

**1. Recently, ISRO has announced to provide navigational support to Indian Railways through GPS Aided Geo Augmented Navigation (GAGAN) system. Consider the following regarding GAGAN**

1. It is an indigenous navigational guide system on the lines of GPS system jointly developed by ISRO and DRDO
2. Apart from Communication and navigation, One essential component of the GAGAN project is the study of the ionospheric behaviour over the Indian region

**Select the correct codes**

1. Only 1
2. Only 2
3. Both
4. None

**Solution: 2**

**Explanation:**

GAGAN is a joint project of ISRO and Airport Authority of India not DRDO. One essential component of the GAGAN project is the study of the ionospheric behavior over the Indian region. This has been specially taken up in view of the rather uncertain nature of the behaviour of the ionosphere in the region. The study will lead to the optimization of the algorithms for the ionospheric corrections in the region.

To study the ionospheric behaviour more effectively over entire Indian airspace, Indian universities and R&D labs, which are involved in the development of regional based ionotropic model for GAGAN, have suggested nine more TEC stations

**2. Consider the following statements regarding two of the orthodox Schools of Hindu Philosophy, YOGA and SAMKHYA**

1. Samkhya, among the six orthodox schools of Hindu Philosophy is closely related to Yoga.
2. The first use of the root of word 'YOGA' is found in Rig Veda but its modern meaning is not relevant to Vedic description.
3. Along with Hinduism Yoga is also practiced in Buddhism, Jainism and Tantra Philosophy.

**Choose the correct code**

1. 1 and 2
2. 2 and 3
3. 1, 2 and 3
4. 1 and 3

**Solution: 3**

Explanation: 21st June is celebrated as International Yoga Day. Hence a question on Yoga is expected this year.

Samkhya or Sankhya is one of the six orthodox schools of Hindu philosophy. It is described as the rationalist school of Indian philosophy. It is most related to the Yoga school of Hinduism, and its rationalism was influential on other schools of Indian philosophies.

The first use of the root of word "yoga" is in hymn 5.81.1 of the Rig Veda, a dedication to rising Sun-god in the morning (Savitri), where it has been interpreted as "yoke" or "yogically control".

Rigveda, however, does not describe yoga with the same meaning or context as in modern times. Early references to practices that later became part of yoga are made in Brihadaranyaka Upanishad, the earliest Hindu Upanishad.

Yoga is practiced in all the mentioned philosophies.

**3. 'Ideally, under a global warming scenario the land temperature should increase greatly in the hot summers and serve as a strong monsoon driver'. But in Indian subcontinent the opposite is happening and it is one of the causes of low rainfall in Monsoon season. What can be possible reasons for low rainfall in India subcontinent?**

1. A strong warming of Indian Ocean that reverses the Land-Sea Thermal Gradient.
2. Increase in land-sea temperature difference due to suppressed warming over the Indian land mass because of increased aerosol levels.
3. A warming Indian Ocean has resulted in surplus rains over the ocean at the cost of the monsoon rains over land, simultaneously drying the Indian subcontinent.

**Select the correct codes**

1. 1 and 2
2. 2 and 3
3. 1 and 3
4. All

**Solution: 3**

**Explanation:**

The land has been cooling and the ocean warming and the monsoon has shown a decreasing trend during the past century.

The summer monsoon has been showing a weakening trend over the past century with decreasing rainfall over large regions of the Indian subcontinent. The monsoon occurs because the land heats up much more than the ocean and the warm air over the land rises and results in low pressure. This causes the rain-bearing winds from the relatively cooler ocean to blow on to the land and cause rainfall. That is, it is the strong thermal contrast between land and ocean that results in a strong monsoon.

Ideally, under a global warming scenario the land temperature should increase greatly in the hot summers and serve as a strong monsoon driver. But, in the case of the Indian subcontinent, over the past century, that has not been the case.

Quite a few other studies indicate that the monsoon rainfall is weakening over the South Asian region during the past half century (since 1950s). Some of these studies suggest that though the extreme rainfall events have increased over some regions, the frequency of moderate-to-heavy rainfall events has decreased over the subcontinent.

The reduction in land-sea temperature contrast is attributed mostly to a strong warming in the Indian Ocean on a multi-decadal scale with the latest reason being climate change under a global warming scenario.

The surface warming in the Indian Ocean, especially in the western regions has reached values of up to 1.2 degrees C during the past century, much larger than the warming trends in other tropical oceans. The decrease in the land-sea thermal contrast surface temperature trends (1901-2012) is also visible in the upper atmosphere, as the warming trends in the ocean surface are transferred to the atmosphere above through convective processes.

Apart from the ocean warming, a part of the decrease in land-sea temperature difference is also due to suppressed warming over the Indian land mass, possibly due to increased aerosol levels. Aerosols in the atmosphere reflect the sun's heat back into space and cause a cooling effect.

The warming Indian Ocean also plays a role in weakening the monsoon circulation. Increased warming in the ocean enhances the large-scale upward motion of warm moist air over the equatorial ocean. This enhanced upward motion over the ocean is compensated by subsidence of dry air over the subcontinent, inhibiting convection and rainfall over the Indian landmass. This means that a warming Indian Ocean has resulted in surplus rains over the ocean at the cost of the monsoon rains over land, simultaneously drying the Indian subcontinent.

**4. Consider the following statements regarding Rock Cut architecture (caves) of Badami**

1. It is the oldest Rock Cut Architecture of India after Barabar Caves of Bihar and Ajanta Caves of Maharashtra
2. The caves incorporates two faiths i.e Hinduism and Buddhism only
3. Jainism faith is also found in the rock cut caves of Badami

**Select the correct codes**

1. 1 and 2
2. Only 2
3. Only 1
4. Only 3

**Solution: 4**

**Explanation:**

While India is home to over 1,500 rock-cut works of architecture with the earliest one being the Barabar caves in Bihar (3rd century BC) and later additions such as Ajanta (2nd century BC) and Ellora in Maharashtra, the rock-cut shrines of Badami in Bagalkote district of Karnataka remain as a symbol of Chalukyan architecture (6th to 8th century AD) beginning from the regime of Pulikesin-I (543-566 AD).

The fourth cave is Jaina which is constructed lastly among all the caves. It is only jain monument of early chalukya period in badami town and it was made in late 6th-7th century.

Cave 5 is a natural cave of small dimensions with a Buddha statue carved inside.

Rest Caves, 1, 2 and 3 are devoted to Hindu deities.

**Source: Friday Review-The Hindu**

<http://www.thehindu.com/features/friday-review/badami-rockcut-shrines-in-karnatakas-bagalkote-district-unique-synthesis-of-styles/article7180698.ece>

**5. Consider the following statements with respect to LEGUMES**

1. Legumes have an ability to fix nitrogen from the atmosphere
2. Legumes help in increasing soil fertility
3. Legumes are highly nutritive but also contain anti-nutrients that are harmful

**Select the correct codes**

1. 1 and 2
2. 2 and 3
3. 1, 2 and 3
4. Only 1

**Solution: 3**

**Explanation**

The legume family consists of plants that produce a pod with seeds inside. Common edible legumes include lentils, peas, chickpeas, beans, soybeans and peanuts.

Cultivation of all the crops including cereals and regular vegetables will get benefitted if the legume vegetables are grown once a season.

Apart from fixing atmospheric nitrogen, the legume vegetables also help in increasing the organic content of the soil as they produce huge quantum of foliage that gets added into the soil. In addition to this, they also enhance the water-holding capacity of soil, he points out. They have a positive impact on human health too as these protein-rich legume vegetables can help fight protein and energy-deficiency induced malnutrition.

They also contain so-called anti-nutrients like Phytic Acid, Lectins and Saponins which are substances that can interfere with digestion and the absorption of other nutrients.

**6. 'Bhama Kalapam,' 'Parvathi Parinayam' and 'Bhakta Prahlada' are related to which of the dance forms**

1. Kathakali
2. Kuchipudi
3. Bharatnatyam
4. Odissi

**Solution: 2**

**Explanation: Taken from Friday Review**

<http://www.thehindu.com/features/friday-review/guru-vedantam-radhesyam-presents-kuchipudi-yakshaganas/article7329312.ece>

**7. Indian ranks third in World Doping Report published by WADA. Consider the following statements w.r.t Doping-**

1. Blood doping is the practice of boosting the number of white blood cells in the bloodstream in order to enhance athletic performance.
2. PerflouroCarbons (PFCs) are chiefly used as Blood substitutes for Blood doping agents.
3. Gene doping is the therapeutic use of cells, genes, genetic elements, or of the modulation of gene expression, having the capacity to improve athletic performance.

**Select the correct codes**

1. 1 and 2
2. Only 1
3. 2 and 3
4. 1, 2 and 3

**Solution: 1**

**Explanation:** First two statements are correct. Gene doping is defined by the World Anti-Doping Agency as "the non-therapeutic use of cells, genes, genetic elements, or of the modulation of gene expression, having the capacity to improve athletic performance."

iasbaba.com