

IASbaba's Daily Prelims Test [Day 47]

Topic- S&T, Current Affairs and Eco-Survey

1. Consider the following statements regarding El-Nino

1. El-Nino is a warm phase of El Nino Southern Oscillation (ENSO) leading to Droughts and low rainfalls only.
2. Warming of Eastern Pacific due to El-Nino relates to droughts in India
3. Every El Nino results in a deficient monsoon season

Select the correct code/s

1. 1 and 2
2. 2 and 3
3. Only 2
4. None

Solution- 4

<http://indianexpress.com/article/india/weather-india-2/thank-heavens-el-nino-unlikely-to-have-big-impact-on-monsoon/>

http://www.business-standard.com/article/current-affairs/el-nino-and-its-likely-effect-on-india-115051800590_1.html

2. India has Eight Missions under National Action Plan for Climate Change. Consider the statements regarding them

1. Two of the Missions seek to slow down the growth of India's emissions.
2. Three of them are service missions and seek to create more knowledge on useful climate responses.
3. Mission on Agriculture, Afforestation and Himalayan Eco-System are about initiating measures to adapt to the effects of climate change

Select the WRONG codes

1. 1, 2 and 3
2. 1 and 3
3. Only 2
4. None

Solution- 1

Three of them — on solar energy, afforestation and energy efficiency — seek to slow down the growth of India's emissions. Another three — on agriculture, water and Himalayan ecosystems — are about initiating measures to adapt to the effects of climate change. The remaining two — on sustainable habitat and strategic knowledge — are service missions and seek to create more knowledge on useful climate responses.

3. Consider the following

1. The river traverses through three Indian States
2. The famous Hundru Fall is created on the course of it.
3. It is famous for its placer deposits.

Name the river

1. Brahmani
2. Damodar
3. Subarnarekha
4. Mahanadi

Solution- 3

Placer Deposit- Subarnarekha is famous for Gold. Hundru fall is also on its course. It traverse through Jharkhand, Orissa and West Bengal.

<http://timesofindia.indiatimes.com/india/GSI-forwards-Subarnarekha-gold-mining-report-to-Jharkhand/articleshow/48279862.cms>

4. Consider the following

1. Meghalaya
2. Mizoram
3. Nagaland
4. Manipur
5. Arunachal Pradesh

Inner Line Permit is applicable to?

1. 1, 2 and 3
2. 2, 3 and 5
3. 1, 2, 4 and 5
4. 1, 2, 3 and 5

Solution- 2

<http://www.mdoner.gov.in/content/inner-line-permit>

5. European Union is a politico-economic Union of 28 member states. Euro is thought be the common currency of its members but many members do not use Euro. Consider the following

1. Greece
2. Poland
3. UK
4. Luxemburg
5. Bulgaria

Select the nations of EU not using EURO as their official currency?

1. 1, 3, 4 and 5
2. 2, 3 and 5
3. 1, 2 and 3
4. 1, 2, 3 and 5

Solution- 2

Greece and Luxemburg uses EURO.

<https://www.ecb.europa.eu/euro/intro/html/map.en.html>

6. Consider the following

- | | |
|---------------------------|--------------------|
| 1. Galathea National Park | Punjab |
| 2. Mouling National Park | Assam |
| 3. Nameri National Park | Arunanchal Pradesh |
| 4. Harike Wetland | Goa |

Select the correct match

1. 2, 3 and 4
2. 2 and 3
3. 1, 2, 3 and 4
4. None

Solution- 4

Galathea National Park	Andaman and Nicobar
Mouling National Park	Arunanchal Prades
Nameri National Park	Assam
Harike Wetland	Punjab

7. The branch of science dealing with the improvement of human race is

1. Eugenics
2. Genealogy
3. Cloning
4. Euphenics

Solution- 1

8. Department of Atomic Energy comes under

1. Home Ministry
2. Prime Minister's Office
3. Ministry of Science & Technology
4. Ministry of Power

Solution- 1

9. Consider the following statements w.r.t Lead (Pb), an element of controversy in recent times

1. If entered in body, it is most likely to be treated as Iron (Fe)
2. Lead is poisonous but not radioactive
3. The low density and electrical conductivity of lead makes it very effective as 'Radiation Shield'.

Select the correct code

1. 1, 2 and 3
2. 1 and 3
3. 1 and 2
4. None

Solution- 4

Your body treats lead like calcium, so it accumulates in places where calcium is stored, such as your bones. Because calcium has essential roles in hormones, muscle contractions and the communication between nerve cells, lead can interfere with these processes. Lead is radioactive also though with lower half life.

Lead shielding refers to the use of lead as a form of radiation protection to shield people or objects from radiation so as to reduce the effective dose. But it has nothing to do with electrical conductivity. **High Density of lead makes it a better radiation shield.** Because of lead's high density and large number of electrons, it is well suited to scattering x-rays and gamma-rays

10. Consider the following

1. The density of Earth is less than Moon
2. The double planet or condensation hypothesis claimed that composition of Moon and Earth are different.
3. If the moon passes through the part of the Earth's shadow called the umbra, a total lunar eclipse occur

Select the correct code

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

Solution- 3

By examining rocks brought back from the lunar surface, geologists found that the density of the moon (3.3 g/cm^3) is less than the density of Earth (5.5 g/cm^3). This indicates that the moon doesn't have an iron core.

The double planet, or condensation hypothesis, claimed that the moon: The double planet hypothesis of the 1960s claimed that the moon and Earth had formed at about the same time. Upon studying lunar samples, however, scientists found that the composition of the moon was different from the composition of Earth. If the double planet hypothesis was correct, then the composition of both bodies should've been the same, and it wasn't.

When the moon passes through the umbra, a total lunar eclipse occurs. In a lunar eclipse, the moon passes through the Earth's shadow, created by the sun, which causes its light to dim

11. Consider the following

1. If a rock is taken from Earth to Moon, its mass will change.
2. Gravitational pull of Moon is stronger than Earth
3. The Moon orbits Earth in prograde direction and completes one rotation in approximately in 23 Days

Select the correct code

1. Only 1
2. 1 and 3
3. 1, 2 and 3
4. None

Solution- 4

No change in mass. Weight will change. Gravitational pull of Earth is more. 27.6 days for rotation not 23

12. Consider the following

1. Banana
2. Foods rich in Potassium
3. CT Scan
4. Brazil Nuts

Which of the above have tendency to expose you for radioactive radiations?

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

Solution- 1

CT Scan – Everyone knows about it 😊

Banana- the radiation exposure from consuming a banana is approximately 1% of the average daily exposure to radiation

Besides bananas, other foods that are rich in potassium (and therefore in 40K) are potatoes, kidney beans, sunflower seeds, and nuts. Brazil nuts in particular are not only rich in 40K but may also contain significant amounts of radium, which have been measured at up to 444 Bq/kg.

13. Consider the following statements

1. The colour of blood plasma is due to presence of Iron (red in colour) in our body
2. RBC and Erythrocytes are common types of blood cells present in haemoglobin and lungs respectively
3. Due to the phenomenon of osmosis water enters into RBCs

Select the correct code

1. 1, 2 and 3
2. Only 3
3. 1 and 3
4. None

Solution- 2

The color of erythrocytes is due to the heme group of hemoglobin. The blood plasma alone is straw-colored, but the red blood cells change color depending on the state of the hemoglobin: when combined with oxygen the resulting oxyhemoglobin is scarlet, and when oxygen has been released the resulting deoxyhemoglobin is of a dark red burgundy color.

RBC is also known as Erythrocytes. Third statement is right.

14. Consider the following

1. Alpha Particle
2. An Electron
3. Proton

Arrange them in increasing order of wavelength if Kinetic Energy of all of them is same?

1. 1-3-2
2. 2-1-3
3. 3-2-1
4. 2-3-1

Solution- 1

Kinetic energy is given by $E = (1/2)mv^2$.

Same kinetic energy means electron has highest velocity (to make for its small mass)
Assume mass of electron as 1 unit. Mass of proton approx 1836 and mass of alpha particle is 4 times i.e is 7344.

Now calculate velocity in each case.

For electron $v = \text{square root } (2E)$

For proton $v = \text{square root } (2E/1836)$

For alpha particle $v = \text{square root } (2E/7344)$

Also de-Broglie wavelength is given by $\lambda = h/mv$

Now calculate momentum in each case

For electron $mv = \text{square root } (2E) * 1$

For proton $v = \text{square root } (2E/1836) * 1836$

For alpha particle $v = \text{square root } (2E/7344) * 7344$

Clearly electron has least momentum. Hence it has largest de-Broglie wavelength. And Alpha particle has least wavelength.

15. If Earth revolves around the Sun in circular path rather than elliptical path, what would happen?

1. Difference between seasons will increase
2. The Earth would become very hot
3. Difference between seasons will be reduced
4. The Earth would become very cold

Solution- 3

16. Permanent hardness of water is due to the presence of

1. Bicarbonate of Calcium and Magnesium
2. Sulphates of Calcium and Magnesium
3. Sulphates of Sodium and Calcium
4. Carbonates of Sodium and Calcium

Solution- 2

17. Consider the following

1. Vacuoles
2. Cell membranes
3. Chloroplast
4. Cytoplasm
5. Nucleus

Which of them are common to both, Animal and Plant Cell?

1. 1, 2, 3 and 4
2. 1, 2, 4 and 5
3. 2, 3, 4 and 5
4. 2, 4 and 5

Solution- 2

Plant Cell has Chloroplast unlike Animal Cell.

18. Consider the following

1. Light and Sound Waves are Electromagnetic Waves
2. Both shows the property of Diffraction, Reflection and Refraction
3. While Sound is Transverse waves, light is Longitudinal in nature

Select the correct code

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

Solution- 3

Sound is Mechanical Wave not electromagnetic. Sound is Longitudinal and light is Transverse. Second statement is true

19. Consider the following

- | | |
|---------------------|----------------|
| 1. Zinc Deposits | Karnataka |
| 2. Gold Deposits | Rajasthan |
| 3. Uranium Deposits | Andhra Pradesh |

Which of them is/are wrongly matched?

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

Solution- 2

Zinc Deposits- Rajasthan and Gold Deposits in Karnataka

20. Consider the following about JAM Trinity introduced by GoI

1. JAM trinity will reduce the dependency on Mobile services
2. It will give more penetration to Post Offices
3. It will cut down the leakages in subsidy

Select the correct code

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

Solution- 3

JAM Trinity is Jan Dhan Yojana, Aadhar and Mobile linkage. It will increase the mobile penetration. Rest statements are self explanatory

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