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- 1) Which one of the following best describes Optogenetics?
- (a) A technique that uses sound waves to study brain activity.
 - (b) A technique that uses light to control the activity of genetically modified neurons.
 - (c) A technique that uses magnetic fields to modify the genetic structure of nerve cells.
 - (d) A technique that uses electrical impulses to sequence the human genome.
- 2) Consider the following statements about the Sugamya Bharat Abhiyan (Accessible India Campaign):
- 1. It is a flagship initiative of the Ministry of Social Justice and Empowerment aimed at ensuring universal accessibility for Persons with Disabilities (PwDs).
 - 2. It is rooted in the human rights principles of the UN Convention on the Rights of Persons with Disabilities (UNCPRD), ratified by India.
 - 3. It focuses on government buildings, excluding transport and information accessibility.

Which of the statements given above are correct?

- (a) 1 only
 - (b) 1 and 2 only
 - (c) 2 and 3 only
 - (d) 1, 2 and 3
- 3) Which of the following statements with regard to INS Mangrol, an Anti-Submarine Warfare Shallow Water Craft (ASW-SWC), is/are correct?
- 1. INS Mangrol is an indigenously built vessel designed to strengthen India's anti-submarine warfare capabilities in shallow waters.
 - 2. The vessel is intended to enhance coastal defence and the detection of submarines operating in littoral waters.
 - 3. Anti-Submarine Warfare Shallow Water Craft are primarily designed for deep-ocean strategic deterrence and ballistic missile deployment.

Select the answer using the code given below:

- (a) 1 and 2 only
 - (b) 2 and 3 only
 - (c) 1 and 3 only
 - (d) 1, 2 and 3
- 4) Consider the following statements regarding the International Telecommunication Union (ITU):
- 1. It is a specialised agency of the United Nations for information and communication technologies.
 - 2. India has been a member of the ITU since 1869.
 - 3. It coordinates global radio-frequency spectrum and satellite orbits.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only



(d) 1, 2 and 3

5) Consider the following situations with reference to the Anti-Defection Law in India:

1. A nominated member of Parliament joins a political party six months after taking their seat in the House.
2. An elected member of a political party votes against the party's direction without obtaining prior permission, and the party does not condone the action within 15 days.
3. An elected independent member of Parliament joins a political party after being elected to the House.

In how many of the above situations may the member be disqualified under the Tenth Schedule of the Constitution of India?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Explanation

1) **Answer: (B)**

Optogenetics combines genetic engineering and optics to insert light-sensitive proteins (such as channelrhodopsins) into specific cells, allowing researchers to activate or silence neurons with millisecond precision using light.

2) **Answer: (B)**

- **Statement 1 is correct:** Sugamya Bharat Abhiyan (Accessible India Campaign) is a nationwide flagship campaign launched by the **Ministry of Social Justice and Empowerment** (Department of Empowerment of Persons with Disabilities) to create a barrier-free environment for Persons with Disabilities (PwDs).
- **Statement 2 is correct:** The campaign's core objectives align with the human rights mandate of the **UN Convention on the Rights of Persons with Disabilities (UNCRPD)**, which India ratified in 2007.
- **Statement 3 is incorrect:** The campaign does **not** exclude transport and information accessibility. In fact, it rests on **three core pillars**:
 1. **Built Environment Accessibility** (Public buildings and spaces)
 2. **Transportation System Accessibility** (Airports, railway stations, and public buses)
 3. **Information and Communication Technology (ICT) Ecosystem Accessibility** (Public websites, media, and documents)
- **Therefore, option B is the correct answer.**

3) **Answer: (A)**

- INS Mangrol is an indigenously built Anti-Submarine Warfare Shallow Water Craft (ASW-SWC) of the Indian Navy. Such vessels are designed to strengthen India's capability to detect and counter submarine threats in shallow coastal waters. **Hence, Statement 1 is correct.**
- INS Mangrol is intended to strengthen coastal defence and improve the Navy's ability to detect underwater threats in littoral waters, which include coastal areas and maritime zones close to shore. **Hence, Statement 2 is correct.**



- ASW-SWCs are designed primarily for anti-submarine warfare in shallow waters, not for deep-ocean strategic deterrence or ballistic missile deployment. Strategic nuclear deterrence patrols are associated with ballistic missile submarines, which serve a different operational purpose. **Hence, Statement 3 is incorrect.**
- **Therefore, option (a) is the correct answer.**

4) Answer: (D)

- **Statement 1 is correct:** The **International Telecommunication Union (ITU)** is indeed the **specialized agency of the United Nations responsible for information and communication technologies (ICTs)**. It coordinates the shared global use of the radio spectrum, promotes international cooperation in assigning satellite orbits, works to improve telecommunication infrastructure in the developing world, and establishes worldwide standards.
- **Statement 2 is correct:** India has had a long-standing association with the organization, becoming a member of the ITU as early as **1869** (back when it was established as the **International Telegraph Union**). Furthermore, **India has been a regular member of the ITU Council since 1952** and actively contributes to global digital governance and standardization policies.
- **Statement 3 is correct:** One of the core regulatory functions of the ITU is to manage the international radio frequency spectrum and satellite orbit resources. By doing so, it prevents harmful radio frequency interference between different countries' communications systems and satellite networks.
- **Therefore option D is the correct answer.**

5) Answer: (C)

- **Situation 1 is Correct:** Under the Tenth Schedule, a nominated member may join a political party within six months of taking their seat without attracting disqualification on this ground. If the member joins a political party after this period, they are liable to be disqualified.
- **Situation 2 is Correct:** A member belonging to a political party may be disqualified for voting or abstaining contrary to a direction issued by their political party without prior permission, unless the party condones the action within 15 days.
- **Situation 3 is Correct:** An independent member of Parliament or a State Legislature is disqualified if they join any political party after their election. Unlike nominated members, independent members do not have a six-month period to join a political party.
- **Therefore, option (C) is the correct answer.**