Q.1) Which of the following parts of circulatory system carry the oxygenated blood?

1. Pulmonary artery
2. Left Ventricle
3. Pulmonary Vein

Select the correct answer using the code given below.

a) 1 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3

Q.1) Solution (b)

Left Ventricle of the heart supplies the oxygenated blood through the pulmonary veins throughout the body.

Pulmonary arteries carry the deoxygenated blood from heart to the lungs for purification.

The heart is a muscular organ about the size of a closed fist that functions as the body's circulatory pump. It takes in deoxygenated blood through the veins and delivers it to the lungs for oxygenation before pumping it into the various arteries

The heart contains 4 chambers: the right atrium, left atrium, right ventricle, and left ventricle. The atria are smaller than the ventricles and have thinner, less muscular walls than the ventricles. The atria act as receiving chambers for blood, so they are connected to the veins that carry blood to the heart. The ventricles are the larger, stronger pumping chambers that send blood out of the heart. The ventricles are connected to the arteries that carry blood away from the heart.

The chambers on the right side of the heart are smaller and have less myocardium in their heart wall when compared to the left side of the heart. This difference in size between the sides of the heart is related to their functions and the size of the 2 circulatory loops. The right side of the heart maintains pulmonary circulation to the nearby lungs while the left side of the heart pumps blood all the way to the extremities of the body in the systemic circulatory loop.

Do you know?

- The lymphatic system is part of the vascular system and an important part of the immune system, comprising a network of lymphatic vessels that carry a clear fluid called lymph (from Latin, lympha meaning "water") directionally towards the heart.

THINK!

- Spleen

Q.2) Which among the following hormones is/are produced by the human body?

1. Insulin
2. Cytokinin
3. Thyroxine

Select the correct answer using the code given below.

a) 1 only
b) 1 and 3 only
c) 2 and 3 only
d) 1, 2 and 3

Q.2) Solution (b)

Insulin is a hormone made by the pancreas that allows body to use sugar (glucose) from carbohydrates in the food or to store glucose for future use. Insulin helps keep blood sugar level from getting too high (hyperglycemia) or too low (hypoglycemia).

Cytokinins are a class of plant growth substances (phytohormones) that promote cell division, or cytokinesis, in plant roots and shoots. They are involved primarily in cell growth and differentiation, but also affect apical dominance, axillary bud growth, and leaf senescence.

Thyroxin is the main hormone secreted into the bloodstream by the thyroid gland. It is the inactive form and most of it is converted to an active form called triiodothyronine by organs such as the liver and kidneys. Thyroid hormones play vital roles in regulating the body metabolic rate, heart and digestive functions, muscle control, brain development and maintenance of bones.

Do you know?

- Steroid – Hormones derived from cholesterol. Examples of steroid hormones include the sex hormones estradiol and testosterone as well as the stress hormone cortisol.

THINK!

- Endocrine system

Q.3) With reference to the passive immunity of human body to fight the disease, consider the following statements:

1. Passive immunity is generated due to antibodies obtained from outside the body.
2. Passive immunity is slow and takes time to give its full effective response.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.3) Solution (a)

Active immunity results when exposure to a disease organism triggers the immune system to produce antibodies to that disease. Exposure to the disease organism can occur through infection with the actual disease (resulting in natural immunity), or introduction of a killed or weakened form of the disease organism through vaccination (vaccine-induced immunity).

Passive immunity is provided when a person is given antibodies to a disease rather than producing them through his or her own immune system. A newborn baby acquires passive immunity from its mother through the placenta.

When antibodies are directly given to protect the body against foreign agents, it is called passive immunity for example foetus receives antibodies from their mother, through the placenta during pregnancy, the yellowish fluid colostrum secreted by mother during the initial days of lactation has abundant antibodies (IgA) to protect the infant.

Active immunity is slow and takes time to give its full effective response whereas passive immunity immediately gives effective response. Passive immunity lasts for few days or shorter duration whereas active immunity lasts for sufficiently longer period or may be lifelong.

Do you know?

- The adaptive immune system evolved in early vertebrates and allows for a stronger immune response as well as immunological memory, where each pathogen is "remembered" by a signature antigen. The adaptive immune response is antigen-specific and requires the recognition of specific "non-self" antigens during a process called antigen presentation.

THINK!

- Immunosuppressive drugs.

Q.4) With reference to human digestive system, consider the following statements:

1. The hydrochloric acid in the stomach facilitates the action of digestive enzymes.
2. The pancreatic juice helps in breaking down fats.
3. The complete digestion of carbohydrates and fats takes place in the small intestine.

Which of the statements given above is/are correct?

a) 1 only
b) 1 and 2 only
c) 2 and 3 only
d) 1, 2 and 3

Q.4) Solution (d)

The digestion functions are taken care of by the gastric glands present in the wall of the stomach. These release hydrochloric acid, a protein digesting enzyme called pepsin, and mucus.

The hydrochloric acid creates an acidic medium which facilitates the action of the enzyme pepsin.

The pancreas secretes pancreatic juice which contains enzymes like trypsin for digesting proteins and lipase for breaking down emulsified fats.

The small intestine is the site of the complete digestion of carbohydrates, proteins and fats. It receives the secretions of the liver and pancreas for this purpose.

Do you know?

- The gastrointestinal tract (digestive tract, digestional tract, GI tract, GIT, gut, or alimentary canal) is an organ system within humans and other animals which takes in food, digests it to extract and absorb energy and nutrients, and expels the remaining waste as feces.
- The mouth, esophagus, stomach and intestines are part of the gastrointestinal tract. Gastrointestinal is an adjective meaning of or pertaining to the stomach and intestines. A tract is a collection of related anatomic structures or a series of connected body organs.

THINK!

- Bile

Q.5) With reference to nutrition in humans, consider the following processes:

1. assimilation
2. absorption
3. digestion
4. ingestion
5. egestion

Arrange the process in sequence of their occurrence in digestive system.

a) 4-3-2-1-5
b) 4-1-2-5-3
c) 3-4-5-1-2
d) 3-2-4-1-5

Q.5) Solution (a)

Nutrition is a complex process involving: (i) ingestion, (ii) digestion, (iii) absorption, (iv) assimilation and (v) egestion. Food is taken into the body through the mouth. The process of taking food into the body is called ingestion. The inner lining of the stomach secretes mucous, hydrochloric acid and digestive juices and this helps in digestion.

The digested food pass into the blood vessels in the wall of the intestine. This process is called absorption. The absorbed substances are transported via the blood vessels to different organs of the body where they are used to build complex substances such as the proteins required by the body. This is called assimilation.

The remaining waste passes into the rectum and remains there as semi-solid faeces. The faecal matter is removed through the anus from time-to-time. This is called egestion.

Do you know?

- The cecum is a pouch marking the division between the small intestine and the large intestine. The cecum receives chyme from the last part of the small intestine, the ileum, and connects to the ascending colon of the large intestine.
- At this junction there is a sphincter or valve, the ileocecal valve which slows the passage of chyme from the ileum, allowing further digestion. It is also the site of the appendix attachment.

THINK!

- Diaphragm

Q.6) With reference to human blood, consider the following statements:

1. It is a connective tissue.
2. Red blood cells in blood are devoid of nucleus.
3. White blood cells are short lived cells which lack haemoglobin.

Which of the statements given above are correct?

a) 1 and 3 only
b) 1 and 2 only
c) 2 and 3 only
d) 1, 2 and 3

Q.6) Solution (d)

Blood is a special connective tissue consisting of a fluid matrix, plasma, and formed elements (Erythrocytes, leucocytes and platelets).

Erythrocytes or red blood cells (RBC) are the most abundant of all the cells in blood. A healthy adult man has, on an average, 5 millions to 5.5 millions of RBCs mm-3 of blood. RBCs are formed in the red bone marrow in the adults. RBCs are devoid of nucleus in most of the mammals and are biconcave in shape. They have a red coloured, iron containing complex protein called haemoglobin, hence the colour and name of these cells.

Leucocytes are also known as white blood cells (WBC) as they are colourless due to the lack of haemoglobin. They are nucleated and are relatively lesser in number which averages 6000- 8000 mm-3 of blood.

Leucocytes are generally short lived. We have two main categories of WBCs - granulocytes and agranulocytes. Neutrophils, eosinophils and basophils are different types of granulocytes, while lymphocytes and monocytes are the agranulocytes.

Do you know?

- **The main function of platelets is to contribute to hemostasis:** the process of stopping bleeding at the site of interrupted endothelium. They gather at the site and unless the interruption is physically too large, they plug the hole.

THINK!

- Hemostasis

Q.7) Which of the following are the Purines nitrogen bases?

1. Adenine
2. Guanine

3. Cytosine
4. Uracil
5. Thymine

Select the correct answer using the code given below.

a) 1 and 2 only
b) 3 and 4 only
c) 2, 4 and 5 only
d) 1, 2 and 3 only

Q.7) Solution (a)

There are two types of nitrogenous bases - Purines (Adenine and Guanine), and Pyrimidine (Cytosine, Uracil and Thymine). Cytosine is common for both DNA and RNA and Thymine is present in DNA. Uracil is present in RNA at the place of Thymine.

Do you know?

- In cell biology, chromosome territories are regions of the nucleus preferentially occupied by particular chromosomes.

THINK!

- DNA profiling

Q.8) Liquid Biopsies are an alternative to traditional tissue based biopsies. Which of the following statements regarding liquid biopsies are correct?

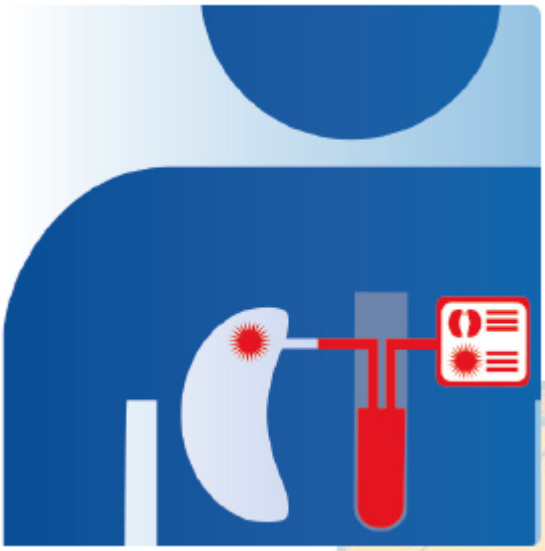
1. They provide a full spectrum of information compared to tissue samples, which only reflect the information available in the sample.
2. Disease progression or resistance to treatment can be spotted much faster than otherwise relying on symptoms or imaging.

Select the code from following:

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.8) Solution (c)

Liquid biopsies



Liquid biopsies mark a step forward in the fight against cancer. First, they are an alternative where traditional tissue-based biopsies are not possible. Second, they provide a full spectrum of information compared to tissue samples, which only reflect the information available in the sample. Lastly, by homing in on circulating-tumor DNA (ctDNA), genetic material that routinely finds its way from cancer cells into the bloodstream, disease progression or resistance to treatment can be spotted much faster than otherwise relying on symptoms or imaging.

Q.9) Deep Learning (deep neural network) is an aspect of Artificial Intelligence (AI). Which of the following statements correctly describe Deep learning?

a) It allows machine to emulate the learning process of human beings to gain certain type of knowledge.
b) It allows students to memorise the details quickly and permanently.
c) It is a voice command system, where once a command is given will be automatically remembered by the machine till it is changed.
d) It helps the user to gain knowledge while sleeping.

Q.9) Solution (a)

Deep learning

Deep learning is an aspect of artificial intelligence (AI) that is concerned with emulating the learning approach that human beings use to gain certain types of knowledge. At its simplest, deep learning can be thought of as a way to automate predictive analytics.

While traditional machine learning algorithms are linear, deep learning algorithms are stacked in a hierarchy of increasing complexity and abstraction. To understand deep learning, imagine a toddler whose first word is dog. The toddler learns what a dog is (and is not) by pointing to objects and saying the word dog. The parent says, "Yes, that is a dog," or, "No, that is not a dog." As the toddler continues to point to objects, he becomes more aware of the features that all dogs possess. What the toddler does, without knowing it, is clarify a complex abstraction (the concept of dog) by building a hierarchy in which each level of abstraction is created with knowledge that was gained from the preceding layer of the hierarchy.

Q.10) Which of the following regarding 'Human Cell Atlas' are correct?

1. It is a project to map all types of genes in a human cell.
2. To create comprehensive reference maps of all human cells—the fundamental units of life
3. It is an initiative of WHO

Select the code from following:

a) 1 and 3
b) 2 only
c) 2 and 3
d) All of the above

Q.10) Solution (b)

The Human Cell Atlas is a global collaboration to map and characterize all cells in a healthy human body: cell types, numbers, locations, relationships, and molecular components. Once complete, it will be a fundamental resource for scientists, allowing them to better understand how healthy cells work, and what goes wrong when disease strikes.

It is a ChanZukerberg initiative.

Q.11) Which of the following statements clearly explains 'Precision Farming'?

a) It is the use of exact amount to water and nutrients for each plant to control the yield.
b) It is a farm management system where each plant is manually planted at optimum distance in a field to maximize the yield.
c) It is a digital/satellite based farm management system where technology is used for observing, measuring and responding to inter and intra-field variability in crops.
d) It is an act of using an exact amount of seeds in a farm to germinate maximum number of healthy plants.

Q.11) Solution (c)

Precision agriculture (PA)

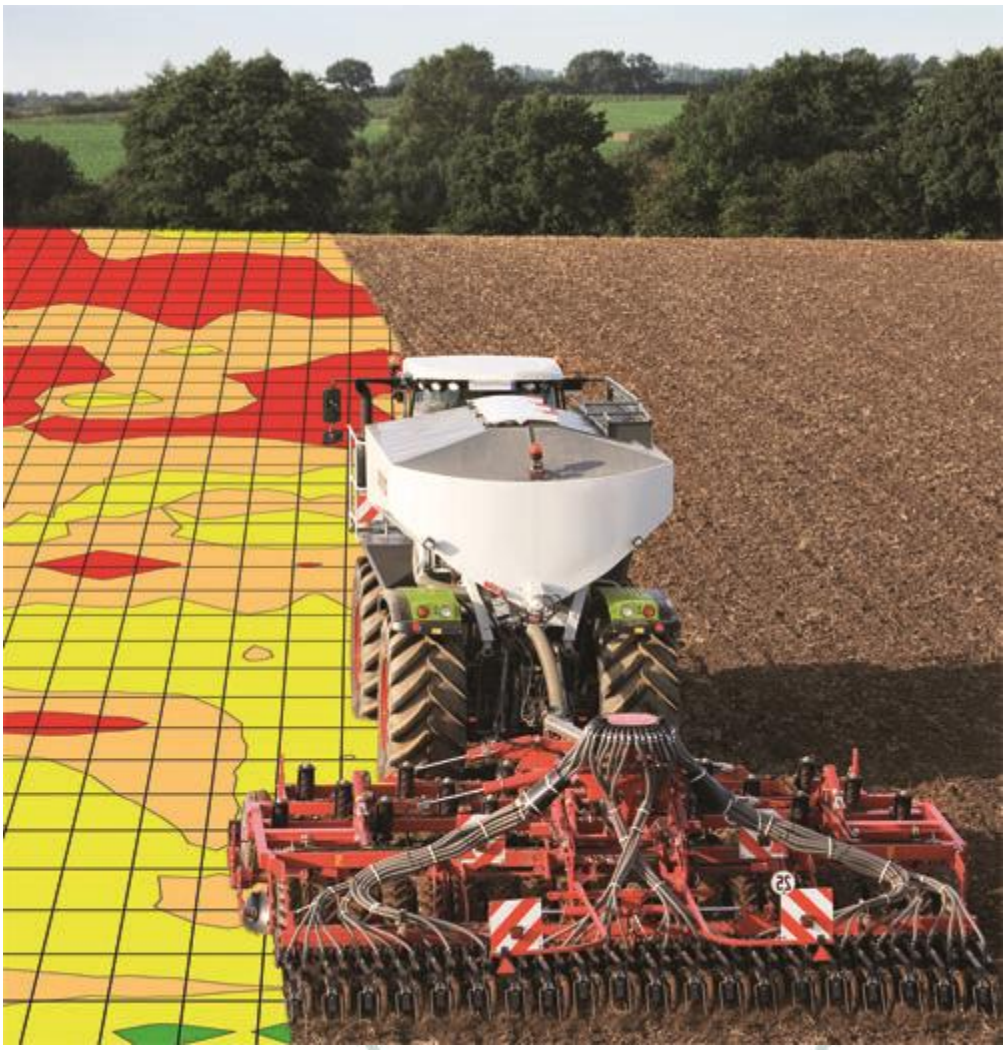
Precision agriculture (PA), satellite farming or site specific crop management (SSCM) is a farming management concept based on observing, measuring and responding to inter and intra-field variability in crops. The goal of precision agriculture research is to define a decision support system (DSS) for whole farm management with the goal of optimizing returns on inputs while preserving resources.

If you want a detailed list of the **most common technologies** applied to Precision Farming practices, take a look at the following explanatory items:

• **High precision positioning systems (like GPS)** are the key technology to achieve accuracy when driving in the field, providing navigation and positioning capability anywhere on earth, anytime under any all conditions. The systems record the position of the field using geographic coordinates (latitude and longitude) and locate and navigate agricultural vehicles within a field with 2cm accuracy.

• **Automated steering systems:** enable to take over specific driving tasks like auto-steering, overhead turning, following field edges and overlapping of rows. These technologies reduce human error and are the key to effective site management:

- Assisted steering systems show drivers the way to follow in the field with the help of satellite navigation systems such as GPS. This allows more accurate driving but the farmer still needs to steer the wheel.
- Automated steering systems, take full control of the steering wheel allowing the driver to take the hands off the wheel during trips down the row and the ability to keep an eye on the planter, sprayer or other equipment.
- Intelligent guidance systems provide different steering patterns (guidance patterns) depending on the shape of the field and can be used in combination with above systems.



Seeder using a geomapping system

• **Geomapping:** used to produce maps including soil type, nutrients levels etc in layers and assign that information to the particular field location. (see picture on the left)

• **Sensors and remote sensing:** collect data from a distance to evaluating soil and crop health (moisture, nutrients, compaction, crop diseases). Data sensors can be mounted on moving machines.

• **Integrated electronic communications** between components in a system for example, between tractor and farm office, tractor and dealer or spray can and sprayer.

• **Variable rate technology (VRT):** ability to adapt parameters on a machine to apply, for instance, seed or fertiliser according to the exact variations in plant growth, or soil nutrients and type.

Q.12) For past few years, the term blockchain has been in news. Which of the following statements correctly defines a blockchain?

a) It is a record of transactions which a shell company maintains to keep a check on money routed by it.
b) It is an interlinked list of records which is secured using cryptography.
c) It is an algorithm developed by multilevel marketing companies to calculate the monetary profit at each level of hierarchy.
d) It is an interconnection of networks which connects producers to the consumers.

Q.12) Solution (b)

Blockchain

A blockchain, originally block chain, is a continuously growing list of records, called blocks, which are linked and secured using cryptography. Each block typically contains a cryptographic hash of the previous block, a timestamp and transaction data. By design, a blockchain is inherently resistant to modification of the data. It is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way". For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without the alteration of all subsequent blocks, which requires collusion of the network majority.

Blockchain was invented by Satoshi Nakamoto in 2008 for use in the cryptocurrency bitcoin, as its public transaction ledger. The invention of the blockchain for bitcoin made it the first digital currency to solve the double-spending problem without the need of a trusted authority or central server. The bitcoin design has been the inspiration for other applications.

The financial sector is the most affected area by Blockchain technology. As block chain eliminates the need for a middleman in transactions, the process becomes more transparent. Blockchain manages these three important roles, it records the transactions, establishes the identity and establishes the contracts.

Q.13) Which of the following statements are correct regarding Internet of Nano Things?

1. When nano scale devices are connected with existing communication devices or internet, it is called internet of Nano things.

2. Internet of Nano Things improves the data storage and computing ability at the sensor level, thus improving the overall process capability.

Select the code from following:

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.13) Solution (c)

Internet of Nano-Things

Internet of Things (IoT) is not new. You can find smart home accessories very prevalent, but Internet of Nano-Things (IoNT) is an emerging field having vital technical and social importance. IoT will connect 30 billion devices by 2020.

When nanoscale devices interconnect with existing communication devices, it enables us to leverage the Internet of Nano Things (IoNT). Nanotechnology offers solutions for many fields including biological sciences, engineering, environment, consumer and military use. Internet of Nano Things improves the data storage and computing ability at the sensor level, thus improving the overall process capability.

According to Markets and Markets analysts, the current market size (in 2016) of IoNT is $4.26 billion, and it will become $9.69 billion by 2020, estimating the Compound Annual Growth Rate at 22.8%.

The Key vendors for the IoNT market include Intel, Cisco Systems, IBM, Alcatel-Lucent, Qualcomm.Humavox is an exciting IOT startup which is creating technologies to power up the IOT devices, thus removing the need for wires. Greenbird, Worldsensing, IFTTT, EllieGrid, and Litbit are some top IOT startups making a difference. We see IoNT as the pioneer of emerging technologies which would open new dimensions in fields like Medicine, Biomedical, and consumer industry.

Q.14) An enhanced version of reality where live direct or indirect views of physical real-world environments are enhanced with superimposed computer-generated images over a user's view of the real-world, thus enhancing one's current perception of reality is called

a) Virtual Reality
b) Pseudo Reality

c) Superimposed Reality
d) Augmented Reality

Q.14) Solution (d)

Augmented Reality noun

An enhanced version of reality where live direct or indirect views of physical real-world environments are augmented with superimposed computer-generated images over a user's view of the real-world, thus enhancing one's current perception of reality.

Augmented Reality vs Virtual Reality

Unlike virtual reality, which requires you to inhabit an entirely virtual environment, augmented reality uses your existing natural environment and simply overlays virtual information on top of it. As both virtual and real worlds harmoniously coexist, users of augmented reality experience a new and improved natural world where virtual information is used as a tool to provide assistance in everyday activities.

Q.15) Second-generation biofuel technologies have been developed because first-generation biofuels manufacture has important limitations. Identify from below the new second-generation routes/methods currently under development.

1. Ethanol fermentation
2. Transesterification
3. Biochemical routes
4. Pyrolysis

Choose the appropriate answer:

a) 1 and 2 only
b) 2 and 3 only
c) 3 and 4 only
d) 1, 2 and 3 only

Q.15) Solution (c)

Second-generation biofuels, also known as advanced biofuels, are fuels that can be manufactured from various types of biomass.

First-generation biofuels are made from the sugars and vegetable oils found in arable crops, which can be easily extracted using conventional technology – such as Ethanol fermentation and Transesterification.

In comparison, second-generation biofuels are made from lignocellulosic biomass or woody crops, agricultural residues or waste, which makes it harder to extract the required fuel. Therefore, they require new methods/routes which are currently under development.

Gasification: Gasification technologies are well established for conventional feedstocks such as coal and crude oil. Second-generation gasification technologies include gasification of forest and agricultural residues, waste wood, energy crops and black liquor.

Pyrolysis: Pyrolysis is a well established technique for decomposition of organic material at elevated temperatures in the absence of oxygen. In second-generation biofuels applications forest and agricultural residues, wood waste and energy crops can be used as feedstock to produce e.g. bio-oil for fuel oil applications. Bio-oil typically requires significant additional treatment to render it suitable as a refinery feedstock to replace crude oil.

Torrefaction: Torrefaction is a form of pyrolysis at temperatures typically ranging between 200–320 °C. Feedstocks and output are the same as for pyrolysis.

Biochemical routes: Chemical and biological processes that are currently used in other applications are being adapted for second-generation biofuels. Biochemical processes typically employ pre-treatment to accelerate the hydrolysis process, which separates out the lignin, hemicellulose and cellulose. Once these ingredients are separated, the cellulose fractions can be fermented into alcohols.

Q.16) This laboratory made for detecting muons is made from recycled material from the disbanded Kolar Gold Field experiment. Where is it?

a) GRAPES-3 experiment, Ooty
b) Giant Metrewave Radio Telescope, Pune
c) Vainu Bappu observatory, Javadi Hills, TN
d) Dr. Abdul Kalam Island, Odisha

Q.16) Solution (a)

The GRAPES-3 experiment is a special telescope-array established in Ooty to detect muons from cosmic ray showers. The experiment has detected a surge in muon intensity correlated with a weakening of the earth's magnetic field due to a solar storm that hit the earth on June 22, 2015.

An Indo-Japanese collaboration, this experiment is unique in that it can be used to study solar storms and space weather at distances up to two times the earth's radius, unlike satellite-based studies that can yield information only about what is happening in their vicinity.

The 6m-long pipes, sourced from Kolar Gold Fields in Karnataka, are recycled here to detect solar storms.

Q.17) In the context of cosmology, what do the words CMB stand for?

a) Cosmic Metal Background
b) Cosmic Microwave Background
c) Cosmic Millimetre Background
d) Cell and molecular biology

Q.17) Solution (b)

The cosmic microwave background (CMB) is electromagnetic radiation as a remnant from an early stage of the universe in Big Bang cosmology. In older literature, the CMB is also variously known as cosmic microwave background radiation (CMBR) or "relic radiation". The CMB is a faint cosmic background radiation filling all space that is an important source of data on the early universe because it is the oldest electromagnetic radiation in the universe, dating to the epoch of recombination.

Q.18) What technique is used to measure the distance of a celestial object from the Earth?

a) Hubble's law
b) Moore's Law
c) Murphy's Law
d) Leap's Law

Q.18) Solution (a)

Hubble's Law

Hubble's law is used to measure the distance of a celestial object from the Earth. If one knows Hubble's constant accurately, then one can calculate the distance to any galaxy in the

Universe simply by measuring its velocity (which is reasonably easy to do for any galaxy for which one can observe its spectrum).

Q.19) Lachrymal glands are responsible for…

a) Sweat
b) Yawning
c) Tears
d) Sneeze

Q.19) Solution (c)

Behind each of our upper eyelids, is a tiny pair of almond-shaped organs called the lachrymal glands, more commonly known as the tear glands. These glands secrete a fluid called lachrymal fluid which is carried by tiny ducts and released into the space between the eyeball and the eyelids. When we blink, the fluid flows out.

Sometimes the fluid enters our nasal cavity – that explains the runny noses that sometimes accompany a sob session.

Q.20) Where do you find the "natural killers" in our body?

a) Lymphocytes
b) Erythrocytes
c) Mitochondria
d) Chloroplast

Q.20) Solution (a)

The lymphocytes – these are a type of white blood cells found in the lymph and are part of our immune system. They are meant to take on virus-infected cells and fight tumour formation.

Q.21) Antibodies are formed by

a) T-cells

b) Monocytes
c) Phagocytes
d) B-cells

Q.21) Solution (d)

Antibody, also called immunoglobulin, a protective protein produced by the immune system in response to the presence of a foreign substance, called an antigen. Antibodies recognize and latch onto antigens in order to remove them from the body. A wide range of substances are regarded by the body as antigens, including disease-causing organisms and toxic materials such as insect venom.

When an alien substance enters the body, the immune system is able to recognize it as foreign because molecules on the surface of the antigen differ from those found in the body. To eliminate the invader, the immune system calls on a number of mechanisms, including one of the most important—antibody production.

Antibodies are produced by specialized white blood cells called B lymphocytes (or B cells). When an antigen binds to the B-cell surface, it stimulates the B cell to divide and mature into a group of identical cells called a clone. The mature B cells, called plasma cells, secrete millions of antibodies into the bloodstream and lymphatic system.

Q.22) 'Incheon Strategy' is associated with

a) Disability
b) Agriculture Subsidies
c) Deficit financing
d) Desertification

Q.22) Solution (a)

Incheon Strategy provides Asian and Pacific region and world with first set of regionally agreed disability-inclusive development goals.

The Incheon Strategy builds on UN Convention on Rights of Persons with Disabilities (CRPD) and Biwako Millennium Framework for Action (BMF) and Biwako Plus Five towards an Inclusive, Barrier-free and Rights-based Society for Persons with Disabilities in Asia and Pacific. It comprises 10 goals, 27 targets and 62 indicators.

Q.23) 'Sao Tomé and Príncipe' is located in

a) South Atlantic
b) South Pacific
c) Indian Ocean
d) Mediterranean Sea

Q.23) Solution (a)

Q.24) Consider the following statements about 'Narmada River'

1. It is the longest river that flows entirely within India
2. It flows eastwards into the Bay of Bengal
3. It flows through three states only

Select the correct statements

a) 1 and 2
b) 2 and 3
c) 1 and 3
d) 3 Only

Q.24) Solution (d)

It is the third longest river that flows entirely within India, after the Godavari, and the Krishna. It flows through Madhya Pradesh, Maharashtra, Gujarat.

It is one of only three major rivers in peninsular India that run from east to west (longest west flowing river), along with the Tapti River and the Mahi River. It is one of the rivers in India that flows in a rift valley, flowing west between the Satpura and Vindhya ranges. The other rivers which flow through rift valley include Damodar River in Chota Nagpur Plateau and Tapti. The Tapti River and Mahi River also flow through rift valleys, but between different ranges.

Q.25) Consider the following statements about 'Urban Services Environmental Rating System (USERS)'

1. It aims to develop an analytical tool to measure the performance with respect to basic services delivery in local bodies
2. It is executed by the Ministry of Housing and Urban Affairs
3. It is funded by the United Nations Development Programme

Select the correct statements

a) 1 Only
b) 1 and 2
c) 1 and 3
d) 1, 2 and 3

Q.25) Solution (c)

The Urban Services Environmental Rating System (USERS) Project funded by UNDP, executed by Ministry of Environment and implemented by Tata Energy Research Institute, addressed some of these problems. The project aims to develop an analytical tool to measure the performance with respect to basic services delivery in local bodies (Delhi Jal Board, Municipal Corporation of Delhi, Kanpur Jal Sansthan and Kanpur Nagar Nigam) of Delhi and Kanpur, identified as pilot cities. Performance Measurement (PM) tool was developed through a set of performance measurement indicators that are benchmarked against set targets using the input-output efficiency outcome framework.

Q.26) Consider the following statements about Global Energy Efficiency and Renewable Energy (GEEREF)

1. It is a Fund-of-Funds advised by the World Bank
2. GEEREF funds concentrate on infrastructure projects that generate clean power through proven technologies with low risk
3. It invests in private equity funds which focus on renewable energy and energy efficiency projects in emerging markets

Select the correct statements

a) 1 and 2
b) 2 and 3
c) 1 and 3
d) All of the above

Q.26) Solution (b)

GEEREF

- It is a Fund-of-Funds advised by the European Investment Bank Group.
- GEEREF invests in private equity funds which focus on renewable energy and energy efficiency projects in emerging markets.
- GEEREF's funds concentrate on infrastructure projects that generate clean power through proven technologies with low risk.
- GEEREF's funds target attractive financial investments that also deliver a strong positive environmental and developmental impact.