

# Science & Technology for **(UPSC PRELIMS- 2017)**

By

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## **(Particle Physics)**

**1. The terms 'Event Horizon', 'singularity' and 'String Theory' and 'Standard Model' are some times seen in the news in the context of**

**(a) Observation and understanding of the Universe**

(b) Study of the solar and lunar eclipses

(c) Placing satellite in the orbit of the Earth

(d) Origin and evolution of living organism

## **(Food and Additives)**

### **2. Consider the following pairs:**

**Commonly used/consumed mater: unwanted or controversial chemicals**

**1. Lipstick : Lead**

**2. Soft drinks: Brominated vegetable oil**

**3. Chinese fast food: Monosodium Glutamate**

**Which of the pairs given above is/are correctly matched:**

**(a) 1 only**

**(b) 2 and 3 only**

**(c) 1 and 3 only**

**(d) 1,2 and 3 only**

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## **(Miscellaneous)**

**3. Organic Light Emitting Diodes (OLEDs) are used to create digital display in many devices. What are the advantages of OLED display over liquid crystal display. (General Science & Technology)**

1. OLED displays can be fabricated on flexible plastic substrates.
2. Roll-up-displays embedded in clothing can be made using OLEDs.
3. Transparent displays are possible using OLEDs.

Select the correct answer using the code given below

- (a) 1 and 3
- (b) 2 only
- (c) **1, 2 and 3**
- (d) None of the above statements is correct

## **(Biotechnology)**

### **4. What is the application of Somatic Cell CJ Nuclear Transfer Technology? (General Science & Technology)**

- (a) Production of bio-larvicides
- (b) Manufacture of biodegradable plastics
- (c) Reproductive cloning of animals**
- (d) Production of organisms free of diseases

## **(Communication & Information Technology)**

**5. In India, it is legally mandatory for which of the following to report on cyber security incidents?**

1. Service providers
2. Data centres
3. Body corporate

**Select the correct answer using the code given below:**

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

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## **(Particle Physics)**

**6. What is the purpose of 'evolved Laser Interferometer Space Antenna (eLISA)' project?**

(a) To detect neutrinos

**(b) To detect gravitational waves**

(c) To detect the effectiveness of missile defence system

(d) To study the effect of solar flares on our communication systems

## **(Energy)**

### **7. Consider the following statements:**

1. The Nuclear Security Summits are periodically held under the aegis of the United Nations.
2. The International Panel on Fissile Materials is an organ of International Atomic Energy Agency.

Which of the statements given above is/are correct?

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



## **(Health and Diseases)**

### **8. Consider the following statements:**

1. In tropical regions, Zika virus disease is transmitted by the same mosquito that transmits dengue.
2. Sexual transmission of Zika virus disease is possible.

Which of the statements given above is/are correct?

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

## **(Miscellaneous)**

### **9. Consider the following statements:**

1. The Standard Mark of Bureau of Indian Standards (BIS) is mandatory for automotive tyres and tubes.
2. AGMARK is a quality Certification Mark issued by the Food and Agriculture Organisation (FAO).

Which of the statements given above is/are correct?

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

## **(IPR)**

**10. With reference to the 'National Intellectual Property Rights Policy', consider the following statements:**

1. It reiterates India's commitment to the Doha Development Agenda and the TRIPS Agreement.
2. Department of Industrial Policy and Promotion is the nodal agency for regulating intellectual property rights in India.

Which of the above statements is/are correct?

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

## **(Biotechnology)**

**11. With reference to agriculture in India, how can the technique of `genome sequencing', often seen in the news, be used in the immediate future?**

1. Genome sequencing can be used to identify genetic markers for disease resistance and drought tolerance in various crop plants.
2. This technique helps in reducing the time required to develop new varieties of crop plants.
3. It can be used to decipher the host-pathogen relationships in crops.

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**

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## **(Biology)**

**12. Due to some reasons, if there is a huge fall in the population of species of butterflies, what could be its likely consequence/consequences? (General Science & Technology)**

1. Pollination of some plants could be adversely affected.
2. There could be a drastic increase in the fungal infections of some cultivated plants.
3. It could lead to a fall in the population of some species of wasps, spiders and birds.

**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

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## **(Energy)**

**13. It is possible to produce algae based biofuels, but what is/are the likely limitation(s) of developing countries in promoting this industry? (General Science & Technology)**

1. Production of algae based biofuels is possible in seas only and not on continents.
2. Setting up and engineering the algae based biofuel production requires high level of expertise/technology until the construction is completed.
3. Economically viable production necessitates the setting up of large scale facilities which may raise ecological and social concerns.

**Select the correct answer using the code given below:**

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

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## **(Health and Diseases)**

**14. Which of the following are the objectives of 'National Nutrition Mission'?**

1. To create awareness relating to malnutrition among pregnant women and lactating mothers.
2. To reduce the incidence of anaemia among young children, adolescent girls and women.
3. To promote the consumption of millets, coarse cereals and unpolished rice.
4. To promote the consumption of poultry eggs.

**Select the correct answer using the code given below:**

- (a) 1 and 2 only**
- (b) 1, 2 and 3 only
- (c) 1, 2 and 4 only
- (d) 3 and 4 only

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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 worked as a research scientist 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 biogas 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 conferences in Sweden and France. Dr. Agrahari is well known for his expertise in "Environment Science" and "Science and Technology" and has authored several books on the same for UPSC examinations. As a Teacher of UPSC aspirants for over 19 years, Dr. Agrahari has been associated with over 50 reputed coaching institutes in more than 15 states in India. He is also associated with various NGOs and Civil Societies for the welfare of weaker section and minority students.

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