

1. The speed of light in air is

- A. $3 \times 10^8 \text{ m/s}$ B. $3 \times 10^{-8} \text{ cm/s}$
C. $8 \times 10^3 \text{ m/s}$ D. Infinity

2. What is a compound micro-scope?

- A. A microscope that has one lens.
B. A microscope that has two sets of lenses: an ocular lens and an eyepiece.
C. A microscope whose lenses are concave.
D. A microscope whose lenses are convex.

3. The fuel used in nuclear power plants is ____.

- A. U-235 B. U-238 C. U-236 D. U-221

4. One Kilowatt-hour is equal to ____.

- A. $36 \times 10^5 \text{ Joules}$ B. $3.6 \times 10^5 \text{ Joules}$
C. $36.8 \times 10^6 \text{ joules}$ D. $3.6 \times 10^{-19} \text{ joules}$

5. In an electric motor, the energy transformation is from ____?

- A. Electrical to chemical B. Chemical to light
C. Mechanical to electrical D. Electrical to mechanical

6. The focal length of a plane mirror is ____?

- A. Positive B. Negative
C. Zero D. Infinity

7. Pascal is the unit for ____.

- A. Thrust B. Pressure
C. Frequency D. Conductivity

8. An instrument used to measure humidity is ____.

- A. Anemometer B. Hygrometer
C. Thermometer D. Pyrheliometer

9. Earth received heat from the sun is known as ____.

- A. Insolation B. Infrared heat
C. Solar radiation D. Thermal radiation

10. The property which is seen in light wave but not in sound wave is:

- A. Diffraction B. Refraction
C. Polarisation D. Interference

11. Sunil Arora has been appointed as the 23rd ____ of India.

- A. Comptroller & Auditor General
B. Chief Economic Advisor

C. Chief Election Commissioner

D. RAW Chief

12. Which article of Indian Constitution guarantees Protection of Life and Personal Liberty?

- A. Article 21 B. Article 21A
C. Article 22 D. Article 20

13. Who presides over the joint sitting of the House of People?

- A. The Chief justice of India B. The Speaker
C. The President D. The Vice President

14. Which of the following authorities is/are competent to issue writs for the enforcement of Fundamental Rights?

- A. Supreme Court B. Supreme Court and High Courts
C. Parliament D. President

15. When was the first amendment made to the Indian Constitution?

- A. 1954 B. 1951 C. 1953 D. 1952

16. Who among the following has the power to promulgate ordinance?

- A. Prime Minister B. President
C. Chief Justice of Supreme Court D. Defence Minister

17. Which of the following writs provides a remedy for a person who been unlawfully held in prison?

- A. Certiorari B. Habeas Corpus
C. Mandamus D. Prohibition

18. Which article in Indian Constitution states about Fundamental Duties?

- A. Article 31C B. Article 21A
C. Article 15 D. Article 51A

19. Which of the following committees recommended inclusion of fundamental duties?

- A. Tarapore Committee
B. Radha Krishnan Committee
C. Balwantrai Metha Committee
D. Swaran Singh Committee

20. Which of the following adjectives is NOT a part of the Preamble?

- A. Liberty B. Tolerant
C. Sovereign D. Secular

ANSWER

1. Answer :Option A

We can find that the speed of visible light in air is about 90 km/s slower than c. The speed of light in vacuum is commonly denoted by c. It is a universal constant, and it's value is 299792458 meters per second. (~ 3×10^8 meter per second).

2. Answer :Option B

Compound microscope has two lenses that bend light so that a specimen is magnified and projected. Having two lenses is very important because this is where the microscope gets its name. To compound something means to add to it - like

compound interest, or a chemical compound, which is a sum of multiple parts. The word microscope is also key, because micro means small and scope means view.

3. Answer :Option A

Nuclear fuel is a material that can be 'burned' by nuclear fission or **fusion** to derive nuclear energy. The most common fissile **nuclear fuels** are uranium-235 (U-235U) and plutonium-239 (239Pu).

4. Answer :Option A

The **kilowatt-hour** is a unit of energy equivalent to **one kilowatt of power** expended for one hour (1 h) of time. It is commonly used in electrical applications. An energy expenditure of 1 kWh represents **3,600,000 joules** (36×10^5 Joules).

5. Answer :Option D

An electric motor is an electrical machine that converts electrical energy into mechanical energy. The reverse of this would be the conversion of mechanical energy into electrical energy and is done by an electric generator.

6. Answer :Option D

A **plane mirror** is a mirror with a flat reflective surface. The **focal length** of a plane mirror is infinity. Its optical power is zero.

7. Answer :Option B

The **pascal** is the SI derived unit of **pressure**, internal pressure, stress, Young's modulus and ultimate tensile strength, defined as one newton per square metre. It is named after the French polymath **Blaise Pascal**.

8. Answer :Option B

A **hygrometer** is an instrument used for measuring the moisture content in the atmosphere. Humidity measurement instruments usually rely on **measurements** of some other quantity such as temperature, pressure, mass or a mechanical or electrical change in a **substance as moisture** is absorbed.

9. Answer :Option A

- Solar irradiance also known as Insolation, is the power per unit area produced by the Sun in the form of electromagnetic radiation.
- Irradiance may be measured in space or at the Earth's surface after atmospheric absorption and scattering. Usually the absorbed radiation is converted to thermal energy, increasing the object's temperature.
- Manmade or natural systems, however, can convert part of the absorbed radiation into another form such as electricity or chemical bonds, as in the case of photovoltaic cells or plants.

10. Answer :Option C

- Light has polarization because it is a distortion of a vector-field (electric and magnetic fields are vector-fields).
- Sound waves in air travel parallel to the direction that the particles within it oscillate (it propagates in 1 dimensional direction).
- Therefore it is possible to polarize transverse waves. Because sound waves are longitudinal, not transverse therefore **polarisation in sound waves is not possible**.

11. Answer :Option C

- **Sunil Arora** has been appointed as the 23rd **Chief Election Commissioner** of India.
- Election Commission is an constitutional body under **Article 324**.
- **Sukumar Sen** is elected as the first Chief Election Commissioner of India.
- He is also the **chairman** for Association of World Election Bodies.

12. Answer :Option A

Fundamental Rights are mentioned in constitution of India in **Part III** from **Article 12 to 35**.

- **Article 20** deals with protection in respect of conviction for citizens.
- **Article 21** deals with protection of life and personal liberty
- **Article 21A** deals with Right to Education
- **Article 22** deals with protection against arrest and detention in certain cases.

13. Answer :Option B

The joint sitting of the Parliament is called by the President and is presided over by **the Speaker** or, in his absence, by the **Deputy Speaker of the Lok Sabha or in his absence**.

More Information:

The Parliament of India is bicameral. Concurrence of both houses are required to pass any bill. However, the authors of the Constitution of India visualised situations of deadlock between the upper house i.e. Rajya Sabha and the lower house i.e. Lok Sabha. Therefore, the Constitution of India provides for Joint sittings of both the Houses to break this deadlock.

14. Answer :Option B

The Supreme Court, the High Court also have been given a role in the protection of fundamental rights. Under Art. 226 of the constitution, High Courts also can issue writs for the enforcement of fundamental rights. A writ is a formal written order issued by a body with administrative or judicial jurisdiction, this body is generally a court for enforcement of any of the fundamental rights conferred by part III of Indian Constitution under article 32 the Constitution of India empowers the supreme Court to Issue writs.

15. Answer :Option B

- * The first amendment of the constitution was made in **1951**.
- * It **amended articles** 15, 19, 85, 87, 174, 176, 341, 342, 372 and 376.
- * It also **inserted Article 31A and 31B** in the constitution.
- * It also **inserted ninth schedule** to the constitution.
- * The **first amendment** act was associated with zamindari abolition, strengthening of backward classes, and protection of laws from unnecessary judicial intervention.

16. Answer :Option B

- * President has power to **promulgate ordinance**.
- * He can promulgate ordinance when either Lok Sabha or Rajya Sabha is not in session or if both are not in session.
- * This power is entrusted to president through **article 123** of constitution.
- * An ordinance can be retrospective in nature.
- * Maximum life of an ordinance can be **6 months + 6 weeks**.
- * **Article 213** deals with the power of **Governor** to legislate through ordinances.

17. Answer :Option B

- **Habeas Corpus** provides a remedy for a person who been unlawfully held in prison.
- A writ of habeas corpus is used to bring a prisoner or other detainee before the court to determine if the person's imprisonment or detention is lawful.
- The writ of habeas corpus is known as the "great and efficacious writ in all manner of illegal confinement".
- Hence, the correct option is 'B'.

18. Answer :Option D

- **Article 31C** – It says that any law made by the state that secures the rights contained in part IV of the constitution cannot be declared void or challenged on the grounds of Article 14, Article 19 or Article 31.
- **Article 21A** – Free and compulsory education of all children in the age group of 6 to 14 years.
- **Article 15** – Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth.
- **Article 51A** – Fundamental Duties

19. Answer :Option D

- * Fundamental duties were added to the Indian Constitution on the recommendations of **Swaran Singh Committee**. The committee was setup in **1976**, which recommended the incorporation of **8** fundamental duties in the Constitution.
- * The Government accepted the recommendations and enacted the **42nd Constitutional Amendment Act in 1976**. This amendment added a new part, namely, **Part IVA** to the Constitution. This new part consists of only one Article, that is, **Article 51A** which specifies a code of **10** fundamental duties.

20. Answer :Option B

- Sovereign, Socialist, Secular, Democratic, Republic, Justice, Liberty, Equality and Fraternity are the main words of the Preamble of the Indian Constitution.
- The preamble was amended (42nd Amendment) only once on 18 December 1976.
- Through this amendment, the words "socialist" and "secular" were added between the words "Sovereign" and "democratic" and the words "unity of the Nation" were changed to "unity and integrity of the Nation".