ASSERTION & REASON 1

Question Instruction For Questions
In each of the following questions, a statement of Assertion (A) is given followed by a corresponding statement of Reason (R) just below it. Of the statements, mark the correct answer -
(a) If both assertion and reason are true and reason is the correct explanation of assertion
(b) If both assertion and reason are true but reason is not the correct explanation of assertion
(c) If assertion is true but reason is false
(d) If both assertion and reason are false
(e) If assertion is false but reason is true.

Q 1. **Assertion :** Two adjacent conductors, carrying the same positive charge have a potential difference between them.
Reason : The potential to which a conductor is raised depends upon the charge.

Q 2. **Assertion :** Electrons move away from a region of lower potential to a region of higher potential.
Reason : Since an electron has a negative charge.

Q 3. **Assertion :** The radiation from the sun's surface varies as the fourth power of its absolute temperature.
Reason : The sun is not a black body.

Q 4. **Assertion :** The second postulate of special relativity refers to the velocity of light in vacuum.
Reason : Cerenkov radiation results when particles move through transparent matter at a speed greater than the speed of light in that medium. This does not violate the second postulate of special relativity.

Q 5. **Assertion :** The kinetic energy of the emitted photo-electrons changes only with a change in the frequency of the incident radiations.
Reason : The kinetic energy of photo-electrons emitted by a photo-sensitive surface depends upon the intensity of the incident radiation.

Q 6. **Assertion :** A hydrogen filled balloon stops rising after it has attained a certain height in the sky.
Reason : The atmospheric pressure decreases with height and becomes zero when maximum height is attained by the hydrogen filled balloon.

Q 7. **Assertion :** Only a change in magnetic flux will maintain an induced current in the coil.
Reason : The presence of large magnetic flux through a coil maintains a current in the coil if the circuit is continuous.

Q 8. **Assertion :** Rydberg's constant varies with the mass number of a given element.
Reason : The reduced mass of the electron is dependent on the mass of the nucleus only.

Q 9. **Assertion :** On a rainy day, it is difficult to drive a car or bus at high speed.
Reason : The value of coefficient of friction is lowered due to wetting of the surface.

Q 10. **Assertion :** Isotopes of an element can be separated by using amass spectrometer.
Reason : Separation of isotopes is possible because of the difference in electron numbers of isotopes.

ASSERTION & REASON 2

Question Instruction For Questions
In each of the following questions, a statement of Assertion (A) is given followed by a corresponding statement of Reason (R) just below it. Of the statements, mark the correct answer -
(a) If both assertion and reason are true and reason is the correct explanation of assertion
(b) If both assertion and reason are true but reason is not the correct explanation of assertion
(c) If assertion is true but reason is false
(d) If both assertion and reason are false
(e) If assertion is false but reason is true.

Q 1. **Assertion :** Density of all the nuclei is same.
Reason : Radius of nucleus is directely proportional to the cube root of mass number.

Q 2. **Assertion :** Danger signals are made of red colour.
Reason : Velocity of red light is maximum and thus more visibility in dark.

Q 3. **Assertion :** Current and time both have direction as well as magnitude but still are not considered as vector.
Reason : Current and time do not follow laws of vector addition.

Q 4. **Assertion :** If polar ice melts, days will be longer.
Reason : Moment of inertia increases and thus angular velocity decreases.

Q 5. **Assertion :** Endoscopy involves use of optical fibres to study internal organs
Reason : Optical fibres are based on phenomena of total internal reflection.

Q 6. **Assertion :** Cyclotron does not accelerate electrons.
Reason : Mass of electrons is very small.

Q 7. **Assertion :** Good conductors of heat are also good conductors of electricity and vice versa.
Reason : Mainly electrons are responsible for these conductions.

Q 8. **Assertion :** Air at some distance above the fire is hotter than the same distance below it.
Reason : Air surrounding the fire carries heat upwards.

Q 9. **Assertion :** If a convex lens is kept in water its convergent power decreases.
Reason : Focal length of convex lens in water increases.

Q 10. **Assertion :** If current is flowing through a machine of iron eddy currents are produced.
Reason : Change in magnetic flux through an area causes eddy currents.