Prelim Bits 19-01-2022 | UPSC Daily Current Affairs

Kathak

Prime Minister condoles the passing away of legendary Kathak dancer Pandit Birju Maharaj.

- Kathak is one of the 8 classical dances of India.
- It is the only form of classical dance wedded to Hindustani music or the North Indian music.
- The word 'Kathak' has been derived from the word 'Katha' which means a story.
- Kathakars or story-tellers are people who narrate stories largely based on episodes from the epics, myths and legends.
- The technique of movement in Kathak is built by the use of an intricate system of foot-work.
- **Evolution** - Kathak probably started as an oral tradition.
- Mime and gestures were perhaps added later on to make the recitation more effective.
- Thus evolved a simple form of expressional dance, providing the origins of what later developed into Kathak as we see it today.
- The Vaishnavite cult which swept North India in the 15th century, and the resultant bhakti movement contributed to a whole new range of lyrics and musical forms.
- The **Radha-Krishna theme** proved immensely popular along with the works of **Mirabai, Surdas, Nandadas and Krishnadas**.
- Dance in **Raslila** of the Braj region (Mathura, Western U.P.) was mainly an extension of the basic mime and gestures of the Kathakars
- Under the Mughals, there was a greater stress on nritya and bhava giving the dance graceful, expressive and sensuous dimensions.
- **Gharanas** - The 19th century saw the golden age of Kathak under the patronage of Wajid Ali Shah, the last Nawab of Oudh.
- He established the Lucknow gharana with its strong accent on bhava.
- The Jaipur gharana known for its layakari or rhythmic virtuosity and the Benaras gharana are other prominent schools of Kathak dance.

Reference

1. https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1790408
2. http://ccrtindia.gov.in/kathak.php

Myocarditis

The most common point of conflict concerning COVID-19 vaccines is the risk of myocarditis following immunization, particularly among young people.

- Myocarditis is an inflammation of the heart muscle (myocardium).
- [Pericarditis is an inflammation of the outer lining of the heart (pericardium).]
- In Myocarditis, the inflammation can reduce the heart's ability to pump and cause rapid or irregular heart rhythms (arrhythmias).
- **Causes** - Myocarditis is most commonly caused by a virus like influenza, coxsackie, hepatitis or herpes.

- Other causes include bacteria, fungi, toxins, chemotherapy and autoimmune conditions.
- Some viruses infect heart muscle and cause direct injury to the heart, while others cause heart damage indirectly through the immune system.

  Activation of the immune system in response to an infection triggers the release of chemicals in the body called cytokines, which help clear infections.

  In some cases, the levels of cytokines rise to unusually high levels to produce a "cytokine storm" that causes damage to heart muscle.

- **Rate of incidence** - Before COVID-19 the incidence of myocarditis was between one and 10 cases per 100,000 people per year.
- Rates are highest in males between 18 and 30 years old, older adults (ages 50+) and children under 16 years old.
- Interestingly, most cases of myocarditis in the highest risk group are in otherwise healthy and active people.
- **Post-vaccination myocarditis** - Myocarditis following COVID-19 vaccination is rare.
- This risk is much smaller than the risks of cardiac injury linked to COVID-19 itself.
- The highest incidence of myocarditis after vaccination with mRNA vaccines has occurred within 3 to 4 days after the second vaccination in males who are under age 30.
- The risk of myocarditis after infection with COVID-19 is much higher, at 146 cases per 100,000.
- But in cases of myocarditis following COVID-19 vaccination, the vast majority of cases are mild and resolve quickly.
- **Treatment** for myocarditis varies depending on its severity.
- Adults with mild forms of myocarditis typically need only rest and non-steroidal anti-inflammatory drugs (NSAIDS) like ibuprofen.
- More severe cases require medications or even mechanical circulatory supports like left ventricular assist devices to support heart function.
- In some cases when treatment is no longer effective, a heart transplant is required.

Reference

1. https://www.downtoearth.org.in/blog/health/myocarditis-covid-19-is-a-much-bigger-risk-to-the-heart-than-vaccination-81167
2. https://www.mayoclinic.org/diseases-conditions/myocarditis/symptoms-causes/syc-20352539

ILO World Employment and Social Outlook - Trends 2022

The World Employment and Social Outlook - Trends 2022 was released by the International Labour Organization (ILO).

- This report examines the impacts of the crisis on global and regional trends in employment, unemployment and labour force participation, as well as on job quality, informal employment and working poverty.
- It also offers an extensive analysis of trends in temporary employment both before and during the COVID-19 crisis.
- **Findings** - Global unemployment is projected to stand at 207 million in 2022. This is 21 million more than in 2019 before the COVID-19 pandemic began.
- Global working hours in 2022 will be almost 2% below their pre-pandemic level (i.e.,)

equivalent to the loss of 52 million full-time jobs.
- The downgrade in the 2022 forecast reflects the impact of ever new variants of COVID-19 on the world of work.
- It is estimated that in 2022 around 40 million people will no longer be participating in the global labour force because of,
    - The uncertain path of the pandemic in the future,
    - Wider economic risks such as accelerating inflation,
    - Uneven labour market prospects across the globe.
- The pandemic has pushed millions of children into poverty.
- It is estimated that in 2020, an additional 30 million adults fell into extreme poverty (living on less than $1.90 per day in purchasing power parity) while being out of paid work.
- The number of extreme working poor rose by 8 million.
- [Extreme working poor includes the workers who do not earn enough through their work to keep themselves and their families above the poverty line.]
- Many low and middle-income countries have low access to vaccines and limited scope to expand government budgets to address the crisis.
- Thus, these countries are struggling more than high-income ones to get back to pre-pandemic levels of employment and job quality.
- **Regional Changes** - Key labour market indicators in all regions have yet to return to pre-pandemic levels.
- All regions face severe downside risks to their labour market recovery that stem from the ongoing impact of the pandemic.
- The outlook is the **most negative** for Latin America and the Caribbean and for Southeast Asia.
- **Sectoral changes** - Some sectors, such as travel and tourism have been particularly hard hit, while other sectors such as those related to information technology have thrived.
- Women have been worse hit by the labour market crisis than men and this is likely to continue.
- The closing of education and training institutions will have long-term implications for young people, particularly those without internet access.
- **Temporary jobs** - Many temporary workers lost their jobs at the start of the crisis. But, many new temporary jobs have also been created since.
- There is the need for a broad-based labour market recovery.
- The recovery must be human-centred, inclusive, sustainable and resilient.

Reference

1. https://www.downtoearth.org.in/news/governance/global-unemployment-projected-to-stand-at-207-million-in-2022-ilo-81158
2. https://www.ilo.org/global/research/global-reports/weso/trends2022/WCMS_834081/lang--en/index.htm

Formation of Synapses

A study on Zebrafish reveals how the brain makes its nerve-end connections or synapses.

- Neurons, or nerve cells, in the brain connect by means of junctions known as synapses through which they transmit signals.
- There are two types of synapses,
    1. Chemical synapses and
    2. Electrical synapses.
- **In chemical synapses**, there is a space of about 20 nanometres between two neurons.
- Communication happens when a neuron converts electrical signal into chemical ones and this

chemical is released into the synaptic space.
- Then, the receiving neuron converts the chemical signal back into an electrical signal.
- **In electrical synapses**, the two neurons have a physical connection and the conversion of electrical to chemical need not occur, and they communicate directly.
- Electrical synapses are like a physical wire, communication is faster but they are also fewer in number.
- **Neuron handshake -** Electrical synapses are formed before chemical synapses.
- Electrical synapses are like a blueprint in which neurons make a handshake. This results in the making of chemical synapses.
- Research on organisms such as leeches showed that if you remove electrical synapses, the chemical synapses do not form.

Purkinje neurons

- The group used the genome editing tool called Transcription Activator-Like Effector Nuclease (TALEN) to knock out the gap junction delta 2b (gjd2b) protein in the cerebellum of zebrafish.
- Knocking out the gjd2b protein, the levels of an enzyme CaMKII increased in the Purkinje neurons in the cerebellum.
- The cerebellum shows an evolutionary continuity in all vertebrates, so, too, the Purkinje neurons.
- Even though fish and humans diverged from a common ancestor about 500 million years ago, the cerebellum has been evolutionarily conserved.
- While zebrafish have about 300-400 Purkinje neurons, humans have thousands of these.

Dendrite arbours

- Dendrite arbours are branched ends of neurons, given this name because of their tree-like structure.
- Normally, levels of CaMKII are low in developing (immature) neurons and high in mature neurons.
- The increased level actually freezes the development of dendrite arbours.
- In the absence of gjd2b protein, CaMKII levels prematurely increase, preventing arbours from forming. Thus, chemical synapses do not form.

Reference

https://www.thehindu.com/sci-tech/science/ncbs-zebrafish-study-reveals-how-the-brain-makes-its-connections/article38190900.ece

SAMARTH

The second meeting of Steering Committee for SAMARTH was held recently.

- Sustainable Agrarian Mission on use of Agro Residue in Thermal Power Plants (SAMARTH) is the National Mission on Use of Biomass in coal based thermal Power Plants.
- This National Mission was set up by the Ministry of Power,
    - To address the issue of air pollution due to farm stubble burning and
    - To reduce carbon footprints of thermal power generation.
- The “National Mission on use of biomass in thermal power plants” will have the following objectives;
    1. To increase the level of co-firing from present 5% to higher levels to have a larger share

of carbon neutral power generation from the thermal power plants.
2. To take up R&D activity in boiler design to handle the higher amount of silica, alkalis in the biomass pellets.
3. To overcome the constraints in supply chain of bio mass pellets and agro- residue and its transport upto the power plants.
4. To consider regulatory issues in biomass co-firing.

- National Thermal Power Corporation Limited will provide logistics and infrastructure support.
- The duration of this National Mission would be a minimum 5 years.
- The following Sub-Groups are also proposed to be formed under the Mission:

Sub-Group	**Responsibility**
Sub-Group 1	To be responsible to carry out research on properties/ characteristics of biomass.
Sub-Group 2	To carry out technical specification and safety aspects including research in boiler design etc. To handle the pilot project for higher amount of co-firing of biomass with coal in pulverized coal (PC) fired boilers.
Sub-Group 3	To resolve the issues of supply chain during the mission period and sensitization programme.
Sub-Group 4	To select designated labs and certification bodies for testing of Agro-based biomass pellets and Municipal Solid Waste (MSW) pellets
Sub-Group 5	To be formed on regulatory framework and economics of biomass co-firing in coal based Thermal power plants.

- **Significance** - The proposed National Mission on biomass will also contribute in the National Clean Air Programme (NCAP).
- This would further support the energy transition in the country and our targets to move towards cleaner energy sources.

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1790832
2. https://pib.gov.in/PressReleasePage.aspx?PRID=1721473

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