

Q: Recently, researchers has successfully developed ultrathin monolayer protein films. Consider the following statement:

1. The protein films consist of Bovine Serum Albumin and Lysozyme.
2. They used the technique called using Langmuir-Blodgett technique, which gives the films thickness in the order of nanometer.
3. These films are much thicker as compared to the other protein or plastic films.

Choose the correct option from the codes given below:

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

Ans: a

Explanation:

- The protein films consist of two globular proteins: bovine serum albumin (BSA) and lysozyme (Lys).
- They used the technique called using Langmuir-Blodgett (LB) technique which gives the films thickness in the order of nanometer.
- Scientists have developed ultra-thin heteroprotein films with excellent thermal, mechanical and pH stability which can pave the way for expanding applications of thin films in biomedical and food packaging industries.
- These films are much thinner as compared to the other protein or plastic films. They are soft and thin and have the advantage of being more flexible than the other films.

Q: Consider the following statement:

1. EU imported more than 60% of its gas from Russia.
2. Egypt, Israel, and the European Union signed a deal to increase liquified natural gas sales to European Union (EU) countries.

Choose the correct option from the codes given below:

- a) 1 Only
- b) 2 Only
- c) 1 and 2
- d) None of the above

Ans: b

Explanation:

- Recently, Egypt, Israel, and the European Union signed a deal to **increase liquified natural gas sales to European Union (EU) countries**, who aim to reduce dependence on supply from Russia.
- The deal will see Israel sending more gas via Egypt, which has facilities to liquify it for export via sea.
- In 2021, the EU imported roughly 40% of its gas from Russia and due to that has had difficulty imposing sanctions on Russia over its ongoing invasion of Ukraine.
- The Israeli gas will be brought **via a pipeline to Egypt's LNG terminal** on the Mediterranean before being transported on tankers to the European shores.
- Israel has two operational gas fields off its Mediterranean coast containing an estimated 690 billion cubic metres of natural gas combined, and a third offshore rig is in the works.
- It has already signed gas export agreements with neighbouring Egypt and Jordan.

Q: Recently, the Stockholm International Peace Research Institute (SIPRI) released its yearbook highlighting some worrying trends of the past year in international security. Consider the following statement:

1. U.S. that has the largest number of deployed nuclear warheads.
2. Indian currently had more nuclear weapon than Pakistan.
3. China had more nuclear warhead than France and UK.

Choose the correct option from the codes given below:

- a) 1 and 2

- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: c

Explanation:

- The expected rise of the global nuclear arsenal was the chief cause of concern among Stockholm International Peace Research Institute (SIPRI) experts.
- The comprehensive report claims that while absolute numbers of nuclear arsenal have reduced, they are expected to grow over the next decade.
- During 2012-2021, military spending as a percentage of gross domestic product has largely been stable. If anything, the average worldwide trend has been slightly downward.
- Russia leads the charge in absolute numbers of nuclear inventory, however it is the **U.S. that has the largest number of deployed warheads**. The U.K. has 225 nuclear weapons in its inventory, while France has 290, China has 350, India has 160, Pakistan has 165. Israel is estimated to have 90 and North Korea 20.

Q: Recently, the UK. Administration has come up with a new legislation, the Northern Ireland Protocol Bill (NIP). Consider the following statement:

1. Northern Ireland is the only part of the U.K. that does not share a land border with the EU.
2. As per the NIP, goods flowing into Northern Ireland would not be checked at 'sea border' before entering the island.

Choose the correct option from the codes given below:

- a) 1 Only
- b) 2 Only
- c) 1 and 2
- d) None of the above

Ans: d

Explanation:

- Northern Ireland is the **only part of the U.K. that shares a land border with the EU**, as the Republic of Ireland (or Ireland) is an EU member-state. As long as the U.K. was part of the EU, things were fine. But with Brexit, the U.K. exited the EU's customs union.
- This created a problem whose solution needed two seemingly contradictory outcomes: **preserving the sanctity of the EU's single market**, as well as that of the U.K.'s domestic market.
- The NIP's solution was to **avoid a customs check at the actual customs border**, on the island of Ireland, between Northern Ireland and the Republic of Ireland as this would have violated the 1998 Good Friday Agreement and risked instability in a region with a volatile past. It instead shifted the customs border to that between Northern Ireland and Britain, effectively at the former's ports.
- As per the NIP, goods flowing into Northern Ireland would be checked at this 'sea border' before entering the island, and Northern Ireland would continue to follow EU rules in product standards.

Q: Consider the following statement:

1. Section 295A defines the contours of free speech and its limitations with respect to offences relating to religion.
2. India has a formal legal framework for dealing with hate speech.

Choose the correct option from the codes given below:

- a) 1 Only
- b) 2 Only
- c) 1 and 2
- d) None of the above

Ans: a

Explanation:

- Provisions in the Indian Penal Code (IPC), primarily **Section 295A**, define the contours of free speech and its limitations with respect to offences relating to religion.
- India **does not have a formal legal framework for dealing with hate speech**. However, a cluster of provisions, loosely termed hate speech laws, are invoked. These are primarily laws to deal with offences against religions.