

DNA data collection for investigation, research.

- ▶ The draft Bill named 'The DNA Based Technology (Use and Regulation) Bill, 2017' is drafted after examining various judicial pronouncements and constitutional provisions.
- ▶ According to the Draft bill DNA profiling is to be used for **disaster victim identification, investigation of crimes, identification of missing persons and human remains and for medical research purposes.**
- ▶ The Bill provides for the setting up of a **statutory DNA Profiling Board** to spell out procedures and standards to establish DNA laboratories.
- ▶ **Statement 2 is correct:** Draft Bill **restricts DNA profiling to the specific purpose of identification** of a person and not for extracting other information.
- ▶ **Statement 1 is correct:** It provides for the creation of **DNA data banks, at national and regional levels, which would be responsible for storing DNA profiles received from the accredited laboratories.**
- ▶ **It also provides for sharing of DNA profiles with foreign governments or other government agencies, organisations or institutions would only be for the purpose specified in this Act or any of its agencies, including identification of missing persons, disaster victims, suspects. Any violation would lead to imprisonment, which may extend up to three years, and a fine which may extend up to ₹2 lakh.**
- ▶ The Bill gives the **right to an under trial to request for another DNA test** in case of doubts that his earlier samples may have been contaminated.
- ▶ **Statement 3 is incorrect:** India is not the first country to have such a law.

3. Correct option: (c)

Explanation:

Biomolecule and its roles

- ▶ Melanin is a broad term for a group of natural pigments found in most organisms. It is produced by the oxidation

of the amino acid tyrosine, followed by polymerization. The melanin pigments are produced in a specialized group of cells known as melanocytes.

Advantages of Melanin:

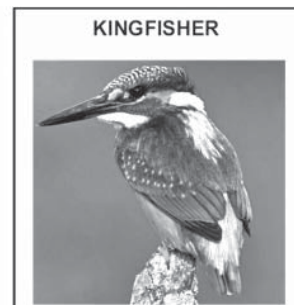
- ▶ **Statement 1 is correct:** It acts as a barrier against the effects of the ultraviolet rays of sunlight. On exposure to sunlight, for example, the human epidermis undergoes gradual tanning as a result of an increase in melanin pigment.
- ▶ **Statement 2 is correct:** It is a mechanism for the absorption of heat from sunlight, a function that is especially important for cold-blooded animals.
- ▶ It affords concealment to certain animals that become active in twilight.
- ▶ It limits the incidence of beams of light entering the eye and absorbs scattered light within the eyeball, allowing greater visual acuity.

4. Correct option: (a)

Explanation:

Biomimetics

- ▶ **Option (a) is correct:** Biomimetic refers to human-made processes, substances, devices, or systems that imitate nature. The art and science of designing and building biomimetic apparatus is also known as biomimicry because they mimic biological systems.



5. Correct option: (d)

Explanation:

Stem cells

- ▶ **Stem cells are unique cells:** They have the ability to become many different types of cells, and they can replicate rapidly.