

1.Swarnajayanti Fellowship scheme is related to which of the following?

- a) Improving Quality of School Education through Integrated Teacher Training
- b) Pension scheme for unorganised workers
- c) Network to nurture women entrepreneurship
- d) Providing special assistance for young scientists to pursue basic research

Answer: D

Explanation

- The Government of India under the **Ministry of Science and Technology** had instituted a scheme "**The Swarnajayanti Fellowships**" to commemorate India's fiftieth year of Independence in 1997.
- Under this scheme a selected number of **young scientists**, with proven track record, are **provided special assistance** and support to enable them to **pursue basic research** in frontier areas of science and technology.
- Scientists selected for the award will be allowed to pursue unfettered research with a freedom and flexibility in terms of expenditure as approved in the research plan.
- The project should contain **innovative research ideas** and it should have a potential of making impact on R&D in the discipline.
- The fellowships are **scientist specific and not institution specific**, very selective and have close academic monitoring.

Nature of Support:

- The award consists of a Fellowship of Rs **25000/- per month** in addition to the salary drawn from the parent Institute for a period of 5 years.
- The fellows selected along with their projects will be considered for funding by the **Science & Engineering Research Board (SERB)** as per SERB norms, for fellowship.

Why in the news?

- Fundamental properties of massive neutrinos are about to be unravelled by a Swarna Jayanti Fellow under this scheme.

What are neutrinos?

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- A neutrino is a **subatomic particle** that is very similar to an electron, but has no electrical charge and a very small mass, which might even be zero.
- Neutrinos are one of the most abundant particles in the universe.
- They have very little interaction with matter and are incredibly difficult to detect.
- Natural sources of neutrinos include the **radioactive decay of primordial elements** within the earth, **supernovas, dark matter** etc.,

2. Consider the following statements about Pradhan Mantri MUDRA Yojana

- 1) Under the scheme, loans are provided to micro businesses of the farm and non farm sector.
- 2) The maximum amount of loan that can be availed under this scheme is 1 crore.

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

Answer: D

Explanation

- Pradhan Mantri Mudra Yojana (PMMY) is a flagship scheme of Government of India to “**fund the unfunded**” by bringing the millions of units which are existing outside the formal banking system to the **formal financial system** and **extending affordable credit** to them.
- It enables a **small borrower to borrow** from all Public Sector Banks such as **PSU Banks, Regional Rural Banks** and Cooperative Banks, **Private Sector Banks, Foreign Banks**, Micro Finance Institutions (MFI) and Non Banking Finance Companies (NBFC) for **loans upto Rs 10 lakhs** for non-farm income generating activities. The scheme was launched on 8th April, 2015.

Eligibility

- **Statement 1 and 2 are incorrect:** Any Indian Citizen who has a business plan for a **non-farm sector income generating activity** (loans for farm sector cannot be availed under this scheme) such as **manufacturing, processing, trading or service sector** and whose credit need is **less than Rs 10 lakh (not upto 1 crore)** can approach either a Bank, MFI, or NBFC for availing of **Micro Units Development & Refinance Agency Ltd. (MUDRA) loans** under Pradhan Mantri Mudra Yojana (PMMY)

Types of loans provided

- **Shishu** : covering loans upto 50,000

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- **Kishor** : covering loans above 50,000 and upto 5 lakh
- **Tarun** : covering loans above 5 lakh and upto 10 lakh
- There is **no subsidy for the loan** given under PMMY. However, if the loan proposal is linked to some Government scheme, wherein the Government is providing capital subsidy, it will be eligible under PMMY also.

Sectors covered

- **Land Transport Sector / Activity** - Which will inter alia support units for **purchase of transport vehicles for goods and personal transport** such as auto rickshaw, small goods transport vehicle, 3 wheelers, e-rickshaw, passenger cars, taxis, etc.
- **Community, Social & Personal Service Activities** - Such as saloons, beauty parlours, gymnasium, boutiques, tailoring shops, dry cleaning etc
- **Food Products Sector** - Support would be available for undertaking activities such as papad making, achar making, **agricultural produce preservation at rural level**, sweet shops, small service food stalls and day to day catering / canteen services, cold chain vehicles etc
- **Textile Products Sector / Activity** - To provide support for undertaking activities such as **handloom, powerloom**, chikan work, zari and zardozi work, traditional embroidery etc

Micro Units Development & Refinance Agency Ltd (MUDRA)

- MUDRA is a **refinancing Institution**. MUDRA **does not lend directly** to micro entrepreneurs / individuals. It provides refinance to micro business under the **Pradhan Mantri MUDRA Yojana (PMMY)**.
- In lending, MUDRA **gives priority to enterprises** set up by the **under-privileged sections** of the society particularly those from the scheduled caste/tribe (SC/ST) groups, first generation entrepreneurs and existing small businesses.
- It aims to create an **inclusive, sustainable and value based entrepreneurial culture**, in collaboration with our partner institutions in achieving economic success and financial security

Why in the news?

- As per a survey conducted by Ministry of Labour and Employment, **PMMY helped in generation of 1.12 crore net additional employment** from 2015 to 2018 , Out of which Women accounted for 69 lakhs.

3. Which of the following conditions/phenomena influences the Indian Monsoon?

1. The differential heating and cooling of land and water
2. Intense heating of the Tibetan plateau during summer
3. The presence of the low-pressure area to the east of Madagascar
4. Presence of the tropical easterly jet stream over the Indian peninsula during summer.

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Select the correct answer using the codes given below

- a) 1 and 2 only
- b) 1, 2 and 3 only
- c) 1, 2 and 4 only
- d) 1, 2, 3 and 4

Answer : C

Explanation

To understand the mechanism of the monsoons, the following facts are important

- **The differential heating and cooling of land and water creates low pressure on the landmass of India** while the seas around experience comparatively high pressure.
- The **shift of the position of Inter Tropical Convergence Zone (ITCZ) in summer**, over the Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator. It is also known as the monsoon trough during the monsoon season).
- The **presence of the high-pressure area (not low pressure area) east of Madagascar**, approximately at 20°S over the Indian Ocean. The intensity and position of this high-pressure area affects the Indian Monsoon.
- The **Tibetan plateau gets intensely heated during summer**, which results in strong vertical air currents and the formation of low pressure over the plateau at about 9 km above sea level.
- The movement of the westerly jet stream to the north of the Himalayas and the **presence of the tropical easterly jet stream over the Indian peninsula during summer**.
 - The formation of Tropical easterly jet stream results in the **reversal of upper air circulation patterns [High pressure switches to low pressure]** and leads to the quick onset of monsoons.

Why in the news?

- A new study published in “Earth-Science Reviews” now details how dust coming from the deserts in the West, Central and East Asia plays an important role in the Indian Summer Monsoon.

4. Doklam plateau, which was recently in the news, touches which of the following Indian States?

- a) Sikkim
- b) West Bengal
- c) Assam
- d) Himachal Pradesh

Answer: A

Explanation:

Doklam, or Donglang in Chinese, is an area spread over less than a 100 sq km comprising a plateau and a valley at the trijunction between India, Bhutan and China.

It is surrounded by the Chumbi Valley of Tibet, Bhutan's Ha Valley and Sikkim.



5. Consider the following statements

- 1) India is the only country permitted by the United Nations Office on Drugs and Crime to cultivate opium poppy for export.
- 2) At present poppy cultivation is confined to the seven north eastern states of the country.

Which of the statements given above is/are incorrect?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: C

Explanation

Why in News:

- The Central government has decided to rope in the private sector to commence production of concentrated poppy straw from India's opium crop to boost their yield of alkaloids, used for medical purposes and exported to several countries.

What are alkaloids?

- **Alkaloids** are a class of basic, naturally occurring **organic** compounds that contain at least one nitrogen atom. This group also includes some related compounds with neutral and even weakly acidic properties. Some synthetic compounds of similar structure may also be termed alkaloids.
- Well-known alkaloids include **morphine, strychnine, quinine, atropine, caffeine, ephedrine, and nicotine**
- The medicinal properties of alkaloids are quite diverse. Morphine is a powerful **narcotic** used for the relief of pain, though its addictive properties limit its usefulness. Codeine, the methyl ether derivative of morphine found in the opium poppy, is an excellent **analgesic** that is relatively nonaddictive.
- **India** is one of the **few countries internationally permitted** (by the United Nations Office on Drugs and Crime) to cultivate opium poppy for export. Hence **statement 1 is incorrect**.

What is the current method?

- Poppy straw is derived from opium poppies that are harvested when fully mature and dried by mechanical means, minus the ripe poppy seeds. Opium is the narcotic drug that is obtained from the unripe seed pods of the opium poppy.
- India **currently only extracts alkaloids from opium gum** at facilities controlled by the Revenue Department in the Finance Ministry. This entails farmers extracting gum by manually lancing the opium pods and selling the gum to government factories.

What is the proposed plan?

- **Two types of Narcotic Raw Material (NRM)** can be produced from opium poppy - Opium gum and Concentrate of Poppy Straw (CPS).
- The Ministry has now decided to switch to new technologies, after trial cultivation reports submitted last year by two private firms showed higher extraction of alkaloids **using the concentrated poppy straw (CPS)**.
- India's opium crop acreage has been steadily declining over the years and using the CPS extraction method is expected to help cut the occasional dependence on imports of products like codeine (extracted from opium) for medical uses.

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- While alkaloid extraction from the current opium crop using the CPS was found more than opium gum, it is possible to have two-three crop cycles in one year if we use CPS varieties of seeds that can be grown in indoor greenhouses too
- As per the trials' findings, the imported seeds of certain CPS varieties worked effectively in Indian fields and their narcotic raw material yield was much higher from imported seeds instead of those used currently. CPS was also cultivated with **hydroponic, aeroponic methods** under a greenhouse environment.
 - **Hydroponics and Aeroponics** are **sustainable, water-conservative farming methods**, differing only by the medium which is used in the growth of the plants. **Hydroponics** is the growth of plants using a **nutrient-rich solution, instead of water**. **Aeroponics** is the **growth** of plants using a mist filled with **essential nutrients** which is regularly **sprayed** on the **roots** of the **plants**.

Laws associated with Poppy cultivation

- Poppy straw is one of the **narcotic drugs under the Narcotic Drugs & Psychotropic Substances Act 1985 (NDPS Act)**. Narcotics Commissioner exercises powers and performs all functions from this act
- Possession, sale, use, etc. of poppy straw is regulated by the State Governments under the **State Narcotic Drugs & Psychotropic Substances Rules**.
At present poppy cultivation is confined to three States-Madhya Pradesh, Rajasthan and Uttar Pradesh. Hence **statement 2 is incorrect**.

Additional Details

- **Illegal Opium Production**-The **Golden Crescent** is the name given to one of Asia's two principal areas of illicit opium production (with the other being the Golden Triangle). This space overlaps three nations, Afghanistan, Iran, and Pakistan, whose mountainous peripheries define the crescent. **Afghanistan** now produces over **90%** of the **world's non-pharmaceutical-grade opium**.
The Golden Triangle is the area where the borders of Thailand, Laos, and Myanmar meet at the confluence of the Ruak and Mekong rivers. The name "Golden Triangle", coined by the CIA—is commonly used more broadly to refer to an area of approximately 950,000 square kilometres that overlaps the mountains of the three adjacent countries.