



Daily Current Affairs Prelims Quiz 11-03-2023 (Online Prelims Test)

1) Which of the following best describes the term “Island Rule”?

- a. It refers to a hypothesis that mammals change their size on islands depending on resources available in their environment.
- b. It refers to a phenomena that occurs when a city experiences much warmer temperatures than nearby rural areas.
- c. It refers to a new approach for island-wide planning and implementation of ecosystem management in the Islands.
- d. It refers to a technique used in the construction of steel-hulled ships.

Answer : a

Island Rule

- It is a hypothesis that mammals change their size on islands depending on resources available in their environment.
- It is the tendency of mammal populations on islands to have body sizes that are different from their mainland counterparts.
- Specifically, large mammals seem to shrink “referred to as dwarfism, while small mammals appear to enlarge known as gigantism.
- It states that small mammals like rats may evolve and turn bigger in size over time when they are isolated on an island with more resources and fewer predators.
- By the same token, larger mammals like elephants begin to develop smaller bodies if they happen to become isolated in an island where the availability of resources is scarce.

2) Which of the following is/are the anthropogenic causes of landslides?

1. Excavation
2. Cutting of hills and trees
3. Excessive infrastructure development
4. Overgrazing by cattle

Select the correct answer using the codes given below:

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

Answer : d

Landslide Atlas of India

Indian Space Research Organisation (ISRO) recently released the Landslide Atlas of India, 2023.

- A sudden movement of rock, boulders, earth or debris down a slope is termed as a landslide.
- **Natural causes** - Heavy rainfall, earthquakes, snow melting and undercutting of slopes due to flooding.
- **Manmade Factors** - Excavation, cutting of hills and trees, excessive infrastructure development and overgrazing by cattle.
- **Classification** - Landslides are broadly classified into three categories.

Based on types of movement

- **Falls:** Falls are rapid movements of rocks and boulders detached from steep slopes or cliffs along fractures, joints, and bedding planes.
- **Topple:** It is the forward rotation of a mass of debris or rock out of a slope.
- The slope failure generally occurs at point near the base of the block of rock.
- **Slides:** A slide is a downslope movement of material that occurs along a slip surface.
- **Rotational slide:** In this slide the slide movement is roughly rotational about an axis which is parallel to the ground surface and transverse across the slide.
- **Translational slide:** In this slide the landslide mass moves along a planar surface with rotation or backward tilting

Based on types of materials

- **Rock:** hard or firm mass.
- **Debris:** 20% to 80% of the particles are larger than 2mm, and the remainder is less than 2mm.
- **Earth:** material in which 80% or more of the particles are smaller than 2mm.
- **Soil:** an aggregate of solid particles, generally of minerals and rocks.
- **Mud:** material in which 80% or more of the particles are smaller than 0.06mm.

Based on types of flows

- **Debris flow:** It is a form of rapid mass movement in which a combination of loose soil, rock, organic matter, slurry that flows downslope.
- They are commonly caused by intense precipitation or rapid snow melt.
- **Earth flow:** It is down slope viscous flow of fine grained material saturated with water.
- **Mudflow:** A mudflow is wet or viscous fluid mass of fine and coarse grained material flows rapidly along drainage channels.
- **Creep:** Creep is the slow, steady, downward movement of material under gravity occurs in large area.

Lateral Spreads

- It is the lateral movement usually occur on very gentle slopes or flat terrain.
- The failure is caused by liquefaction due to earthquake.

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3) Consider the following statements regarding Hypersonic Missiles

1. They travel in the upper atmosphere at more than 5 times the speed of sound.
2. Hypersonic glide vehicles (HGV) flies low at extremely high speeds and offers little time to react.
3. Hypersonic cruise missile (HCM) leaves the Earth's atmosphere and then plunges back into it.
4. Kinzhal is a Russian made air-launched ballistic Missile capable of carrying nuclear warheads.

Which of the statements given above is/are correct?

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

Answer : c

Hypersonic Missiles

- A hypersonic missile is a weapon system that flies above the speed of Mach 5 i.e. five times the speed of sound (about 6,100 kmph).
- Hypersonic missile are manoeuvrable, unlike the ballistic missiles that follows a set course or a ballistic trajectory.

Types of Hypersonic weapon systems	
Hypersonic Glide Vehicles (HGV)	It leaves the Earth's atmosphere and then plunges back into it.
Hypersonic Cruise Missiles	It flies low at extremely high speeds, giving opponents little time to react, carry a nuclear warhead.

Advantages

- Hypersonic weapons defended long range strike options and time critical threats.
- It can't be detected easily because of its speed, manoeuvrability and low altitude of flight.
- **Countries** - While the US, Russia and China are in advanced stages of hypersonic missile programs, India, France, Germany, Japan and Australia too are developing hypersonic weapons.

Kinzhal Hypersonic Missile

- The Kh-47M2 Kinzhal is Russia's first operational conventionally armed hypersonic weapon.
- It is designed to be carried by MiG fighter jets.
- Kinzhal (or Dagger) is a hypersonic aeroballistic air-to-surface missile.
- It is said to be a modification of its Iskander missile.
- Russia claims that Kinzhal has a range of more than 2,000 km, and a speed of Mach 10.

4) Hyderabad Charter, sometimes seen in the news recently, is associated with which of the following?

- a. To create Quality Improvement Cell in engineering colleges.
- b. To create Gender Equity in Physics.

- c. To provide training for illiterates to appear in NIOS examination.
- d. To improve the quality of graduates coming out of colleges by imparting Industry-grade skill sets.

Answer : b

Hyderabad Charter

- It was drafted by the Gender in Physics Working Group of the Indian Physics Association in 2019.
- Its objective is to create Gender Equity in Physics.
- The gender gap in physics is higher than any other Science fields.

Fundamental Principles of Hyderabad Charter

1. People of all genders have equal potential to excel in all aspects of physics practice.
2. Utilizing the talents of all is essential for the physics enterprise to achieve its full potential.

Innovation in Science Pursuit for Inspired Research (INSPIRE)

- It is an innovative programme by the Department of Science & Technology.
- **Aim** - To attract talent to study science at an early age and to help the country build the required critical resource pool.

Components

1. Scheme for Early Attraction of Talent (SEATS)
2. Scholarship for Higher Education (SHE)
3. Assured Opportunity for Research Careers (AORC)

- INSPIRE Fellowship
- INSPIRE Faculty Scheme

5) Consider the following statements regarding MAIA Mission

1. It is a joint Earth-observing mission between NASA and the Italian Space Agency.
2. It aims to monitor the climate system and their interactions through long-term global observations.
3. It is the first mission by NASA to benefit societal health.

Which of the statements given above 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

Multi-Angle Imager for Aerosols (MAIA) mission

- It is a joint mission between NASA and the Italian Space Agency.
- It is set to launch before the end of 2024.
- It aims to investigate the health impacts of air pollution in the world's most populated cities including Delhi.
- It is the first mission by NASA whose primary goal is to benefit societal health.

Components

1. PLATiNO-2 satellite, an experimental Thermal Infrared (TIR) earth observation satellite, will be provided by Italian Space Agency.
2. A Science Instrument built by the NASA's Jet Propulsion Laboratory (JPL).



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