nehru and other leaders to resign and live with the impoverished masses.
Narayan never held a formal position in the government, but remained a leading political personality operating outside party politics. Late in his life, he regained prominence as an active critic of the increasingly authoritarian policies of Prime Minister Indira Gandhi, Mohandas Gandhi's daughter. His reform movement called for "partyless democracy," decentralization of power, village autonomy and a more representative legislature.

93. **Correct Answer is : (d) Radiation from isotopes**

**Ultrasonic Testing**

More commonly used in industrial and aviation applications, ultrasonic can also be used to find internal flaws in castings and other parts. The technology uses sound waves to find cracks. A transponder generates an acoustic signal (up to 25 MHz) that passes into and through the part. Cracks or flaws will reflect some of the sound waves back to the detector, which allows the information to be displayed on the tester.

The best applications for ultrasonic testing include heavy castings, large shafts and expensive parts that may be used for racing or extreme-duty service. Ultrasounds can also be used to check the integrity of welds and welded castings. They can also be used to check for the integrity of cylinder wall thicknesses before or after boring.

**USES OF RADIOACTIVE ISOTOPES**

Radioactivity can be used in a number of ways. Some of these are described below.

1. Radioactive dating
   (a) CARBON 14 - for dating material that has been alive or has been made from once living material. This is used for dating wood, bones, Egyptian mummies, the Dead Sea scrolls, old paintings etc.
   (b) URANIUM 238 or POTASSIUM 40 for dating rocks. Used because of their very long half lives

2. Radioactive tracers
   If a little radioactive material is put into a moving liquid the path of this liquid can be tracked. Used in testing blood flow, tracking underground streams and following the movement of silt in rivers.

3. Thickness gauge
   A beta source is put on one side of a sheet of material and a Geiger counter on the other. The amount of beta radiation that gets through the sheet will give you an idea of its thickness.

4. Cracks in castings
A gamma source is placed in a metal casting and a Geiger counter moved over its surface. If there are any cracks in the metal gamma radiation can get through and be detected.

5. Smoke alarms
Many houses have a smoke alarm using a weak alpha source. When smoke gets into the detector the alpha particles cannot get through to the sensor and the alarm goes off.

94. Correct Answer is : (c) Calcium

Calcium (Ca), chemical element, one of the alkaline-earth metals of Group 2 (IIa) of the periodic table. It is the most abundant metallic element in the human body and the fifth most abundant element in Earth’s crust.

Occurrence, properties, and uses
Calcium does not occur naturally in the free state, but compounds of the element are widely distributed. One calcium compound, lime (calcium oxide, CaO) was extensively used by the ancients. The silvery, rather soft, lightweight metal itself was first isolated (1808) by Sir Humphry Davy after distilling mercury from an amalgam formed by electrolyzing a mixture of lime and mercuric oxide. The name for the element was taken from the Latin word for lime, calx.

95. Correct Answer is : (b) Conversion of Hydrogen into Helium

How does the Sun produce energy? The Sun produces energy by the nuclear fusion of hydrogen into helium in its core. What that means is that, since there is a huge amount of hydrogen in the core, these atoms stick together and fuse into a helium atom. This energy is then radiated out from the core and moves across the solar system. It is not enough to just answer the question, so here is a breakdown of how the energy is transferred from the core to the Earth and the other objects in our solar system.

96. Correct Answer is : (d) Chemistry

Natural science is a branch of science concerned with the description, prediction, and understanding of natural phenomena, based on observational and empirical evidence. Validity, accuracy, and social mechanisms ensuring quality control, such as peer review and repeatability of findings, are amongst the criteria and methods used for this purpose.
Natural science can be broken into two main branches: life science (or biological science) and physical science. Physical science is further broken down into branches, including physics, astronomy, chemistry, and Earth science. All of these branches of natural science are divided into many further specialized branches (also known as fields), and each of these is known as a "natural science".

97. Correct Answer is : (d) 1 and 4

The INSAT Master Control Facility is one of the centers of Indian Space Research Organisation, which is responsible for post-launch operations on INSAT satellites including orbit manoeuvres, station-keeping and on-orbit operations. INSAT MCF of ISRO are located at two locations, Hassan in the South Indian state of Karnataka and at Bhopal in Madhya Pradesh. At present, the centers support on-orbit operations on INSAT-3A, INSAT-3B, INSAT-3C, INSAT-3E, Kalpana-1, GSAT-3 and INSAT-4B satellites

98. Correct Answer is : (c) they have large number of free electrons

Why are metals good conductors of heat and electricity?

Metallic bonds are made from a lattice of ions in a 'cloud' of free electrons. These free electrons are responsible for the ability of metals to

1. conduct electricity
2. conduct heat especially well.

Electrical conductivity

Electric current is the flow of electrons in a wire. In metals, the outer electrons of the atoms belong to a 'cloud' of delocalised electrons. They are no longer firmly held by a specific atom, but instead they can move freely through the lattice of positive metal ions. Normally they move randomly. However, when the wire is connected to a cell, they are pushed away from the negative terminal and drawn to the positive one.

The cloud of electrons drifts through the wire. The drift velocity of the cloud is about 3 mm s⁻¹. The electrons within the cloud are still moving randomly (at much higher speeds) - rather like a swarm of bees leaving a hive.

99. Correct Answer is : (b) Aedes egypti

Chikungunya "that which bends up" is an infection caused by the chikungunya virus. It features the sudden onset of fever usually lasting two to seven days, and joint pains typically lasting weeks or months but sometimes years. The mortality rate is a little less than 1 in 1000, with the elderly most likely to die.
The virus is passed to humans by two species of mosquito of the genus Aedes: A. albopictus and A. aegypti. Animal reservoirs of the virus include monkeys, birds, cattle, and rodents. This is in contrast to dengue, for which only primates are hosts.

100. Correct Answer is: (d) Mosquito fishes and Killfishes

Biological control or "biocontrol" is the use of natural enemies to manage mosquito populations. There are several types of biological control including the direct introduction of parasites, pathogens and predators to target mosquitoes. Effective biocontrol agents include predatory fish that feed on mosquito larvae such as mosquitofish (*Gambusia affinis*) and some cyprinids (carps and minnows) and killfish. *Tilapia* also consume mosquito larvae. Direct introduction of tilapia and mosquitofish into ecosystems around the world have had disastrous consequences. However, utilizing a controlled system via aquaponics provides the mosquito control without the adverse effects to the ecosystem.

Other predators include dragonfly naiads, which consume mosquito larvae in the breeding waters, adult dragonflies, which eat adult mosquitoes and some species of lizard and gecko. Biocontrol agents that have had lesser degrees of success include the predator mosquito *Toxorhynchites* and predator crustaceans—*Mesocyclops* copepods, *nematodes* and *fungi*. Predators such as birds, bats, lizards and frogs, have been used, but their effectiveness is only anecdotal.