Daily Current Affairs Prelims Quiz 16-05-2022 - (Online Prelims Test)

1) Consider the following statements:

1. Both T and B cells originate in the bone marrow and are involved in adaptive immunity.
2. While T cells are nucleated and non-phagocytic and B cell is non-nucleated and phagocytic.
3. T cells that protect against previously encountered pathogens have different flavors across other tissues.

Which of the above statement(s) is/are correct?

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

Answer : c

Scientists map more than a million human cells to understand disease genesis.

T Cells and B Cells

- The T and B lymphocytes (T and B Cells) are involved in the acquired or antigen-specific immune response given that they are the only cells in the organism able to recognize and respond specifically to each antigenic epitope.
- The B Cells have the ability to transform into plasmocytes and are responsible for producing antibodies (Abs).
- Thus, humoral immunity depends on the B Cells while cell immunity depends on the T Cells.
- T and B cells originate in the bone marrow and are involved in adaptive immunity.
- They are both nucleated and motile cells and both the cells are non-phagocytic and are a part of the lymphatic system.
- T-cells fight infections and cancer and B-cells which produces antibodies.
- T-cells that protect against previously encountered pathogens have different flavors across other tissues.

2) Identify the conditions that are taken into account while making forecasts about the South West Monsoon in India:

1. Sea Surface Temperature of Equatorial South India Ocean.
2. Mean Sea Level Pressure in West Asia.
3. Surface air temperature over northwest Europe.
4. Sea Surface Temperature (SST) gradient between the North Atlantic and the North Pacific.
5. The cold water volume of the equatorial Pacific Ocean.

Choose the correct option

a. 2, 3 and 5 only

b. 1, 3 and 4 only

c. 2, 4 and 5 only

d. 1, 2, 3, 4 and 5

Answer : b

Southwest Monsoons in India

- The Earth System Science Organization (ESSO) and the India Meteorological Department (IMD) take into account five conditions while making forecasts about the monsoon in April every year.

Conditions

- The Sea Surface Temperature (SST) gradient between the North Atlantic and the North Pacific (conditions during December of the previous year and January of the present year).
- SST of the equatorial south Indian Ocean (conditions during February and March of the present year).
- Mean Sea Level Pressure in east Asia (conditions during February and March of the present year).
- The surface air temperature over northwest Europe (conditions during January of the present year).
- The warm water volume of the equatorial Pacific Ocean (conditions during February and March of the present year).

3) Consider the following statements regarding RNA granules:

1. They are produced by evolutionary divergent eukaryotes, including yeast, mammals, and plants.
2. They contain ribosomal subunits, scaffold proteins, and RNA binding proteins.
3. They control the localization, stability, and translation of the RNA cargo.

Which of the above statement(s) is/are correct?

a. 1 and 3 only

b. 1 and 2 only

c. 2 and 3 only

d. 1, 2 and 3

Answer : d

RNA Granules

- RNA granules are produced by evolutionary divergent eukaryotes, including yeast, mammals, and plants.
- Cytoplasmic RNA granules represent subcellular compartments that are enriched in protein-bound RNA species.
- RNA granules contain various ribosomal subunits, translation factors, decay enzymes, helicases, scaffold proteins, and RNA-binding proteins.
- RNA granules control the localization, stability, and translation of their RNA cargo.

4) Consider the following statements:

1. In the case of death sentences, the Central government may also concurrently exercise the same power as the State government to remit or suspend the sentence.
2. The power of remission under the Code of Criminal Procedure (CrPC) is different from the

constitutional power enjoyed by the President and the Governor.

3. Under CrPC the government acts by itself, while under Articles 72 and 161, the respective governments advise the President/Governor to suspend, remit or commute sentences.

Which of the above statement(s) is/are correct?

a. 1 and 3 only

b. 2 and 3 only

c. 1 and 3 only

d. 1, 2 and 3

Answer : d

Mercy or Clemency Powers

What is the difference between statutory power and constitutional power?

- The Code of Criminal Procedure (CrPC) provides for remission of prison sentences, which means the whole or a part of the sentence may be canceled.
- Under Section 432, the 'appropriate government' may suspend or remit a sentence, in whole or in part, with or without conditions.
- This power is available to State governments so that they may order the release of prisoners before they complete their prison terms.
- Under Section 433, any sentence may be commuted to a lesser one by the appropriate government.
- However, Section 435 says that if the prisoner had been sentenced in a case investigated by the CBI, or any agency that probed the offense under a Central Act, the State government can order such release only in consultation with the Central government.
- In the case of death sentences, the Central government may also concurrently exercise the same power as the State government to remit or suspend the sentence.
- Under the CrPC, the government acts by itself. Under Article 72 and Article 161, the respective governments advise the President/Governor to suspend, remit or commute sentences.
- Despite the fact that it is ultimately the decision of the government, in either case, the Supreme Court has made it clear that the two are different sources of power.

5) Identify the statement associated with backscatter:

a. Space technology used for communication between the International Space Station and Earth.

b. It uses an incident radio-frequency (RF) signal to transmit data without a battery or power source.

c. Solar power is used to scatter the light and store the energy and use it in battery technologies.

d. None of the above.

Answer : b

Backscatter

- Backscatter is a method that uses an incident radio-frequency (RF) signal to transmit data without a battery or power source.
- It employs passive reflection and modulation of the incoming RF signal and converts it into tens or hundreds of microwatts of electricity, that can be encoded for data communications.
- It differs from other wireless communications since the communication is half-duplex in nature, i.e. both the sender and receiver cannot transmit simultaneously.
- The main advantage of backscattering is its low energy requirements and low complexity of deployment.