

Science & Technology

for

(UPSC PRELIMS- 2015)

By

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UPSC PRELIMS

2015

Dr. Ravi P. Agrahari

(HEALTH AND DISEASE)

- 1. Among the following, which were frequently mentioned in the news for the outbreak of Ebola virus recently?**
- (a) Syria and Jordan
 - (b) Guinea, Sierra Leone and Liberia**
 - (c) Philippines and Papua New Guinea
 - (d) Jamaica, Haiti and Surinam

(ENERGY)

2. With reference to 'fly ash' produced by the power plants using coal as fuel, which of the following statements is/are correct?

1. Fly ash can be used in the production of bricks for building construction.
2. Fly ash can be used as a replacement for some of the Portland cement contents of concrete.
3. Fly ash is made up of silicon dioxide and calcium oxide only, and does not contain any toxic elements.

Select the correct answer using the code given below:

- (a) 1 and 2 (b) 2 only
(c) 1 and 3 (d) 3 only**

(NANOTECH)

3. With reference to the use of nano-technology in health sector, which of the following statements is/are correct?

1. Targeted drug delivery is made possible by nanotechnology.
2. Nanotechnology can largely contribute to gene therapy.

Select the correct answer using the code given below:

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

(PARTICLE PHYSICS)

4. In the context of modern scientific research, consider the following statements about 'Ice Cube', a particle detector located at South Pole, which was recently in the news:

1. It is the world's largest neutrino detector, encompassing a cubic kilo metre of ice.
2. It is a powerful telescope to search for dark matter.
3. It is buried deep in the ice.

Which of the statements given above is/are correct?

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

(COMMUNICATION AND INFORMATION)

5. With reference to 'Near Field Communication (NFC) Technology', which of the following statements is/are correct?

1. It is a contactless communication technology that uses electromagnetic radio fields.
2. NFC is designed for use by devices which can be at a distance of even a metre from each other.
3. NFC can use encryption when sending sensitive information.

Select the correct answer using the code given below:

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

(MISCELLANEOUS)

6. The term 'Goldilocks Zone' is often seen in the news in the context of

- (a) the limits of habitable zone above the surface of the Earth
- (b) region inside the Earth where shale gas is available
- © search for the Earth-like planets in outer space**
- (d) search for meteorites containing precious metals

(BIOTECHNOLOGY)

7. The Genetic Engineering Appraisal Committee is constituted under the

- (a) Food Safety and Standards Act, 2006
- (b) Geographical Indications of Goods (Registration and Protection) Act, 1999
- (c) Environment (Protection) Act, 1986**
- (d) Wildlife (Protection) Act, 1972

(SPACE)

8. In which of the following activities are Indian Remote Sensing (IRS) satellites used?

1. Assessment of crop productivity
2. Locating groundwater resources
3. Mineral exploration
4. Telecommunications
5. Traffic studies

Select the correct answer using the code given below:

(a) 1, 2 and 3 only
(c) 1 and 2 only

(b) 4 and 5 only
(d) 1, 2, 3, 4 and 5

(MISCELLANEOUS)

9. The term 'Ind ARC' sometimes seen in the news, is the name of

- (a) an indigenously developed radar system inducted into Indian Defence
- (b) India's satellite to provide services to the countries of Indian Ocean Rim
- (C) a scientific establishment set up by India in Antarctic region
- (d) India's underwater observatory to scientifically study the Arctic region

(HEALTH AND DISEASE)

10. HINI virus is sometimes mentioned in the news with reference to which one of the following diseases?

- (a) AIDS
- (b) Bird flu
- (c) Dengue
- (d) Swine flu**

(MISCELLANEOUS)

11. With reference to bio-toilets used by the Indian Railways, consider the following statements:

1. The decomposition of human waste in the bio-toilets is initiated by a fungal inoculum.
 2. Ammonia and water vapour are the only end products in this decomposition which are released into the atmosphere.

Which of the statements given above is/are correct?

(ENERGY)

12. With reference to 'fuel cells' in which hydrogen-rich fuel and oxygen are used to generate electricity, consider the following statements:

1. If pure hydrogen is used as a fuel, the fuel cell emits heat and water as by products.
2. Fuel cells can be used for powering buildings and not for small devices like laptop computers,
3. Fuel cells produce electricity in the form of Alternating Current (AC).

Which of the statements given above is/are correct?

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

(IPR)

13. Which of the following has/have been accorded 'Geographical Indication' status?

1. Banaras Brocades and Sarees
2. Rajasthani Daal-Bati-Churma
3. Tirupathi Laddu

Select the correct answer using the code given below:

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

(ENERGY)

14. With reference to the Indian Renewable Energy Development Agency Limited (IREDA), which of the following statements is/are correct?

1. It is a Public Limited Government Company.
2. It is a Non-Banking Financial Company.

Select the correct answer using the code given below:

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

THANK YOU

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About the Author

Dr. Ravi P Agrahari, a Ph.D. from IIT Delhi, is a recipient of Junior Research Fellowship and Senior Research Fellowship from CSIR, Government of India. He served as a government servant in IIT-Delhi from 2015 to 2017. Mr. Agrahari is presently working as an independent consultant in the field of Environment, renewable and sustainable energy and biomass issues at the Bag Energy Research Society, Varanasi and Rene Foundation Thoothukudi (Tamil Nadu). He is an expert in the field of energy and has published various papers in many reputed international journals. He has attended many international conference in Sweden and France. Dr. Agrahari is well known for his expertise in "Environment Science" and "Science and Technology" and has numerous publications based on these topics in UPSC examinations. As a teacher, Dr. Agrahari has taught for over 15 years. Dr. Agrahari has been associated with more than 50 selected coaching institutes in more than 15 states of India. He is also associated with various NGOs and Civil Societies for the welfare of weaker section and minority students.

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