

1. Consider the following statements:
  1. When the light is reflected from a surface, the angle of incidence is generally equal to the angle of reflection.
  2. Laws of reflection are applicable to all types of reflecting surfaces except spherical surfaces.
 Which of the statements given above is/are NOT CORRECT?
  - a) 1 only
  - b) 2 only**
  - c) Both 1 and 2
  - d) Neither 1 nor 2
2. Consider the following statements regarding formation of image by a plane mirror:
  1. Image formed by a plane mirror is always virtual and erect.
  2. The image formed is as far behind the mirror as the object is in front of it.
 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
3. Consider the following statements:
  1. Conventionally, in an electric circuit the direction of electric current is taken as the same direction of the flow of electrons.
  2. Electric current is expressed by the amount of charge flowing through a particular area in unit time.
 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
4. Consider the following statements:
  1. The electrons are able to travel through a perfect solid crystal smoothly.
  2. The motion of electrons in a conductor is very different from that of charges in empty space.
 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
5. Consider the following statements:
  1. Magnetic field is a quantity that has direction but not magnitude.
  2. The relative strength of the magnetic field is shown by the degree of closeness of the field lines.
 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
6. Which of the following statements about Dr. Har Gobind Khorana is/are correct?
  1. He was the first Indian-born Nobel Prize winner in Medicine
  2. The award was given for discovering that the order of nucleotides in DNA determines which amino acids are built.
  3. He is credited with making the first synthetic genes by cutting and pasting different bits of DNA together.
 Select the correct answer using the code given below:
  - a) 1 and 2
  - b) 2 and 3**
  - c) 1 and 3
  - d) All the above
7. Millimeter waves are broadcast at frequencies between:
  - a) 10 to 100 gigahertz
  - b) 20 to 200 gigahertz
  - c) 30 to 300 gigahertz**
  - d) 40 to 400 gigahertz
8. Consider the following statements regarding microwave ovens:
  1. Instead of generating heat that warms the food from outside, the microwaves penetrate food and create the heat within.
  2. Microwaves are electromagnetic waves that are created by a component called 'Megatron' in the oven.
  3. Microwaves are known to destroy the nutrients in the food.

Which of the above statements is/are correct?

- a) **1 and 2**
  - b) 2 and 3
  - c) 1 and 3
  - d) All of the above
9. C.V. Raman, was the first Indian Scientist to receive a Nobel Price. He published his theory on the Raman Effect in 1928. Raman Effect is associated with which of the following?
- a) **Scattering of light**
  - b) Total internal reflection
  - c) Atomic structure
  - d) Semi-conductors
10. Consider the following statements with respect to Dispersion of light:
1. The sequence VIBGYOR is in the order of increasing frequency.
  2. The red light used in the traffic light is visible even in dense fog, because it has lowest frequency in the VIBGYOR colour spectrum.
- Which of the above statements is/are correct?
- a) 1 only
  - b) **2 only**
  - c) Both 1 and 2
  - d) Neither 1 nor 2
11. Consider the following statements regarding the International Renewable Energy Agency (IRENA):
1. A state should be a member of the United Nations to gain IRENA membership.
  2. The main institutional governing body of the IRENA is the supreme Council which includes delegates only from the P5 Countries.
  3. The Global Commission on the Geopolitics of Energy Transformation was launched by IRENA.
- Which of the statements given above is/are correct?
- a) 2 only
  - b) 1 and 2 only
  - c) **1 and 3 only**
  - d) 1, 2 and 3
12. With reference to Aeroponics, Consider the following statements:
1. In Aeroponic system, the roots are held in a soilless growing medium, such as coco coir, over which nutrient-laden water is periodically pumped.
  2. Aeroponic system is a closed loop system, using 95% less water than field farming and 40% less than hydroponics.
- 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
13. Which of the following Bioremediation Technologies is/are correctly matched?
1. Bioventing – Addition of Bacterial cultures to a contaminated medium.
  2. Bioaugmentation – Method of treating contaminated soils by drawing oxygen through the soil.
  3. Biosparging – The injection of air under pressure can enhance biological degradation.
- Select the correct answer using the codes given below:
- a) **3 only**
  - b) 2 and 3 only
  - c) 1 and 2 only
  - d) 1, 2 and 3
14. Which of the following statements is/are NOT CORRECT regarding Development of Solar Parks and Ultra Mega Solar Power Projects Scheme?

1. This scheme supports only those States/UTs which has power deficit in setting up solar parks.
  2. The implementing agency of this scheme is Solar Power Park Developer (SPPD).
- 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
15. Consider the following statements with respect to United Nations Convention to Combat Desertification (UNCCD):
1. It is the only internationally legally binding framework set up to address the problem of desertification.
  2. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas.
  3. UNCCD collaborates with the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC).
- Which of the statements given above is/are correct?
- a) 1 only
  - b) 1 and 2 only
  - c) 2 and 3 only
  - d) **1, 2 and 3**
16. Bhopal gas tragedy has been one of the most deadliest industrial hazards in the history of India. Which of the following gas was released causing the disaster?
- a) Potassium cyanide
  - b) Potassium isocyanate
  - c) **Methyl isocyanate**
  - d) Phosgene
17. The release of ballast water at the port is considered to be a big ecological hazard because:
- a) It increases the temperature of the coast by several degrees.
  - b) It causes heavy metal poisoning.
  - c) **It is responsible for transporting alien species to new ecosystems.**
  - d) It reduces the dissolved oxygen in the ocean water.
18. The government has constituted a committee to investigate into illegal cultivation of HT cotton in four states. The HT of HT cotton stands for
- a) Hybrid transform
  - b) Herbal treatment
  - c) **Herbicide tolerant**
  - d) High Tech
19. Which of the following traits should a waste material show to be categorized under Hazardous waste?
1. Ignitability
  2. Reactivity
  3. Corrosivity
  4. Toxicity
- Select the correct answer using the code given below:
- a) 1 and 2 only
  - b) 3 and 4 only
  - c) 1, 3 and 4 only
  - d) **1, 2, 3 and 4.**
20. Consider the following statements.
1. An aerosol is a suspension of fine solid particles or liquid droplets, in air or another gas.
  2. Examples of anthropogenic aerosols are fog, dust, forest exudates and geyser steam.
  3. Examples of natural aerosols are haze, particulate air pollutants and smoke.
  4. Aerosol does not have any impact on cloud formations.
- Which of the above statements is/are correct?
- a) **1 only**

- b) 2 and 3 only  
c) 4 only  
d) 1, 2, 3 and 4
21. With reference to Myristica swamp treefrog, consider the following statements:  
1. They are endemic to the Western Ghats.  
2. Their whole life cycle is carried out on trees only.  
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
22. Which of the following are not the components Capital Expenditure?  
1. Acquiring fixed assets  
2. Salaries of employees  
3. Interest payment on past debt  
4. Subsidies  
Choose the correct answer using code given below:  
a) 1 and 2 only  
b) 2 and 3 only  
c) 3 and 4 only  
**d) 2, 3 and 4**
23. Consider the following statements:  
1. The National Energy Conservation Day is an initiative of the Ministry of New & Renewable Energy.  
2. India is a member nation of the International Energy Agency as well as the Mission Innovation.  
3. The Bureau of Energy Efficiency functions under the Ministry of Power.  
Which of the statements given above is/are correct?  
**c) 3 only**  
a) 1 and 2 only  
b) 2 only  
d) 1, 2 and 3
24. With reference to 3D printing, consider the following statements:  
1. 3D printing uses computer-aided designing to make working models of objects.  
2. It is also called subtractive manufacturing.  
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
25. With reference to Indian Ocean Dipole (IOD), consider the following statements:  
1. It refers to the difference in sea-surface temperatures in opposite parts of the Indian Ocean.  
2. Positive IOD results in less cyclones than usual in Arabian Sea.  
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