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Daily MCQs: 28-06-2024

1. Consider the following statements about Diphtheria

- 1) It is a disease caused by a bacterium.
- 2) It is a non-contagious disease.
- 3) It is a vaccine preventable disease.

How many of the statements given above are correct?

- A) Only one
- B) Only two
- C) All three
- D) None

2. Consider the following statements about Aditya-L1 mission

- 1) It is the first interplanetary mission of India.
- 2) The spacecraft was placed in a halo orbit around the first Lagrange point, L1.
- 3) It carries seven payloads to observe the chromosphere and the corona of the sun.

How many of the statements given above is/are correct?

- A) Only one
- B) Only two
- C) All three
- D) None

3. Consider the following statements with respect to the National Investigation Agency (NIA)

- 1) The National Investigation Agency (NIA) was constituted as a statutory body.
- 2) The officers of NIA don't have the power to investigate offenses committed outside India.

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

4. Consider the following statements about Lok Adalat

- 1) An award passed by a Lok Adalat is deemed to be a decree of a civil court.
- 2) No appeal lies against the award passed by Lok Adalat.

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

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5. "One number-One color-One description" is associated with which of the following?

- A) IUCN red data book
- B) CITES
- C) National Air Quality Index
- D) None of the above

Solutions:

1. Answer: B

Explanation

- **Statement 1 is correct:** Diphtheria is a disease caused by a **bacterium** that affects the upper respiratory tract and less often the skin. It also produces a toxin that damages the heart and the nerves.
- **Statement 2 is incorrect:** It is a **contagious disease** that can spread from person to person when an infected person coughs or sneezes. Some people may not develop disease manifestations but can still transmit the bacteria to others.
- Common symptoms include fever, sore throat and swelling of the neck glands.
- **Statement 3 is correct:** Diphtheria is a **vaccine preventable disease**, but multiple doses and booster doses are needed to produce and sustain immunity.

2. Answer: B

Explanation

Why in the News?

- ISRO has successfully launched the country's **first space mission to study the sun, Aditya-L1**.
- The **Polar Satellite Launch Vehicle (PSLV)**, in its 59th flight with the Aditya-L1 onboard, took off from the Satish Dhawan Space Centre in Sriharikota.
- The Aditya L1 spacecraft will stay in Earth's orbit for sixteen days. After four months of journey, the satellite will be placed on the **L1 point** in the halo orbit around the Sun. It was successfully parked at L1 point in January 2024. Hence **statement 2 is correct**.
- Aditya-L1 has a mission life of **five years**.
- **Statement 1 is incorrect:** Mars Orbiter Mission (MOM) is India's first interplanetary mission to planet Mars. (not Aditya-L1)

What are the science objectives of Aditya-L1?

- The Aditya-L1 will **observe the Sun from a close distance**, and try to **obtain information about its atmosphere and magnetic field**. It is equipped with **seven payloads**.
- The main objective of the mission is to get a **deeper understanding of the star closest to us, and how its radiation, heat, flow of particles, and magnetic fields affects us**.

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- The payloads on the mission will study **chromosphere and corona**. They will also study **coronal mass ejection (CME)**. The magnetic field of the corona and the drivers of the space weather will also be studied. Hence **statement 3 is correct**.
- Importantly, it might provide clues to scientists about a **long-standing mystery**: why the corona of the Sun is a million degrees C hot, when the temperature on the surface of the Sun is just about 5,700 degree C.
- It will also help scientists understand the reasons behind acceleration of particles on the Sun, which leads to **solar winds**.

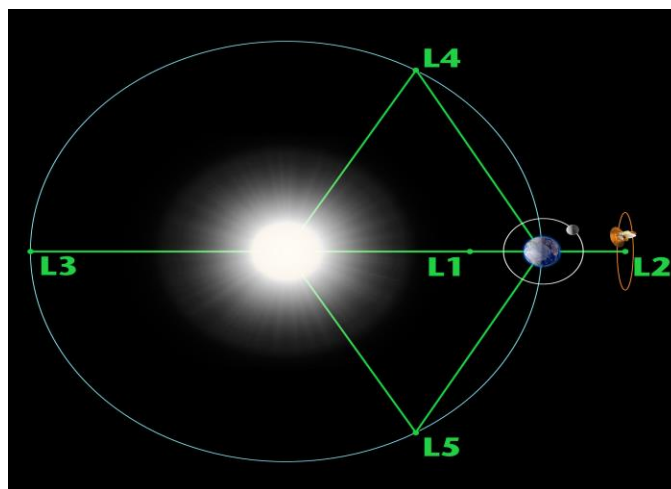
Why study the Sun from space?

- The Sun is the **nearest star** to us and therefore can be studied in much greater detail than others. Studying the Sun can also help us **understand more about other stars**.
- While the Sun supports all life on Earth, it also has **various explosive phenomena**. These can damage our satellites and communication systems. Studying the Sun may help in providing **early warnings** for such events.
- The various thermal and magnetic phenomena on the Sun are of extreme nature. Thus, the Sun provides a good natural laboratory to understand them, which cannot be directly studied in the lab.
- It is important to study the Sun from space because the Earth's atmosphere and the magnetic field act as **protective shields** that block out harmful radiations, such as UV light. This means studying the Sun from the Earth can't provide a complete picture.

Value addition

Lagrange points

- Lagrange points are positions in space where **objects sent there tend to stay put**. At Lagrange points, the **gravitational pull of two large masses** (like the Sun and the Earth) **precisely equals the centripetal force required for a small object to move with them**.
- These points in space can be used by spacecraft to reduce fuel consumption needed to remain in position.
- There are **five such points** in the **Sun-Earth system** and they are denoted as **L1, L2, L3, L4 and L5**.



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- Of the five Lagrange points, **three are unstable and two are stable**.
 - The **unstable Lagrange points** - labeled **L1, L2 and L3** - lie along the line connecting the two large masses.
 - The **stable Lagrange points** - labeled **L4 and L5** - form the apex of two equilateral triangles that have the large masses at their vertices. L4 leads the orbit of earth and L5 follows.

Significance of every Lagrange points

- 1) **L1 point** of the Earth-Sun system affords an **uninterrupted view of the sun**.
- 2) **L2 point** is **ideal for astronomy** because a spacecraft is close enough to readily communicate with Earth, can keep Sun, Earth and Moon behind the spacecraft for solar power and (with appropriate shielding) provides a clear view of deep space for our telescopes.
 - a) The L1 and L2 points are unstable on a time scale of approximately 23 days, which requires satellites orbiting these positions to undergo **regular course and attitude corrections**.
- 3) **L4 and L5 points** are home to **stable orbits**. Objects found orbiting at the L4 and L5 points are often called **Trojans**.
- 4) Significance of the L3 point is still **unknown** because it stands behind the sun.

3. Answer: A

Explanation

National Investigation Agency

- The National Investigation Agency (NIA) is a **central agency** established by the Indian Government to **combat terror** in India.
- NIA was constituted under the NIA Act, 2008. Thus, it is called a "**Statutory Body (Any body created by law or an act of Parliament)**". Hence statement 1 is correct.
- It was **established after the 2008 Mumbai terror** attacks as a central agency to combat terrorism

National Investigation Agency (Amendment) Act, 2019

- It amended the National Investigation Agency (NIA) Act, 2008

The Amendment act provides for

- A national-level agency to investigate and prosecute offences listed in a schedule (scheduled offences).
- Allows for **creation of Special Courts** for the trial of scheduled offences.

Jurisdiction of the NIA

- The officers of the NIA have the same powers as other police officers in relation to investigation of Scheduled offences, across India.
- In addition, officers of the NIA will have the **power to investigate scheduled offences committed outside India**, subject to international treaties and domestic laws of other countries. **Hence statement 2 is incorrect**.
- The central government may direct the NIA to investigate such cases, as if the offence has been committed in India.
- The Special Court in New Delhi will have jurisdiction over these cases.

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Scheduled Offences

- The schedule to the Act **specifies a list of offences** which are to be investigated and prosecuted by the agency. These include offences under Acts such as the
 - Atomic Energy Act, 1962,
 - the Unlawful Activities Prevention Act, 1967.

The Act will allow the NIA to investigate additional offences such as

- **human trafficking**
- offences related to **counterfeit currency** or bank notes
- manufacture or sale of prohibited arms,
- cyber-terrorism,
- offences under the Explosive Substances Act, 1908.

4. Answer: C

Explanation

- Lok Adalat (people's courts) is a body established by the government to settle disputes through **conciliation and compromise**.
- Lok Adalat is an **alternative method of dispute resolution**. It is a forum where **disputes or cases pending in the court of law or at the pre-litigation stage** are settled amicably.
- Lok Adalats have been given **statutory status** under the **Legal Services Authorities Act, 1987**.
- **Both the statements are correct:** Under the Act, the **award made by the Lok Adalats is deemed to be a decree of a civil court** and is **final and binding** on all parties and **no appeal lies against such an award** before any court of law.
- If the parties are not satisfied with the award of the Lok Adalat, though there is **no provision for an appeal against such an award**, they are **free to initiate litigation** by approaching the court of appropriate jurisdiction by filing a case by following the required procedure, in exercise of their right to litigate.

No judicial role

- The persons deciding the cases in the Lok Adalats are called the **Members of the Lok Adalats**, they have the **role of statutory conciliators** only and **do not have any judicial role**; therefore they can **only persuade** the parties to come to a conclusion for settling the dispute outside the court in the Lok Adalat and shall not pressurize or coerce any of the parties to compromise or settle cases or matters either directly or indirectly.
- The Lok Adalat **shall not decide the matter so referred at its own instance**, instead the same would be decided on the basis of the **compromise or settlement** between the parties.
- The members shall assist the parties in an independent and impartial manner in their attempt to reach amicable settlement of their dispute.

Nature of Cases to be Referred to Lok Adalat

- Any case pending before any court.
- Any dispute which has not been brought before any court and is likely to be filed before the court.
- Provided that any matter relating to an **offence not compoundable** under the law **shall not be settled in Lok Adalat**.

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Composition of Lok Adalats

- The Lok Adalat is **presided over by a sitting or retired judicial officer** as the **chairman**, with **two other members, usually a lawyer and a social worker**.
- The **National Legal Services Authority (NALSA)** along with other Legal Services Institutions (such as State Legal Services Authority, District Legal Services Authority, Taluk Legal Services Committee) conducts Lok Adalats at different levels.
 - *NALSA is a statutory body constituted under the Legal Services Authorities Act, 1987 to provide free Legal Services to the weaker sections of the society and to organize Lok Adalats for amicable settlement of disputes.*

5. Answer: C

Explanation

- National Air Quality Index (AQI) transforms complex air quality data of eight pollutants into a single number (index value), nomenclature and color. In simple terms it is '**One Number-One Colour-One Description**' for the common man to judge the air quality within his vicinity. The formulation of the index was an initiative under Swachh Bharat Mission.

There are **six AQI categories**, namely Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe. The AQI will consider **eight pollutants** .

- Particulate Matter (size less than 10 μm) or (PM_{10}),
- Particulate Matter (size less than 2.5 μm) or ($\text{PM}_{2.5}$),
- Nitrogen Dioxide (NO_2),
- Sulfur Dioxide (SO_2),
- Carbon Monoxide (CO),
- Ozone (O_3),
- Ammonia (NH_3), and
- Lead (Pb)

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AQI CATEGORY, POLLUTANTS AND HEALTH BREAKPOINTS

AQI Category (Range)	PM ₁₀ (24hr)	PM _{2.5} (24hr)	NO ₂ (24hr)	O ₃ (8hr)	CO (8hr)	SO ₂ (24hr)	NH ₃ (24hr)	Pb (24hr)
Good (0-50)	0-50	0-30	0-40	0-50	0-1.0	0-40	0-200	0-0.5
Satisfactory (51-100)	51-100	31-60	41-80	51-100	1.1-2.0	41-80	201-400	0.5-1.0
Moderately polluted (101-200)	101-250	61-90	81-180	101-168	2.1-10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	10-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-230	281-400	209-748	17-34	801-1600	1200-1800	3.1-3.5
Severe (401-500)	430+	250+	400+	748+	34+	1600+	1800+	3.5+



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