

Solution

1. Ans. C.

Viruses do not possess any metabolic pathway on which antibiotics can work, whereas bacteria can be killed with the use of antibiotics. Bacteria and viruses are having different mechanisms and machinery to survive and replicate. In viruses, the antibiotic does not have any target to attack. That's why antiviral medications and vaccines are specific for viruses.

2. Ans. B.

Vacuoles are those cell organelles that play a role in expelling excess water and waste in the case of unicellular organisms. Vacuoles are membrane-bound which can have secretory, excretory, and storage functions. This sub-cellular structure is involved in osmoregulation and waste removal. The vacuole takes in and releases water through osmosis in response to the change in the cytoplasm, as well as in the environment around the cell.

3. Ans. D.

Cancer is a chronic disease that involves the abnormal growth of cells with the potential to spread to the other parts of the body. In modern science, cancer is being treated with the help of radiotherapy. There are various types of radioisotopes that are used for different types of cancer. Iodine-131 is one of the best-known radioisotopes for managing cancer. Iodine-131 and Iodine-125 are injected directly into the tumors to stop the growth of cancer cells and treating them.

4. Ans. B.

Atomic mass of an element is equal to the sum of protons and neutrons in a nucleus. The total mass of protons and neutrons is expressed in terms of atomic mass whose unit is amu. For calculating the atomic mass, the total number of protons and neutrons are added and then multiply by 1amu.

5. Ans. A.

Neutrons were discovered by James Chadwick in 1932. He used the scattering data to calculate the mass of this neutral particle which was determined that it's a new elementary particle that is distinct from the proton.

6. Ans. B.



Most important characteristic of an element is its atomic number which is usually denoted by the letter Z. The atomic number is defined as the number of units of positive charge or protons in the nucleus.

7. Ans. D.

A chemical structure of a molecule includes the arrangement of atoms and the chemical bonds that hold the atoms together. The 2-chloropropane molecule contains a total of 10 covalent bonds in its structure.

8. Ans. B.

Diamond is a bad conductor of electricity. In diamond, each carbon atom is having a covalent bond with four other carbon atoms. These four outermost electrons engaged in the covalent bond, so they do not have any free electrons, therefore it is unable to conduct electricity.

9. Ans. C.

Magnetic field lines are closed curves because magnetic monopoles do not exist. A magnetic field can not be separated. The magnetic field emitted by the north pole of a magnet is always a curve to meet at the south pole.

10. Ans. A.

Power of the refrigerator = 5kW

Running hours per day = 10 hours

Per hour consumption = $\frac{5}{10} = 0.5$

Charges per kWh of energy = 4

cost per unit = $4 \times 0.5 = 2$

Daily cost = $2 \times 10 = 20$

Monthly cost = $20 \times 30 = \text{Rs. } 600$

11. Ans. C.

Isaac Newton was the first scientist who obtained the spectrum of sunlight with the help of glass prism. For the experiment, he placed two identical prisms, one in an inverted position with respect to another prism



which allowed all the colors of the spectrum to pass through the second prism.

12. Ans. B.

Front part of the eye is called the cornea which forms a thin membrane and lets light enter the eye. The cornea acts as the eye's outermost lens whose function is to control and focuses the entry of light into the eye.

13. Ans. C.

A lemon in a glass tumbler appears bigger than its actual size because water is more optically denser than air so the light would bend towards the normal. Different light rays meet above the actual position of the lemon. The diffraction causes the bending of the rays and results in the diverging image.

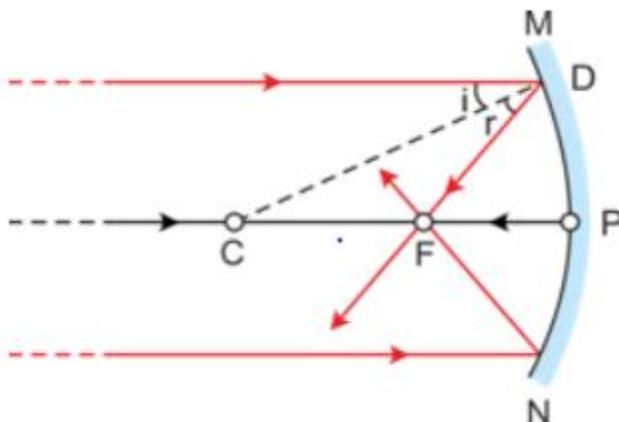
14. Ans. B.

Focal length of a spherical mirror is equal to half of the radius of the curvature.

Where $F = \frac{R}{2}$

Then, $R = 2F$

As per derivation,



$FC = FP = PF$

$PC = PF + FC = PF + PF$

$R = 2PF = 2F$



$$F = \frac{R}{2}$$

15. Ans. C.

When an object is placed between the principal focus and the pole of the mirror, then the image will be virtual, erect, larger than the object, and formed behind the concave mirror.

16. Ans. A.

The speed of light in quartz will be greater than the speed of light in sapphire because light travels faster in the lowest refractive index.

Given,

Refractive index of Fused Quartz = 1.46

Refractive index of Sapphire = 1.77

So, $V_q > V_s$

17. Ans. A.

A mineral acid is an acid which derives from one or more inorganic compounds. All mineral acids form hydrogen ions and the conjugate base ions when dissolved in water. The most used mineral acid is Sulfuric acid which is also known as oil of vitriol. It is a mineral composed of the elements sulfur, oxygen, and hydrogen with the molecular formula H_2SO_4 .

18. Ans. A.

Silica gel is the best example of desiccant because it holds and absorbs the water vapor. In leather products and some food products, the lack of moisture can limit the growth of the mold and reduces the spoilage in the product. It prevents condensation in electronic appliances which might damage the electronics. This is nearly harmless, that's why it finds in food products.

19. Ans. C.

The compounds such as Bleaching powder and DDT are considered as chlorine compounds because they require chlorine for their production.

DDT is elaborately called Dichlorodiphenyltrichloroethane which is mostly used as an insecticide.



Bleaching powder is chemically known as calcium hypochlorite is used as a disinfectant.

20. Ans. B.

Any curry which contains turmeric powder gets stained easily on the white clothes. When turmeric stain is scrubbed with soap (which is basic), then the stain turns into reddish-brown color. Then the cloth is washed with plenty of water, the soap is removed, and the yellow color of the stain reappears.

21. Ans. A.

Crystals of copper sulfate appears blue as it contains 5 molecules of water. Its chemical formula is $CuSO_4 \cdot 5H_2O$.

Sodium carbonate is also known as washing soda, it contains 10 molecules of water. Its chemical formula is $Na_2CO_3 \cdot 10H_2O$.

Gypsum is also known as calcium sulfate. It contains 2 molecules of water. Its chemical formula is $CaSO_4 \cdot 2H_2O$.

22. Ans. A.

At nearly $70^\circ C$, sodium bicarbonate gradually decomposes into sodium carbonate, water, and carbon dioxide.



In the bakery, it reacts with the other components or decomposes at the higher temperature to release carbon dioxide which causes the dough to rise.

23. Ans. C.

A diopter, is the unit of measurement which is applicable for the curved mirror or the optical power of a lens, a diopter is equal to the reciprocal of the focal length that is measured in meters (i.e., $\frac{1}{f}$ meters). It is a unit of reciprocal length

$$P = \frac{1}{0.5} = +2.0 \text{ diopter}$$

As the value is positive, it is a positive lens which is a convex lens.



24. Ans. C.

During sunrise and sunset, the Sun appears red due to the scattering of light by the molecules of air and other fine particles in the atmosphere have size smaller than the wavelength of the visible light from the Sun near the horizon. The light other than the red color is mostly scattered away, and the red light is least scattered which enters our eyes, that's why the Sun appears red.

25. Ans. B.

Biogas is produced by anaerobic digestion or fermentation process of biodegradable materials such as biomass, manure, sewage, plant material, green waste, and energy crops. This is comprised mainly of methane and carbon dioxide. Methane is the major component as its composition is almost 60%.

26. Ans. B.

A galvanometer is an electrochemical instrument which is used for detection and indicating an electric current in a circuit. It works as an actuator by producing a rotary deflection in the response to electric current which is flowing through a coil in a constant magnetic field.

27. Ans. D.

When the wavelength of light decreases, its energy increases. X-rays have a smaller wavelength and higher energy. X-rays have wavelengths shorter than about 10nm. So, we talk about X-rays in terms of their energy rather than its wavelength.

The wavelength of the Microwave is 1mm-25 micrometers.

The wavelength of Infrared is 1000 micrometers to 760nm.

The wavelength of Visible light is 380nm to 700nm.

28. Ans. A.

Cervix is not a component of the human male reproductive system because it is a part of the female reproductive system which connects the vagina and uterus. It is the lowermost part of the uterus which is made up of strong muscles.

The urethra is a tube that carries urine from the bladder to the tip of the penis which allows the bladder to empty while urinating.



Seminal Vesicles glands that secrete a significant fraction of the fluid that eventually becomes semen.

Vas deferens is the long, muscular tube which moves from the epididymis into the pelvic cavity to just behind the bladder. It transports the mature sperm to the urethra for preparing for ejaculation.

29. Ans. C.

Whenever there is a condition of a short circuit occurs, then there is a sudden rise in the voltage. After the phase got short-circuited, the voltage drops and the current increases substantially to several magnitudes which is larger than the normal operating current.

30. Ans. B.

Transverse waves are those waves in which the vibration of medium particles are perpendicular to the direction of the wave motion, whereas in the sound waves, vibrations of medium particles are parallel to the direction of the wave motion, so it is a longitudinal wave rather than a transverse waves.

31. Ans. C.

According to Fleming's left-hand rule, the force which acts on a current-carrying conductor is placed at the right angles to the magnetic field is perpendicular to the direction of the current which is a flow of positive charges and the magnetic field.

The arrow shows the direction of the proton which represents the direction of current in a conductor, therefore the force acting on the proton will be going out of the page.

32. Ans. C.

When the light enters the human eye through the cornea, then it passes through the aqueous humor, the eye lens, and the vitreous humor. Then the image is formed on the retina, the image which is formed will be real and inverted. Then the inverted image passes to the brain through the optic lobes thus brain shows an erect image.

33. Ans. A.

Intensity of light, $I = nhv \dots (A = 1 \text{ m}^2)$

n = positive integer



h = Planck's constant

ν = frequency

So, the number of photons striking the surface per unit time is $n = \frac{1}{h\nu}$

Since quantum efficiency is x hence the number of electrons coming out of the surface per unit time is $\frac{xI}{h\nu}$

By using the photoelectric equation, $K_{\max} = h\nu - \phi$

Since the minimum energy required to bring out an electron from the metal surface is equal to the work function of the metal hence the power of light used liberating electrons is equal to the number of photoelectrons emitted which is the multiple of the work function.

i.e.,

$$\frac{xI\phi}{h\nu}$$

Double the intensity of light means that the number of particles impinging perpendicularly on a totally reflecting surface. If the area of the surface is halved, the radiation force on it will be double. Then photons interact with on electron only, this means a double in the number of electrons ejected in a given time will occur.

34. Ans. C.

The resistance of a material is directly converted to its length. So, when the wire is cut into equal parts, then the resistance is reduced by the number of parts.

When 20Ω wire is cut into 2 equal parts. Then each part will have a resistance of $\frac{20}{2} = 10\Omega$,

Again, when connecting in parallel, the total resistance will be,

$$\frac{1}{R} = \frac{2}{10}$$

$$R = 5\Omega$$



35. Ans. B.

Kepler's second law is the square of the time period which is proportional to the cube of the radius of the orbit. i.e. $T^2 \propto R^3$

In this case,

$$R_1 = R$$

$$R_2 = 4R$$

$$T_1^2 \propto R^3$$

$$T_2^2 \propto (4R)^3$$

$$\frac{T_1^2}{T_2^2} = \left(\frac{R_1}{R_2}\right)^3$$

$$\frac{T_1^2}{T_2^2} = \frac{R^3}{64R^3}$$

$$\frac{T_1}{T_2} = \frac{1}{8}$$

36. Ans. D.

Cartilage is an important component of the body, as it is a soft tissue that is more flexible than bones. Cartilage is found in many areas of the body except the kidney or urinary bladder because cartilage is present at the joints of bones only which provides support and flexibility which is not required for the urinary bladder.

37. Ans. D.

Sclerenchyma is the simple permanent tissue that has thick secondary lignified cell walls. These cells are strong enough to support a plant and give it a structure, but they do not participate in any of the other development activities of the plant because they are usually made up of dead cells.

The epidermis is the outer layer of the tissues in a plant which is formed of a single continuous layered cell which protects all parts of the plant.



Parenchyma tissues are the functional tissues that are made up of living cells that are thin-walled, unspecialized structure and it performs the task of photosynthesis.

Collenchyma tissue is the simple and permanent tissue which usually found in the shoots and leaves of the plant. These are composed of thick and irregular cell walls.

38. Ans. B.

The Nucleoid is an irregularly shaped region within the cell of a prokaryotic organism that contains most of the genetic material. These cells lack a true nucleus and a circular DNA lies naked into the cytoplasm. Thus, the nucleoplasm remains undifferentiated from the cytoplasm.

The nucleic acid is a complex organic substance that is present in all the living cells especially in DNA and RNA whose molecules consist of numerous nucleotides linked in a long chain.

The nucleolus is the largest structure in the nucleus of a eukaryotic cell which is known as the site of ribosome biogenesis.

A Nucleosome is the basic structural and fundamental unit of DNA packaging in eukaryotes. Each nucleosome is composed of less than two turns of DNA which are packed around a set of eight proteins called histones.

39. Ans. D.

The heating capacity of biogas is very high. For a large-scale digester, the produced biogas is generally used for producing electricity and heat using a combined heat and power unit with capacity ranging from several 100kW to megawatts.

40. Ans. D.

Joule is the unit of energy.

Watt-hour is the commercial unit of energy.

Newton meter is a unit of work and energy.

$kg - metre / s^2$ is the unit of force not of energy.

41. Ans. B.

Resistors are connected in parallel



So,

$$\frac{1}{R} + \frac{1}{R} = \frac{1}{2R}$$

We know,

$$V=IR$$

Given,

$$V= 12V$$

$$I= 100mA= 0.1A$$

Hence,

$$V=IR$$

$$12= 0.1 \times \frac{1}{2R}$$

$$\frac{12}{0.1} = \frac{1}{2R}$$

$$120= \frac{1}{2R}$$

$$=240\Omega$$

42. Ans. C.

In an incandescent electric bulb, the filament of the bulb is made up of tungsten. It is used for making filament of an electric bulb because it can sustain at high temperature and has a very high melting point with the high resistivity.

43. Ans. D.

Sound waves are mechanical waves. They require a medium to travel. Sound can not travel through a vacuum because a vacuum is an area without air, just like space. Likewise, sound can not travel through space because there is no matter for the vibrations to work on it.

44. Ans. B.



The pressure in a liquid column is determined by depth, the density of the liquid, and the acceleration due to gravity. The pressure at depth does not depend upon the shape and size of the vessel containing liquid or the amount of liquid into the vessel. The pressure will be the same even though the containers have different amounts of liquid in them.

We can determine it by,

Thrust at the bottom (F)= weight of the liquid (mg) (1)

We can get the mass of the liquid by multiplying the volume of the liquid and its density.

Mass of the liquid, $m = \rho V$ (2)

Volume of the liquid column, $V = \text{area of cross-section, (A)} \times \text{Height (h)} = Ah$ (3)

Substituting (3) in (2)

Hence,

mass, $m = \rho Ah$ (4)

substituting (4) in (1)

Force = $mg = \rho Ahg$

Pressure, $P = \frac{\text{Thrust (F)}}{\text{Area (A)}} = \frac{mg}{A} = \frac{\rho (Ah)g}{A} = \rho hg$

Thus, Pressure due to the liquid column, $P = h\rho g$

45. Ans. A.

Acetic acid (CH_3COOH) is also known as ethanoic acid which is the most important compound of the carboxylic acids. A dilute solution of acetic acid produced by fermentation and oxidation of natural carbohydrates is called vinegar.

46. Ans. D.

The maximum number of electrons in the N shell is 32.

K shell consists of 2 electrons,



L shell consists of 8 electrons,

M shell consists of 18 electrons,

N shell consists of 32 electrons.

47. Ans. B.

Chalk and marbles are the different forms of Calcium carbonate. Chalk is a soft, white, porous sedimentary rock that is composed of the mineral calcite. Calcite is an ionic salt which is called calcium carbonate. Marble is a metamorphic rock. It is used as a building material or as an ingredient in cement.

48. Ans. D.

Among the given options, Armenia does not have direct access to the sea or ocean.

The Armenia is lying just south of the Great Caucasus mountain range of the and fronting the north-western extremity of Asia. To the east and north Armenia is bounded by the Georgia & Azerbaijan, while its nearest to the southeast & west are, respectively, Iran & Turkey. The Naxcivan, an exclave of Azerbaijan, borders Armenia to its south-west.

Syria is located in Western Asia, north of the Arabian Peninsula, at the Mediterranean Sea's eastern end.

The Jordan is landlocked country except at its southern border, where nearly 26 kms of its shoreline along the Gulf of Aqaba providing access to the Red Sea.

Located in the southern Caucasus Mountains regions, Azerbaijan borders with the Caspian Sea to the east, Russia & Georgia to the north, Armenia to the south-west & west and Iran to the south.

49. Ans. C.

With the addition of the Kanchenjunga Biosphere Reserve, not all only 11 of the 18 biosphere reserves in the country makes a part of the World Network of Biosphere Reserves which is based on the UNESCO MAB (Man and the Biosphere) Programme list.

The idea of the Biosphere Reserves was initiated by UNESCO in the year 1973-74 under the MAB (Man and the Biosphere) Programme. The Biosphere Reserve Programme is considered to conserve the representative ecosystems. It is targeted at providing the in-situ under



the natural conditions, long-term conservation of the plants, animals & micro-organisms.

There are 18 biosphere reserves in India:

- o Cold Desert, Himachal Pradesh
- o Nanda Devi, Uttrakhand
- o Khangchendzonga, Sikkim
- o Dehang-Debang, Arunachal Pradesh
- o Manas, Assam
- o Dibru-Saikhowa, Assam
- o Nokrek, Meghalaya
- o Panna, Madhya Pradesh
- o Pachmarhi, Madhya Pradesh
- o Achanakmar-Amarkantak, Madhya Pradesh-Chhattisgarh
- o Similipal, Odisha
- o Kachchh, Gujarat (Largest Area)
- o Sundarban, West Bengal
- o Seshachalam, Andhra Pradesh
- o Agasthyamala, Karnataka-Tamil Nadu-Kerala
- o Nilgiri, Tamil Nadu-Kerala (First to be Included)
- o Gulf of Mannar, Tamil Nadu
- o Great Nicobar, Andaman & Nicobar Island

50. Ans. D.

The Bagalihar, Salal and Duihasti hydroelectricity power projects have been developed on the Chenab river only.

Bagalihar hydro power project: The Baglihar Dam which is also known as the Baglihar Hydro Power Project, is a run-of-the-river hydro power



project present on the Chenab River located in the Ramban district of the Indian UT of Jammu & Kashmir. This project was conceived in the year 1992, approved in the year 1996 and construction began in the year 1999.

Duihasti hydro power project: The Dul Hasti is a 390 MegaWatt hydroelectric power plant in the Kishtwar district of UT Jammu & Kashmir, India built by the NHPC. The power plant is a run-of-the-river kind on the Chandra River, which is a tributary of Chenab River, in the Kishtwar region, which is a rugged, mountainous section of the Himalayas, and various hundred kms from the larger cities. It comprises of a 70 m tall gravity dam which diverts water via a 9.5 km long headrace tunnel to the hydro power station which then discharges back into the Chenab river.

Salal hydro power project: The Salal Dam also known as the Salal Hydroelectric Power Station, is a run-of-the-river power project located on the Chenab River in the Reasi district of the UT Jammu & Kashmir. It was the first ever hydropower project built by in the Jammu & Kashmir under the regime of Indus Water Treaty.

51. Ans. A.

The mountain range which lies between the Black & Caspian Seas is called the Caucasus Mountain Range.

The Caucasus Mountain Range is surrounded by the Caucasus region and is also home to the Mount Elbrus, the highest peak in Europe.

The Caucasus Mountains comprise the Greater Caucasus in the north side and Lesser Caucasus in the south side.

The Greater Caucasus runs from the west-northwest to the east-southeast, from the Caucasian Mountain Range Natural Reserve in the vicinity of the Sochi on the north-eastern Black Sea shore nearly to the Baku on the Caspian Sea.

The Lesser Caucasus passes parallel to the Greater about 100 kilometres to the south.

The Greater and the Lesser Caucasus ranges are linked by the Likhi Range, and to the east and west of the Likhi Range lie the Kur-Araz Lowland and the Colchis Plain.

52. Ans. A.

Among the given options, Acid precipitation is a major environmental issue in eastern Canada.



A vast amount of the Canadian population lives in the urban areas and cities are quite notorious for their poor air quality. The environment in Canada has singled out air pollution as the major concern as it affects wildlife, soil, vegetation and water. The government agency has said that air pollution from the urban areas causes acid rain and contributes to climate change.

Canada is also home to an abundance of the freshwater, but the World Wildlife Fund has increased concerns about the water usage and the damming of the Canadian rivers. The World Wildlife Fund noted that Canada uses large amounts of the water for agriculture, industry & consumption. The conservation organization said Canada moves more water from the one watershed to the another than any other nation in the world, and this activity can be devastating to the ecosystems as well.

53. Ans. B.

The Principle that the framing of the new Constitution for independent India should be Primarily (though not solely) the responsibility of the Indians themselves was for the first time conceded in the August Offer of the then Viceroy Linlithgow.

Proposals of the August's Offer

- The formation of an advisory war council.
- After the completion of the war a representative Indian body would be established to frame a constitution for India.
- the Viceroy's Executive Council would be expanded without any delay.
- The minorities were also assured that the government would not transfer the power 'to any system of the government whose authority is directly denied by the large and powerful elements in the Indian national life.'

It was the first time ever; the inherent right of the Indians was recognised through the constitutional framing & Congress confessed for the formation of the constituent assembly.

54. Ans. D.

The Abhinav Bharat Society was a secret society which was established by Vinayak Damodar Savarkar and his brother Ganesh Damodar Savarkar in the year 1904.

The Abhinav Bharat Society believed in the armed revolution.



It was initially founded at Nasik as the 'Mitra Mela' when Vinayak Savarkar was a student of Fergusson College situated at Pune, the society grew to involve various hundred revolutionaries & political activists with branches in several parts of India, extending to the London after Savarkar went to study the law.

The investigation into the assassination of Jackson revealed the presence of the Abhinav Bharat Society and also the role of the Savarkar brothers in leading it. The Vinayak Savarkar was set up to have dispatched 20 Browning pistols to India, one among which was used in the assassination of Jackson. Vinayak Savarkar was charged in the Jackson murder, and he was sentenced to 'transportation' for life.

The society also carried out a few British official's assassinations, after which both the Savarkar brothers were made convicted and imprisoned.

The society was formally disbanded in the year 1952.

55. Ans. C.

Nuclear Deterrence is not among the Principle of Panchsheel.

- The Five Principles of the Peaceful Coexistence, recognized as the Panchsheel Treaty, are a set of principles to govern the relations between India & China.
- The 'Agreement on Trade & Intercourse between the Tibet region of the India & China' was made signed on 29th April 1954 in the Beijing, China by the Indian Ambassador N. Raghavan & Chang Han-fu, the Chinese Deputy Foreign Minister of China.

Five principles of Panchsheel:

- o Mutual respect for each other's territorial integrity & sovereignty
- o Mutual non-aggression
- o Mutual non-interference in each other's internal affairs
- o Equality & mutual benefit; and
- o Peaceful co-existence

56. Ans. C.

Measures which were adopted by the rebels of 1857 to ensure the unity:



o The rebel proclamations in 1857 repeatedly appealed for unity to all the population sections, irrespective of their caste & creed.

o Many of the proclamations were issued by the Muslim princes or in their names, but even these took care to address the sentiments of the Hindus.

o The rebellion was seen as the war in which both the Hindus & Muslims had equally to lose/gain.

o The ishtahars marked back to the pre-British Hindu and Muslim past and praised the co-existence of several communities under the Mughal Empire.

o The rebels got failed in the attempt of the British government for inciting the Hindu population against the Muslims.

o The rebels wanted to restore the world of peace & unity.

o Several sections of the Indian society promoted the common good.

o Fears & suspicion amongst the people that the British would destroy their faiths & convictions.

o Fear & suspicion that the British wanted Indian to convert the Indian to Christianity.

o They maintained the communication links with the sepoys.

o Local leaders played a key role in keeping unity.

57. Ans. A.

Damin-i Koh is a large area of the land demarcated & declared to be the land of the Santhals.

Damin-i-koh was the name stated to the hilly forested areas of the Rajmahal hills widely spread in the area of the present Pakur, Sahebganj and the Godda districts in the Jharkhand state.

About Damin-i-Koh:

- Among the various tribal revolts, the Santhal hool or the uprising was the most massive one. The Santhals, who live in the region between the Bhagalpur & Rajmahal, called as Daman-i-Koh, Rose in the revolt.

- The Britishers persuaded the Santhals to survive in the foothills of Rajmahal by giving the land to them.



- By the year 1832, a large portion of land was demarcated as the Damin-i-Koh and was declared as the land of Santhals.
- They had to live in this area, practice the plough agriculture and had to become the settled agriculturalists.
- This area was enclosed by the boundary pillars. In this way, this area was made separate from the world of the settled agriculturists of the plains & Pahariyas of the hills.

58. Ans. B.

The consequence of the Permanent Society in Settlement on rural society in the Bengal, it results in a group of rich peasants known as Jotedars succeeded in consolidating their position in the villages.

The rise of Jotedars in the villages:

- The group of the prosperous farmers were popularly called as jotedars. Jotedars were a class of the rich peasants.
- They acquired large areas of land, money lending, controlled trade and exercise vast power over the poor cultivators. Their land was made cultivated through the share cropper known as adhiyars/bargadars.
- Within the village the power of the jotedars was more effective than that of the Zamindars. They forcefully resisted the efforts of the Jama to raise the Jama of the village and the prevented zamindari official from performing their duties.
- Sometimes they even purchased the auctioned property of the zamindar. Jotedars played a significant role in the weakening of the zamindari system.

59. Ans. C.

Among the given options, Mistral is a cold local wind.

Below are some major local winds:



Name	Nature of wind	Place
Chinook	Hot, dry wind	The Rockies mountains
Foehn	Hot, dry wind	The Alps
Siroco	Hot, moist wind	Sahara to the Mediterranean Sea
Solano	Hot, moist wind	Sahara to the Iberian Peninsula
Harmattan	Hot, dry wind	West Africa
Bora	Cold, dry wind	Blows from Hungary to North Italy
Mistral	Cold wind	The Alps & France
Santa Ana	Hot wind	South California
Karaburun	Hot dusty wind	Central Asia
Loo	Hot wind	Plains of India & Pakistan
Elephanta	Moist wind in monsoon	Malabar coast

60. Ans. A.

The natural vegetation of the South - East China is of Subtropical broadleaf evergreen forest among the given options.

China covers a quite large spectrum of the vegetation types, ranging from the tropical rain forests and subtropical evergreen broadleaf forests, through the temperate deciduous broadleaf forests to the boreal forests, and the temperate and cold steppes and deserts. The common trees are maple, oak, bamboo, pine, cedar, birch, spruce, fir etc.

The natural vegetation in China is categorised into 47 vegetation types and into 573 vegetation formations. There were around 57,099 polygons in total for the natural vegetation, and these polygon sizes ranged from 0.00003 to 288,500 km².

61. Ans. A.

The duration of monsoon in India extends for an average period of 80 to 140 days.

- The four-month of the southwest monsoon season, which brings as much as 70% of India's annual rainfall, officially begins on 1st June, with the onset over Kerala, and ends on 30th September.



- It takes almost about a month & a half after onset on the coast of Kerala to cover the entire country; and about a month, starting from the north-western parts of the country on 1st September to withdraw entirely.
- Although the 1st June date for the monsoon onset on the Kerala coast is not likely to be changed, the dates for the onset in various other parts of the country are also expected to be revised.
- Mumbai, for instance, expects to begin getting rain from 10th June the revision is even likely to push this particular date back by a few days.
- Effectively, the monsoon at present days expected to have arrived later and later withdrawal dates in most parts of India.

62. Ans. C.

The Agulhas Current is the part of the western boundary current of the south-west Indian Ocean.

The Pacific Ocean Currents comprises of several cold & warm currents which travel in the clockwise circulation in the Northern Pacific Ocean & in Anticlockwise circulation in the South Pacific Ocean thereby affecting the climatic pattern in the coastal regions. Some important currents are described below:

- North Equatorial Current (Warm current)
- South Equatorial Current (Warm current)
- Counter Equatorial Current (Warm current)
- Alaska Current (warm current)
- Kuroshio System (Warm current)
- North Pacific Drift (Warm current)
- Oyashio Current (Cold current)
- California Current (Cold current)
- Peruvian or Humboldt Current (Cold current)
- East Australia Current (Warm current)

63. Ans. D.



In India, the Irrigation Commission of India excluded the districts with the assured net irrigation intensity of 30 percent or more from the list of the drought-prone districts (as per the Irrigation Commission of India 1972).

Drought can be classified into the three types as per the National commission on agriculture in India. They are agricultural, hydrological and the meteorological drought.

Meteorological drought: It is a condition when there is a substantial decrease from the usual precipitation over an area.

Hydrological drought: It is a condition when there is depletion of the subsurface and surface water resources because of prolonged meteorological drought.

Agricultural drought: It is a condition when the rainfall and soil moisture is deficient to support the healthy growth of crop.

Based on the onset of the monsoon, drought is also classified as early season, mid-season and the late-season drought.

64. Ans. D.

Dry land farming in India is largely confined to the areas with rainfall less than 75 cm.

These regions grow hardy and drought-resistant crops like ragi, bajra, gram, moong and gaur. On the other hand, in the wetland farming, the rainfall is in excess of the soil moisture requirement of the plants during the rainy season. Such type regions may face the flood and soil erosion hazards. These areas grow many water-intensive crops like rice, jute and sugarcane.

The following are the significant characteristics of dryland agriculture:

- Agronomic approaches in dryland farming
- Cropping systems for the dryland agriculture
- Dryland Farming or Dryland Agriculture
- Principal dry farming zones in India
- Recommendations for the dry farming areas in India
- Steps for raising productivity in dry farming
- Water harvesting systems



- Work on the dry farming in India

65. Ans. B.

The Land Revenue Records maintained in India have categorized land-use into 9 categories as follows:

- Forests
- Land put to use for non-agricultural purposes
- Barren & Wastelands
- Area under the Permanent Pastures and Grazing Lands
- Area under the Miscellaneous Tree Crops and Groves (Not included is the Net Sown Area)
- Culturable Wasteland
- Current Fallow
- Fallow other than the Current Fallow
- Net Area Sown

66. Ans. C.

The United Nations Charter was signed by 51 original members of the United Nations in the year 1945 at the San Francisco conference.

The UN Charter was signed on 26th June 1945, in the San Francisco, at the completion of the UN Conference on International Organization, and it came into effect on 24th October 1945. The International Court of Justice Statute is an integral part of the UN Charter.

The United Nations didn't come into existence at the signing of the Charter only. In various countries, the Charter had to be made approved by their respective congresses or parliaments. It had thus been provided that the Charter would come into effect when the Governments of China, Great Britain, France, the Soviet Union and the United States and a majority of the rest signatory states had ratified it and also deposited notification to this effect with that of the State Department of the US. On 24th October 1945, this condition was made fulfilled, and the United Nations came into existence.

67. Ans. B.



In the year 1914, the Panama Canal was officially opened. The canal links the Pacific and the Atlantic Oceans, allowing ships to sail from one ocean to the other ocean without having to go around South America.

The canal's construction was financed and also supervised by the US government and took ten years to complete.

More than 70,000 people worked on the project, 400 million US Dollar was spent, and around 5,600 deaths were recorded, most caused by malaria or yellow fever.

The US government controlled the canal until a treaty allowing Panama to gradually assume the control was signed in the year 1977.

68. Ans. B.

The Mixed cropping is a system of planting the two crops at a time on the same land.

Mixed cropping, also known as polyculture, i.e. two types of crops are sown and irrigated at the same time. The benefits of the mixed cropping are that the plant will get the nutrients from the soils.

About the Mixed Cropping:

- o The main aim in this is to get at least one crop in the favourable condition.
- o No planting pattern followed in this.
- o Same fertilizers & pesticides used for all the crops.
- o Seeds are mixed before the sowing.
- o It followed to reduce the risk of crop failures due to unfavourable climatic conditions.
- o All the crops have a similar life cycle and also the duration of maturity.

69. Ans. C.

MILAN, a multilateral naval exercise, 2020 was hosted by Visakhapatnam.

About Exercise MILAN:

- It is a biennial and a multilateral naval exercise which started in the year 1995.



- The Navy has held tenth editions of the Milan exercise, with the theme titled 'synergy across the seas' to enhance the professional interactions between the friendly foreign navies and to learn best practices from that of each other, since 1995.
- It was conducted at the Andaman & Nicobar Command until the year 2018.
- It is held under the aegis of the Eastern Naval Command.
- Over forty countries participated in the MILAN exercise of 2020.

70. Ans. B.

In January month of the year 2020, a passenger aircraft crashed in Iran soon after taking off from Tehran's Imam Khomeini airport killing around 170 people on-board. The airplane belongs to Ukraine International Airlines.

A Ukrainian Plane crashed over the south-western outskirts of the Tehran after taking off from the Tehran's Imam Khomeini international airport hours after Iran's missile attack on the US base in Iraq. A commercial aircraft with about 167 passengers has crashed because of the technical problems after take-off from Iran's Imam Khomeini airport. All the 167 passengers have been killed in the crash.

71. Ans. A.

The official mascot of the Khelo India Youth Games, 2020 were Jaya & Vijay.

The Jaya & Vijay were doing the rounds everywhere in the Pune city. The Mascots herald the theme and the energy around the event. Vijay the Tiger & Jaya the Blackbuck were enchanting and bringing smiles on every visitor's face from the very young age to the elderly.

The Khelo India Youth Games has been organized in order to revive the sports culture in the country at the grassroots level by building the strong framework for all the sports played in India and to make India as the great sporting nation.

72. Ans. C.

Koneru Humpy excels in the Chess sports.

Koneru Humpy is an Indian chess player who is also the reigning world rapid champion . In the year 2002, Humpy became the youngest woman ever to achieve the Grandmaster title at the age of 15 years, 1 month, 27



days, beating the Judit Polgár's previous record by 3 months (this record was subsequently broken by the Hou Yifan in the year 2008). In October 2007, Humpy became the second female player, after the Polgár, to exceed the 2600 Elo rating mark, being rated at 2606.

73. Ans. D.

The Naseem-Al-Bahr naval exercise is a bilateral exercise between India and Oman.

About Naseem-Al-Bahr bilateral exercise:

- The India and Oman recently conducted 12th edition of the bilateral maritime exercise 'Naseem Al Bahr' in the Mormugao Port, Goa in January 2020.
- The 'Naseem-Al-Bahr '(or the sea breeze) is a naval exercise held between the Indian Navy and the RNOV (Royal Navy of Oman), being conducted since 1993.
- The Indian Navy ships Beas & Subhadra are participating in it and the RNOV al Rasikh & RNOV Khassab arrived at Goa followed by the sea phase off the Goa coast.
- The Al Najah is the army exercise between India and Oman.
- The Exercise Eastern Bridge is the bilateral Air Force exercise between

Significance of Naseem-Al-Bahr bilateral exercise:

- Oman is at the gateway of the Strait of Hormuz through which India imports 1/5th of its oil imports, so the exercise is highly significant for India.
- Oman is one among the India's oldest defence partners and ally in the anti-piracy campaigns in the Gulf of Aden.

74. Ans. B.

The Survey of India under the Department of Science and Technology is the oldest scientific department of the Government of India.

About the Survey of India:

- The Survey of India is India's central engineering agency in charge of the mapping and surveying.



- The first modern scientific survey of India was undertaken by the W. Mather in the year's 1793–96 on instructions of the Superintendent of Salem and Baramahal (Tamil Nadu), Col. Alexander Read.
- Set up in the year 1767 to help consolidate the British East India Company's territories, it is one among the oldest Engineering Departments of the Government of India.
- Its members are from the Survey of India Service cadre of the Civil Services of India and the Army Officers from the Indian Army Corps of Engineers.
- The department is headed by the Surveyor General of India.

75. Ans. C.

Denmark is known as the country of "winds".

Denmark ranks 1st in the world to produce electricity from the wind. Thus, Denmark is known as the country of "winds". Denmark has the highest proportion of wind power in the world. In the year 2015, Denmark produced 42 percent of electricity from the wind, up from the year 2014 record of 39 percent of total power consumption. More than 25 percent of the country's energy requirement needs are met through a large network of the windmills.

China ranks first in the world in the generation of wind energy.

Germany ranks third in the wind energy generation.

India ranks fourth in the wind energy generation.

76. Ans. A.

The Exercise TSENTR of the year 2019 was part of the annual series of the large scale exercises that make part of the Russian Armed Forces' yearly training cycle.

Exercise TSENTR 2019

o This 2019 year's Exercise TSENTR was conducted by Russia's Central Military Commission.

o The 2019 year's exercise was held between 09th September to 23rd September 2019 at the Donguz training ranges, Orenburg, Russia.



- Apart from the host Russia, military contingents from the China, India, Kazakhstan, Tajikistan, Kyrgyzstan, Pakistan and Uzbekistan also took part in that mega event.
- o The 2019 military exercise aims at evolving drills of the participating the armies and practising them in fighting against the scourge of the international terrorism thereby ensuring the military security in the strategic Central Asian region.
- The exercise TSENTR 2019 comprises the two modules;
 - o The first module involved the counter-terror operations, reconnaissance operations and defensive measures, repelling airstrikes.
 - o While the second focused on the offensive operations.

77. Ans. D.

In the year 2019, in line with the UNWTO's overarching focus on the skills, education and jobs throughout the whole year, World Tourism Day was celebrated on the topic named 'Tourism and Jobs: a better future for all'.

The 2019 year's theme focuses on creating more and better jobs, especially for the youth and women. To generate opportunity for the work is also mentioned in the Sustainable Development Goal 8 (i.e. SDG 8). New policies must be generated to reflect and incorporate the ongoing advances in technology. The program was held in India's capital city Delhi to draw the attention towards the challenges outlined in the MDGs (Millennium Development Goals) of the United Nations and how the tourism industry can help to meet the challenges.

According to the United Nation World Tourism Organisation (UNWTO), digital advances and the innovation were a part of the solution to the challenge of attaining the continued growth with more and more sustainable & responsible tourism sector.

The theme of World Tourism Day 2018 was 'Tourism and Cultural Protection' and for the year 2017 was 'Sustainable Tourism – a tool for development'.

78. Ans. B.

With a target to spread awareness about the nutrition of children and women, the Department of Women and Child Development and the Mission Shakti, Government of Odisha, in collaboration with the United Nations International Children's Emergency Fund (UNICEF) unveiled the



mascot named 'Tikki Mausi'. The Odisha state government initiative highlights that the Women and the children are central to any welfare programme.

- The mascot i.e. 'Tikki Mausi' targets to the behavioural change of the common people and to make them aware about the children and woman's nutrition & development in each and every household.
- The mascot has been named so as in reference to the second mother of a child. The Tikki Mausi is a extroverted character and is an empathetic protagonist with quite extensive knowledge on all the matters related to the women and the children, thus loves to talk to the people also and raise their awareness on critical positive social behaviours and practices.
- The mascot even take care of providing the right information about the state government projects for the women and children to each and every household for better future of the children in the state and thereby spread the awareness for the better health care of the children and their development.

79. Ans. D.

About Jaipal Singh Munda (1903-1970):

- A multi-faceted personality, Jaipal Singh Munda alias Pramod Pahan was a leader of the Adivasis, a champion sportsman, an educationist, a distinguished parliamentarian and a powerful orator.
- Jaipal was born at the Takra village of Khunti in the present Jharkhand state, in childhood, his job was to look after the cattle herd.
- In the year 1928 Amsterdam Olympics, he captained the Indian hockey and also won the gold medal.
- In the year 1937, he returned to the country as the principal incumbent of the Rajkumar College of Raipur.
- His oratory, simultaneously in the four languages — English, Hindi, Mundari and Sadani mesmerised the masses.
- Jaipal declared that the Adivasi movement stands mainly for the moral and the material advancement of the Chhotanagpur and Santhal Parganas.
- He worked ceaselessly for a better future for his Adivasi's fellows everywhere, even beyond the limits of the south Bihar.



- Later on, the Adivasi Sabha became the All India Adivasi Mahasabha. In the national political arena, Jaipal had separated from the Congress.
- In the year 1940, he played an active role in the Conference of anti-Compromise Congress at the Ramgarh in close alliance with the Subhash Chandra Bose.
- Jaipal was elected as a member of the Constituent Assembly, the Provisional Parliament in the year 1946. He was elected to the Parliament four times until his death in the year 1970.
- The view was that the discontentment in the tribal areas existed because of their exclusion from that of the mainstream development and also emphasised that a civilizing mission and assimilation of the tribals into the national mainstream could help them.

80. Ans. C.

A committee of the Congress leaders drafted a Constitution for the country in the year 1928. The Committee was headed by Motilal Nehru.

The Nehru Report of the 10th August 1928 was the memorandum to appeal for the new dominion status and also of the federal set-up of the government of the Indian constitution. It proposed for the Joint Electorates with the reservation of seats for the minorities in the legislatures. It was prepared by the committee of the All Parties Conference chaired by the Motilal Nehru with his son J.L. Nehru acting as a secretary. There were 9 other members in this committee. The final report was signed by M.L. Nehru and J.L. Nehru, Tej Bahadur Sapru, Ali Imam, Madhav Shrihari Aney, Shuaib Qureshi, Mangal Singh, Subhas Chandra Bose, and G. R. Pradhan.

81. Ans. A.

A common High Court for the two or more states can be established by a law passed by the Parliament.

According to Article 231:

(1) Parliament may by law establish a common High Court for two or more States or for two or more States and a Union territory.

(2) In relation to any such type of High Court-

(a) the reference in Article 217 to the Governor of the State shall be construed as the reference to the Governors of all the States in relation to which the High Court exercises its jurisdiction;



(b) the reference in the Article 227 to the Governor shall, in relation to any kind of rules, forms or tables for the subordinate courts, be construed as a reference to the State Governor in which the subordinate courts are situated; and

(c) the references in the Articles 219 & 229 to the State shall be construed as the reference to the State in which the High Court has its own principal seat:

Provided that if such kind of principal seat is in a Union territory, the references in the Articles 219 & 229 to the Governor, PSC (Public Service Commission), Legislature & Consolidated Fund of the State shall be construed as the references to the President, UPSC (Union Public Service Commission), Parliament & Consolidated Fund of India.

82. Ans. B.

The 42nd Amendment Act, 1976 is one among the most important amendments to the Indian Constitution. It was enacted by the Indian National Congress headed by the Indira Gandhi then. Due to the large number of the amendments any act has brought to the Indian Constitution, it is even known as 'Mini-Constitution.'

The Four Directive Principles were added by the 42nd amendment as follows:

- To secure the opportunities for the healthy development of children (in Article 39)
- To promote equal justice and to provide the free legal aid to the poor (in Article 39 A)
- To take steps to secure the participation of workers in the management of the industries (in Article 43 A)
- To protect and improve the environment and to safeguard the forests and wildlife (in Article 48 A)

83. Ans. B.

First Five Year Plan:

- It was made for the duration of 1951-1956, under the leadership of J.L. Nehru.
- It was based on the Harrod-Domar model with a few modifications.
- Its main aim was on the agricultural development of the country.



- It also aims in correction of the disequilibrium caused by 2nd World war.
- This plan was successful and it achieved a growth rate of 3.6 percent (more than its target of 2.1 percent).
- At the end of this plan, 5 IITs were set up in the country.

Fifth Five Year Plan:

- Its duration was 1974-1978.
- This plan focussed on the Garibi Hatao, employment, agricultural production, justice, and defence.
- The plan aims in attaining the self-reliance.
- The Electricity Supply Act was amended in the year 1975, Twenty-point programme was launched in the year 1975, the MNP (Minimum Needs Programme) and the Indian National Highway System was also introduced.
- On the whole, this plan was successful which achieved a growth of 4.8 percent against the target of 4.4 percent.
- This plan was terminated in the year 1978 by the newly elected Moraji Desai government.

Eleventh Five Year Plan:

- Its duration was from 2007-2012, under the leadership of Manmohan Singh.
- The plan was prepared by the C. Rangarajan.
- Its main theme was the 'rapid and more inclusive growth'.
- It achieved a growth rate of 8 percent against a target of 9 percent growth.

Twelfth Five Year Plan:

- Its duration is from 2012-2017, under the leadership of Manmohan Singh & Narendra Modi.
- Its main theme is the 'Faster, More Inclusive & Sustainable Growth'.
- Its growth rate target was 8 percent.



84. Ans. B.

The call for the Garibi Hatao was incorporated in the Fifth Five-Year Plan.

The Five-year plan is a planning strategy of the union government and financed by the union government and implemented at the national level with the state government cooperation. The Fifth five-year plan was launched by the Indira Gandhi government for a time period of 1974 to 1979. The aim of the plan was the poverty alleviation, but the slogan 'Garibi Hatao' was not given to this. Because of the change in central government, the five-year plan did not complete its full term and terminated by the Janta government in the year 1978 and launched the Sixth Five-Year Plan for the year's 1978 to 1983 and termed it as the 'Rolling plan'.

But again the congress came to power in the year 1980 and disbanded this plan, but it had already completed its initial two years. So this two-year adjustment was made in a very interesting manner:

- The period 1978-1979 was again combined with the original Fifth five-year plan and it officially then completed its term.
- And the year's 1979 to 1980 adjusted as an annual plan and named it 'Rolling plan'.

In the year 1980, the Congress government officially launched the Sixth five-year plan for 1980 to 1985 with the slogan 'Garibi Hatao'.

85. Ans. B.

The Five-Year Plans were the centralised and the integrated national economic programs. The first Five-year plan was implemented in the Soviet Union in the year 1928 by Joseph Stalin. Since then, countries like China, Bhutan, South Korea, Vietnam, Argentina, Romania and Ethiopia have also implemented the Five-Year Plans.

First Five-Year Plan in India:

With the Partition as the backdrop, the country reeling with the refugee's influx, severe food shortage and the mounting inflation, the First Five-Year Plan was introduced in the year 1951. The Five-year plan focused primarily on the development of the primary sector, specifically agriculture and irrigation.

The plan was drafted by economist K.N. Raj; it was based on the Harrod-Domar model, which suggested that the growth was dependent on the two things.



Firstly, a high level of savings since the higher savings enabled the greater investment and secondly, a low capital-output ratio which ensured efficient investment and the higher growth rate.

86. Ans. D.

The Parliamentary form of government which is federal in the structure with particular unitary features. The constitutional head of the Union Executive is the President. As per the Article 79 of the Constitution of India, the Parliament comprises of President of India and the two Houses of the Parliament known as the Council of States (i.e. Rajya Sabha) and House of the People (i.e. Lok Sabha).

The principle legislative organ of the union of India is known as the Parliament. The Indian Constitution provides us with the Parliamentary Democracy. The Parliament of India is made from the Lok Sabha, Rajya Sabha & President. Articles 79 to 122 of the Indian Constitution deal with the composition, powers & procedures of the Indian Parliament.

87. Ans. D.

- The PMKSY (Pradhan Mantri Krishi Sinchayee Yojana) is a Centrally Sponsored Scheme launched in the year 2015. The Centre- States will be 75:25 per cent. In the case of the North-eastern region and in hilly states, it will be 90:10.
- The scheme is decentralised implementation through the State Irrigation Plan and the District Irrigation Plan.
- Its objectives are:
 - o The basic aim of the PMKSY is to enhance physical access of the water on farm.
 - o The convergence of investments in the irrigation at the field level.
 - o It also helps in expanding the cultivable area under assured irrigation (i.e. Har Khet ko pani).
 - o It improves on-farm water use efficiency to reduce the wastage of water.
 - o It aims to enhance the adoption of the precision-irrigation and the other water saving technologies (i.e. More crop per drop),
 - o It ensures a comprehensive and the holistic view of the entire 'water cycle' and proper water budgeting is also done for all sectors, namely, household, agriculture and the industries.



- The scheme is formulated by amalgamating the ongoing schemes:
 - o AIBP (Accelerated Irrigation Benefit Programme) of Ministry of Water Resources, River Development and Ganga Rejuvenation.
 - o IWMP (Integrated Watershed Management Programme) of the Department of Land Resources, Ministry of Rural Development.
 - o OFWM (On-Farm Water Management) of DAC (Department of Agriculture & Cooperation).

88. Ans. C.

The New Zealand , an island country in the South Pacific Ocean, the south-western most part of the Polynesia.

The New Zealand is a remote land, one among the last sizable territories suitable for the habitation to be populated and settled and lies over 1,600 km southeast of Australia, its nearest neighbour.

The country consists of two main islands—the North and the South islands—and a number of the small islands, some among them hundreds of miles from the main group. The New Zealand's capital city is Wellington , and the largest urban area IS OF Auckland; both are located on the North Island.

New Zealand administers the South Pacific island group of Tokelau and claims a portion of the Antarctic continent. Niue and the Cook Islands are the self-governing states in free association with New Zealand.

89. Ans. A.

The Afforestation is not the cause of depletion in the groundwater.

Afforestation increase the soil cohesion, so that erosion, flooding & landslides don't occur. Roots make macropores large conduits in the soil that increase the infiltration of water and thus increase the level of ground water.

The Groundwater is a valuable resource which attains the hydrological needs of the people. The Groundwater depletion is primarily caused by deforestation; sustained groundwater pumping; overuse of the fertilizers & pesticides contaminates the groundwater.

Deforestation reduces the content of water present in the soil and groundwater.

90. Ans. C.



Maintaining the sacred groves is not a reason of decrease in biodiversity.

Below are the ten reasons for the decrease in biodiversity:

- Destruction of the Habitat
- Hunting
- Exploitation of the Selected Species
- Large scale deforestation
- Encroachment in the forest areas
- Introduction of the Exotic Species
- Pollution
- Exploitation of the forest produce
- Natural Calamities
- Other Factors involves
 - o Distribution range
 - o Degree of the specialization
 - o Position of the organism present in the food chain
 - o Reproductive rate

91. Ans. B.

The first railroad built in Great Britain to use steam locomotives was the Stockton & Darlington, opened in the year 1825.

The train used a steam locomotive built by the George Stephenson and was practical only for the hauling of minerals. The Liverpool and the Manchester Railway, which opened in the year 1830, was the first-ever modern railroad. It was a public carrier of both the passengers and freight. By the year 1870, Britain had about 13,500 miles of railroad. At the system's greatest extent, in the year 1914, there were about 20,000 miles of track, run by the 120 competing companies. The British government united all these companies into four main groups in the year 1923 as an economy measure.



The history of the Indian Railways dates back to more than 160 years ago. On 16th April 1853, the first passenger train ran between the Bori Bunder (then Bombay) and Thane, a distance of thirty-four km. It was operated by the three locomotives, named Sahib, Sultan & Sindh, and had 13 carriages.

92. Ans. C.

The American news magazine, 'Time' was deeply sceptical of the salt march on reaching its destination. But within 7 days it had changed its mind and saluted Gandhiji as a 'saint' & statesman. The Time's writing had made the British authority 'desperately anxious'.

The Salt March was notable for at least three reasons as follows:

Firstly, it was this event that brought Gandhi to the world attention. The march was widely covered by the European and the American Press.

Secondly, it was the first nationalist activity in which the women participated in quite large numbers. Kamaladevi Chattopadhyay, who was a socialist activist, had persuaded the Gandhiji not to restrict the protest to the men alone. She herself was one among numerous women who courted arrest by breaking the salt and the Liquor Laws.

Thirdly, and perhaps the most significant, it was the Salt March which forced upon the British rulers the realization that their rule would not last forever, and they would have to depute some power to the Indians.

93. Ans. A.

At the time of Gandhiji's Dandi March, the Viceroy of India was Lord Irwin.

Firstly, Gandhiji sent a letter on March 2, 1930 to inform the then Viceroy Lord Irwin that he, including the others, would begin breaking the Salt Laws in ten days. Then, on 12th March 1930, Gandhiji set out from his ashram at Sabarmati near the Ahmedabad with many dozen followers on the trek of some 240 miles to the coastal town of the Dandi on the Arabian Sea.

There, Gandhi & his supporters were to defy the British policy by making salt from the seawater. All along the way, Gandhiji addressed a large crowd, and with everyone passing day an increasing number of people combined the salt satyagraha.



By the time, they reached Dandi on 5th April, Gandhi was at the head of the crowd of tens of thousands. He spoke and led the prayers and early the coming morning walked down to the sea to make the salt.

94. Ans. B.

Gandhiji first formulated Satyagraha in the year 1906 in response to the law discriminating against the Asians which was passed by the Transvaal's British colonial government in South Africa. In the year 1917, the first-ever satyagraha campaign in India was mounted in the indigo-growing district of the Champaran.

The concept Satyagraha introduced in the early 20th century by Gandhiji to designate a determined but nonviolent resistance to the evil. The Gandhiji's Satyagraha became the principal tool in the Indian struggle against the British rule and has since been adopted by the other country's protest groups as well.

The Satyagraha draws from the ancient Indian ideal of the ahimsa (i.e. non-injury), which is pursued with certain rigour by Jains, various of whom live in the Gujrat, where Gandhi grew up. In the developing ahimsa into the modern concept with broad political consequences, as the Satyagraha, Gandhi also drew from the writings of the Leo Tolstoy & Henry David Thoreau, from the Bible, and also from the *Bhagavadgita*, on which he wrote a commentary.

95. Ans. C.

The Indian languages belong to the four language families: Indo-European, Dravidian, Mon-Khmer, and Sino-Tibetan.

The Indo-European and the Dravidian languages are used by a large majority of India's population. The language families split roughly into the geographic groups. The languages of the Indo-European group are spoken mainly in the northern and in the central regions.

The languages of southern India are mainly of the Dravidian group. Some ethnic groups in the Assam and other parts of eastern India speak languages of the Mon-Khmer group. The people in the northern Himalayan areas and near the Burmese border speak the Sino-Tibetan languages.

The speakers of 54 different languages of the Indo-European family form up to about three-quarters of India's population. The 20 Dravidian languages are spoken by approximately a quarter of the people. The speakers of 20 Mon-Khmer languages and the 98 Sino-Tibetan languages together form up about 2% of the population.



96. Ans. D.

Punjab is the least populated State in India among the following given states as per the Census of India, 2011.

Rank	State or Union Territory	Population	Population (in %)
1	Uttar Pradesh	199,812,341	16.51%
2	Maharashtra	112,374,333	9.28%
3	Bihar	104,099,452	8.6%
4	West Bengal	91,276,115	7.54%
5	Madhya Pradesh	72,626,809	6%
6	Tamil Nadu	72,147,030	5.96%
7	Rajasthan	68,548,437	5.66%
8	Karnataka	61,095,297	5.05%
9	Gujarat	60,439,692	4.99%
10	Andhra Pradesh	49,577,103[b]	4.1%
11	Odisha	41,974,219	3.47%
12	Telangana	35,003,674	2.89%
13	Kerala	33,406,061	2.76%
14	Jharkhand	32,988,134	2.73%
15	Assam	31,205,576	2.58%
16	Punjab	27,743,338	2.29%

97. Ans. D.

Tripura shares its boundary only with Bangladesh whereas Assam shares its boundary with Bhutan and Bangladesh, Arunachal Pradesh shares its boundary with Bhutan, China and Myanmar, Mizoram share its boundary with Bangladesh and Myanmar.

The Indian States on the International Boundaries:

Country	States on International Boundaries
Afghanistan	Jammu & Kashmir (Pakistan-Occupied-Kashmir)
Bhutan	Sikkim, West Bengal, Arunachal Pradesh and Assam
Bangladesh	West Bengal , Meghalaya, Mizoram, Tripura and Assam
China	Jammu & Kashmir, Uttarakhand, Himachal Pradesh, Sikkim and Arunachal Pradesh
Myanmar	Arunachal Pradesh, Manipur, Nagaland and Mizoram
Nepal	Bihar, Uttar Pradesh, Uttarakhand, Sikkim and West Bengal
Pakistan	Jammu & Kashmir, Rajasthan, Punjab and Gujarat

98. Ans. D.



The Krishna Raja Sagar (KRS) Dam is built across the Kaveri River, which is the main source of water in the South Karnataka. The town where the KRS Dam and Reservoir is built is also called as Krishnarajasagara.

- The KRS Dam was built across river Kaveri for the Mysore & Mandya districts in Karnataka in the year 1932.
- The dam was named for the then Mysore Kingdom ruler, Krishnaraja Wodeyar IV.
- The Dam is the formation of one of the greatest engineers that India had ever produced, Sir M. Vishweshwaraiah.
- The reservoir is even the main source of drinking water for all of the Mysore city and almost the whole of Bangalore city.
- The water released from this KRS dam is further used as a significant source of water in the Tamil Nadu state.

99. Ans. C.

The Cartagena is associated with Biosafety Protocol to the Convention on Biological Diversity of 2000.

The Cartagena Protocol on the Biosafety to the CBD is an international treaty which governs the movements of the LMOs (living modified organisms) resulting from that of the modern biotechnology from one nation to the another. It was adopted on 29th January 2000 as the supplementary agreement to the CBD, and it entered into force on 11th September 2003.

The Protocol seeks to protect the biological diversity from the potential risks which is posed by the living modified organisms resulting from the modern biotechnology. It creates an AIA (Advance Informed Agreement) procedure for making sure that the countries are provided with the necessary information in order to make the informed decisions before agreeing to the import of such kind of organisms into their territory. The Protocol comprises a reference to a precautionary approach & reaffirms the precaution language in Principle 15 of the Rio Declaration on the Environment and Development. The Protocol also creates a Biosafety Clearing-House to facilitate the information exchange on the living modified organisms and to assist the countries in the Protocol implementation.

100. Ans. B.

Deendayal Port is located at Gujarat.



The Kandla port's journey started in the year 1931 with development of a jetty by the Maharao Khengarji. Progressively, this port located in Gujarat turned into the number one port in the country and on 31st March 2016 it made history by taking care of hundred million tons of freight in a year and became the first Major Port to accomplish this feat.

The Kandla Port, also called as the Deendayal Port Trust is a seaport located in the Kutch District of Gujarat state in western India. The Port of Deendayal is situated at on the Gulf of Kutch on the north-western coast of India around 256 nautical miles southeast of the Port of Karachi in Pakistan and over 430 nautical miles the north-northwest of the port of the Mumbai (Bombay).

It is the largest port of India by the volume of cargo handle. It is India's busiest major port in the recent years, is gearing to add the substantial cargo handling capacity with the private sector participation.

101. Ans. D.

The most appropriate synonym for yearning is hankering which means a strong desire to have or do something.

Declining means becoming smaller, fewer, or less; decreasing.

Demanding means requiring much skill or effort.

Begging means ask someone earnestly or humbly for something.

102. Ans. C.

The most appropriate synonym for into a frenzy is berserk which means out of control with anger or excitement.

Silent means not making or accompanied by any sound.

Creative means relating to or involving the use of the imagination or original ideas to create something.

Wrong means not correct or true.

103. Ans. A.

The most appropriate synonym for crucial is momentous which means of great importance or significance.

Natural means which is not artificial.



Primitive means belonging to a society in which people live in a very simple way.

Inept means having or showing no skill.

104. Ans. D.

The most appropriate synonym for cunning is **dodgy which means dishonest or unreliable.**

Capable means having the ability, fitness, or quality necessary to do or achieve a specified thing.

Fit means of a suitable quality, standard, or type to meet the required purpose.

Intelligent means clever and brilliant.

105. Ans. B.

The most appropriate synonym for futile is **pointless which means having little or no sense.**

Costly means expensive.

Indecisive means not providing a clear and definite result.

Successful means accomplishing a desired aim or result.

106. Ans. C.

The most appropriate synonym for with equanimity is **patiently which means in a way that shows tolerance of delays, problems, or suffering without becoming annoyed or anxious.**

Carelessly means in a casual or reckless way; inattentively.

Excitedly means in a very enthusiastic and eager manner.

Half-heartedly means without enthusiasm or energy.

107. Ans. C.

The most appropriate synonym for execute is accomplish which means achieve or complete successfully.

Desire means a strong feeling of wanting to have something or wishing for something to happen.



Debate means argue about a subject especially in a formal manner.

Discard means get rid of someone or something as no longer useful or desirable.

108. Ans. A.

The most appropriate synonym for bounces back is **recoils which means rebound or spring back through force of impact or elasticity.**

Deflates means let air or gas out of.

Inflates means fill with air or gas so that it becomes distended.

Ascends means go up or climb.

109. Ans. B.

The most appropriate synonym for **gentle is amiable which means having or displaying a friendly and pleasant manner.**

Harmful means causing or capable of causing damage.

Cunning means having or showing skill in achieving one's ends by deceit or evasion.

Adjusting means alter or move something slightly in order to achieve the desired fit, appearance, or result.

110. Ans. C.

The most appropriate synonym for divorce is **annulment which means a legal procedure within secular and religious legal systems for declaring a marriage null and void.**

Detachment means the state of being objective or aloof.

Breaking down means suddenly cease to function.

Punishment means the infliction or imposition of a penalty as retribution for an offence.

111. Ans. D.

The word 'instead' means in place of. So, this sentence will start from option R which will be followed by option S (what you cannot). Option Q begins with 'control' which means it will come after option S as the



sentence will be 'what you cannot control, shift your energy'. And then will come the last option that is option P.

112. Ans. B.

This sentence is talking about a job (Option R) how a job that never started (Option Q) takes the longest (Option P) to finish (Option S).

113. Ans. C.

This sentence is talking about how it is a miserable solitude that compels a person to (Option R). Compels a person to do what? To make friends (Option Q). Option Q ends with true and Option P begins with friends. On combining the two words it will be 'true friends'. Option P will be followed by the last option that is option S.

114. Ans. C.

This sentence is clearly talking about the essay of Francis Bacon of friendship (Option S) which is celebrating the intimacy of/ between? Between friends (Option R). Option R ends with prosperity and option P begins with adversity which is the antonym of prosperity. So, option P will come after option R followed by the last option that is option Q.

115. Ans. D.

This sentence is talking about how gain sharing plans (Option S) are now used by more than a thousand firms (Option P). So, where are these firms? These firms are in the United States and Europe (Option R) followed by option Q.

116. Ans. A.

This sentence is very straight forward. It tells that how two people are arguing about why Venus is much warmer (Option P). The next option will be option S as it begins from 'than' and 'than' is used to introduce the second element in a comparison. Option S ends with closer which means the next option will be option Q followed by option R.

117. Ans. D.

This sentence is talking about an element which got heated up (Option P) and after that it glows like a dark orange that radiates. (Option R) So, the question is that it radiates what? Only two options are left which means that next option will be option S which is that it radiates the visible range and it will be followed by the last option which is option Q.

118. Ans. B.



The word although means in spite of the fact. Option P says although the temperature of this layer... (the rephrased sentence will be in spite the temp. Of this layer). The next suitable option is option S which ends with must be careful. So, the question is, must be careful of what? The answer to this question is Option Q which is must be careful when directly comparing the satellite. And then comes the last option which is option R.

119. Ans. A.

The sentence is in the first-person point of view starting from 'I' which will be the option P followed by option R as the person is talking about how climate change problem will be much harder to solve than the ozone depletion. Hence, option Q will come after option R followed by option S.

120. Ans. A.

Option P (several years ago) indicates the starting point of the sentence followed by Option R which is talking about how Professor Andrew Dessler created an introductory course. The word 'course' is in the option Q and it will be followed by the last option which is S.

121. Ans. C.

The most appropriate antonym for huge **is tiny which means very small.**

Significant means sufficiently great or important to be worthy of attention.

Major means important or serious.

Dormant means having normal physical functions suspended or slowed down for a period of time.

122. Ans. A.

The most appropriate antonym for sensitivity **is imperviousness which means not allowing fluid to pass through.**

Willingness means the quality or state of being prepared to do something.

Responsiveness means reacting quickly and positively.

Closeness means the quality of knowing someone very well; the quality of affection.

123. Ans. D.



The most appropriate antonym for debate is agreement which means the act of coming to a mutual decision, position or arrangement.

Contend means to deal with something difficult or unpleasant.

Moot means subject to debate, dispute, or uncertainty.

Wrangle means a dispute or argument, typically one that is long and complicated.

124. Ans. B.

The most appropriate antonym for concerned is **indifferent which means having no particular interest or sympathy.**

Worried means to be anxious or troubled about actual or potential problems.

Curious means eager to know or learn something.

Puzzled means unable to understand.

125. Ans. B.

The most appropriate antonym for warmer is colder which means of or at a low or relatively low temperature.

Friendlier means kind and pleasant.

Wilder means to cause to lose one's way.

Heavier means of great weight.

126. Ans. D.

The most appropriate antonym for expressed is **concealed which means hidden.**

Found means having been discovered by chance or unexpectedly.

Told means to communicate information to someone.

Distributed means give a share or a unit of something to each of a number of recipients.

127. Ans. C.



The most appropriate antonym for move is stall which means to cause something to stop.

Push means to exert force on someone or something in order to move them away from oneself.

Rotate means to move or cause to move in a circle round an axis or center.

Flow means to move steadily and continuously in a current or stream.

128. Ans. B.

The most appropriate antonym for important is **trivial which means of little value or importance.**

Significant means sufficiently great or important to be worthy of attention.

Basic means forming an essential foundation or starting point; fundamental.

Probable means likely to happen or be the case.

129. Ans. C.

The most appropriate antonym for educated is ignorant which means lacking knowledge or awareness in general.

Cerebral means of or relating to the brain or the intellect.

Enlightened means having or showing a rational, modern, and well-informed outlook.

Erudite means having or showing great knowledge or learning.

130. Ans. B.

The most appropriate antonym for absently is **alertly which means the state of being watchful and responsive.**

Capably means in a way that shows the ability to do something effectively or to achieve results.

Agitatedly means feeling or appearing troubled or nervous.

Dreamily means not completely awake and thinking of pleasant things.



131. Ans. A.

The word dispose is the construction of the words "dis" and "pose" which means to get rid of.

'Dispose of' is the correct usage.

132. Ans. B.

'About' is superfluous in this sentence. It is not required. About will not follow after the discuss word.

Transitive verb + object

133. Ans. C.

When we have to compare two actions or things, we always use preposition "**to**".

So "prefer to" phrase is used rather than "prefer than.

134. Ans. B.

It should be 'daughter-in-law' instead of daughter- in-laws.

135. Ans. D.

There is **No error** in the given sentence.

136. Ans. C.

The use of preposition 'in' is wrong.

It should be 'by' your watch.

'by' here has the meaning of "according to". So, the sentence is basically asking, 'What time is your watch showing?'

137. Ans. C.

By walk is the incorrect usage.

'on foot' is the right usage.

138. Ans. B.

The verb 'cope' will be preceded by preposition 'with' and not 'up'.



139. Ans. B.

Meeting is the gerund form of the verb. It is not acting as a verb but as a noun.

Also, a gerund ends with an '-ing'.

Here, the verb is 'look forward' which is followed by the 'meeting' which is a gerund.

Also, we use (+ing) form of the verb after preposition 'to'.

140. Ans. B.

We do not use "of" after comprises. Because Comprise, in itself, already includes the meaning of the preposition "of", so there is no point in adding "of".

141. Ans. C.

The preposition "from" is used to indicate where somebody/something starts.

The preposition "off" means not touching or connected to something or not on a surface.

The preposition "of" is used to indicate relating to, belonging to.

As given in the question, ... relieve them **of** their sufferings

The preposition "on" is used refers a surface of something, specifies days and dates or to describe an activity or a state.

142. Ans. B.

The preposition "in" is used to indicate a location.

The preposition "on" is used refers a surface of something, specifies days and dates or to describe an activity or a state.

As given in the question, ... enjoyed boating on the lovely lake.

The preposition "beside" means next to or at the side of somebody/ something.

The preposition "within" is used to indicate before a particular period of time has passed; during a particular period of time.



143. Ans. D.

The preposition "by" is used for showing how or in what way something is done.

The preposition "off" means not touching or connected to something or not on a surface.

The preposition "beside" means next to or at the side of somebody/something. (e.g. - He sat beside her all night.)

The preposition "into" is used to indicate in the direction of something. (e.g. - Speak clearly into the microphone.)

As given in the question, I ran **into** John yesterday

144. Ans. A.

The preposition "for" is used to indicate a period of time or to indicate the reason or because of.

As given in the question, there is no cure for the common cold.

The preposition "of" is used to indicate relating to, belonging to.

The preposition "to" is used is used to indicate the direction, place.

The preposition "on" is used refers a surface of something, specifies days and dates or to describe an activity or a state.

145. Ans. B.

The preposition "off" means not touching or connected to something or not on a surface. (e.g. - Keep off the grass!)

The preposition "of" is used to indicate relating to, belonging to.

As given in the question, she is a woman **of** humble origin.

The preposition "from" is used to indicate where somebody/something starts. (e.g. - She began to walk away from him.)

The preposition "within" is used to indicate before a particular period of time has passed; during a particular period of time.

146. Ans. A.



The preposition "on" is used refers a surface of something, specifies days and dates or to describe an activity or a state.

As given in the question, I accepted the offer **on** certain conditions.

The preposition "in" is used to indicate a location.

The preposition "by" is used for showing how or in what way something is done.

The preposition "within" is used to indicate before a particular period of time has passed, during a particular period of time. (e.g. - You should receive a reply within seven days.)

147. Ans. B.

The preposition "since" is used to indicate a point in time from the past. (e.g. - I've [known](#) Arjun since he was [born](#).)

The preposition "for" is used to indicate a period of time. (e.g. He has been living in Egypt for several months.)

As given in the question, I have known her for a long time.

The preposition "at" is used to indicate a place, time or one's activity.

The preposition "before" is used to indicate earlier than somebody/something. (e.g. - He arrived before me.)

148. Ans. A.

The preposition "to" is used is used to indicate the direction, place.

As given in the question, People who are averse **to** hard work

The preposition "about" is used on the subject of somebody/something; in connection with somebody/something. (e.g. - A book about animals.)

The preposition "at" is used to indicate a place, time or one's activity.

The preposition "on" is used refers a surface of something or specifies days and dates.

149. Ans. D.

The preposition "in" is used to indicate a location.



The preposition "on" is used refers to a surface of something or specifies days and dates. (e.g., I kept the dishes on the dining table., I will come on Wednesday.)

The preposition "by" is used for showing how or in what way something is done.

The preposition "at" is used to indicate a place, time or one's activity. (e.g., There are a good number of people at the park., Meet me at 4 p.m. tomorrow., Shreya laughed at my acting in the play.)

150. Ans. B.

The preposition "of" is used to indicate relating to, belonging to. (e.g., I always dreamed of being a dancer.)

The preposition "**in**" is used to indicate a location. (e.g., He gets in the car.)

As given in the question, exclude the observed increase **in** greenhouse gases.

The preposition "by" is used for showing how or in what way something is done. (e.g., The house is heated by gas.)

The preposition "to" is used to indicate the direction, place. (e.g., The friends went to the restaurant.)

