

Assertion and Reason

INTRODUCTION

'Assertion' means 'stating something' and 'Reason' means 'fact'. In this type of questions, we have to deal with the combination of Assertion (A) and Reason (R).

Directions (for Examples 1 to 6) : Choose the correct alternative from the following option for the Assertion (A) and Reason (R) given below. Give answer as

- (a) if both A and R are true and R is the correct explanation of A.
- (b) if both A and R are true and R is not the correct explanation of A.
- (c) if A is true but R is false.
- (d) if A is false but R is true.

Example 1.

Assertion (A) : Indian president is the head of the state.
Reasons (R) : Indian Parliament consists of the president, Lok Sabha and Rajya Sabha.

Solution :

- (b) R is not the correct explanation of A.

Example 2.

Assertion (A) : Bangladesh imports jute from India.
Reason (R) : Bangladesh has most of the jute mills.

Solution :

- (d) A is false but R is true.

Example 3.

Assertion (A) : Mercury is the farthest planet from the Sun.
Reason (R) : Mercury is the smallest planet in the entire Solar-System.

Solution :

- (d) Mercury is the smallest planet, but it is not the farthest planet. Hence, our answer is (d).

Example 4.

Assertion (A) : Cotton is grown in alluvial soils.
Reason (R) : Alluvial soils are very fertile.

Solution :

- (d) Cotton is grown in Black soils.

Example 5.

Assertion (A) : Simla is colder than Delhi
Reason (R) : Simla is at higher altitude as compared to Delhi.

Solution :

- (a) The temperature decreases with the altitude and Simla is situated in lesser Himalaya.

Example 6.

Assertion (A) : Bronze is used for making statues.
Reason (R) : Bronze is an alloy of copper and tin.

Solution :

- (b) Both A and R are true. But Bronze is used for making statue because it is resistance to corrosion.

EXERCISE

DIRECTIONS (Qs. 1-14) : Each of the following questions consists of two statements – one labelled as the Assertion (A) and other as Reason (R). You have to examine these two statements carefully and select the answer :

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) Both A and R are false.

1. **Assertion (A) :** Forest cutting is undesirable from the point of view of soil erosion.
Reason (R) : Cutting of forests reduces the interception of rain water.
2. **Assertion (A) :** Photosynthesis takes place in all green plants.
Reason (R) : Chlorophyll is essential for photosynthesis.

3. **Assertion (A) :** Vaccines prevent diseases.
Reason (R) : Vaccines must be given to children.
4. **Assertion (A) :** There is rainbow in the sky only after rains.
Reasons (R) : Water drops suspended in the air break up sun rays into seven colours.
5. **Assertion (A) :** Tamil Nadu gets most of the rainfall in winter.
Reason (R) : Tamil Nadu gets rainfall from retreating Monsoons.
6. **Assertion (A) :** Diamond is used for cutting glass.
Reason (R) : Diamond has a high refractive index.
7. **Assertion (A) :** Tides indicate the regular and periodic rise and fall in sea level.
Reason (R) : Tides are caused by the gravitational pull of the moon and the sun.

8. **Assertion (A)** : Goitre is a common disease in mountainous regions.
Reason (R) : The diet of the people in mountains lacks iodine content.
9. **Assertion (A)** : India is a democratic country.
Reason (R) : India has a Constitution of its own.
10. **Assertion (A)** : Bulb filament is made of Titanium.
Reason (R) : The filament should have low melting point.
11. **Assertion (A)** : Amoebiasis is an occupational disease.
Reason (R) : Amoebiasis is caused by inhalation of asbestos dust.
12. **Assertion (A)** : A person with blood group O positive is supposed to be a universal recipient.
Reasons (R) : Type O positive does not contain any antigens.
13. **Assertion (A)** : Safety fuses are made up of materials having a high melting point.
Reasons (R) : Safety fuses should be resistant to electric current.
14. **Assertion (A)** : Sprouting should not be done before consuming the grains.
Reasons (R) : Sprouting kills many vital vitamins.
15. **Assertion (A)** : Leakages in household gas cylinders can be detected.
Reason (R) : LPG has a strong smell.
16. **Assertion (A)** : Cut fruits and vegetables should not be kept in open for long.
Reason (R) : Their vitamin content is ruined.
17. **Assertion (A)** : Telephone wires sag more in summer.
Reason (R) : They expand due to summer heat.
18. **Assertion (A)** : Most of the ancient civilisations grew near the rivers.
Reason (R) : The main occupation of man was agriculture.
19. **Assertion (A)** : Earthworms are not good for agriculture.
Reason (R) : Earthworms break down the soil into the fine particles and make it soft.
20. **Assertion (A)** : When a body is dipped in a liquid fully or partially, there is a decrease in its weight.
Reasons (R) : The decrease in weight is due to the higher density of the displaced liquid.
21. **Assertion (A)** : When a person is standing in a lift which is either at rest or moving up or moving down with uniform speed, he does not find any apparent change in his weight.
Reasons (R) : The reaction of the floor of the lift is equal to his weight.
22. **Assertion (A)** : A saltwater fish drinks sea water where a fresh water fish never drinks water.
Reasons (R) : A saltwater fish is hypertonic to its environment while a freshwater fish is hypotonic to its environment.
23. **Assertion (A)** : The territory of India is larger than the territories of the States taken together.
Reasons (R) : India is Union of States.
24. **Assertion (A)** : Alcohol rather than mercury is used in a thermometer to measure a temperature of 60°C.
Reasons (R) : Alcohol has a lower freezing point than mercury.
25. **Assertion (A)** : Noise pollution is an unwanted accumulation of noise in the atmosphere.
Reasons (R) : It interferes with communication.
26. **Assertion (A)** : The steam engine was invented by James Watt.
Reasons (R) : There was a problem of taking out water from flooded mines.
27. **Assertion (A)** : Earthworms are not good for agriculture.
Reasons (R) : Earthworms break down the soil into fine particles and make it soft.
28. **Assertion (A)** : Most of the ancient civilisations grew near the rivers.
Reasons (R) : The main occupation of man was agriculture.
29. **Assertion (A)** : Food materials should not be soaked in water for a long time.
Reasons (R) : Washing leads to loss of vitamin A and vitamin D from the food stuff.
30. **Assertion (A)** : Pluto is the coldest planet.
Reasons (R) : It receives slanting rays of the sun.

DIRECTIONS (Qs. 15-31) : Each of the following questions consists of two statements – one labelled as the Assertion (A) and other as Reason (R). You are to examine these two statements carefully and select the answer :

- (a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

Hints & Solutions

1. (a) Cutting down trees causes increased run-off (water flowing over the surface of the earth). Rain water reaches rivers faster (due to reduction of interception). Soil particles are transported down-hill by water flow which leads to the degradation of soil.
2. (b) Both A and R are true but R does not explain the A. They are independent statements.
3. (b) Both A and R are true but R does not explain the A. They are independent statements.
4. (a) Clearly, both A and R true and R is the correct explanation of A.
5. (a) Both A and R are true and R is the correct explanation of A.
6. (b) Diamond being very hard substance is used to cut glass.
7. (a) Clearly, both A and R true and R is the correct explanation of A.
8. (a) Goitre is caused by deficiency of iodine and diet in mountainous areas lacks iodine.
9. (b) Both A and R are true. But India is a democratic country because its government is the government of the people, for the people and by the people.
10. (d) Bulb filament is made of Tungsten. The filament should have very high melting point.
11. (d) Both A and R are false. Amoebiasis is an intestinal parasitic illness caused by a single celled microscopic parasite called Entamoeba histolytica.
12. (e) Both Assertion and Reason are false because the person with blood group O positive is the universal blood doner and similarly O positive blood group contains antigens.
13. (e) Safety fuses are made up of metal having low melting point to avoid any accident in case of short-circuit also the safety fuses should not be resistant to electric current.
14. (e) Both Assertion and Reason are false because sprouted grains are used to increase the nutrient content of the grains.
15. (c) R is false as LPG does not have any smell. A chemical called 'Mercaptan', which has a strong purgent smell, is added to LPG so as to detect leakages in houses.
16. (a) When cut fruits and vegetables are kept in open, the vitamins in them get oxidised and remain of no use.
17. (a) Due to heat in summer, wires get loose because of heat.
18. (a) Most ancient civilisations grew near the rivers, because of fertile land and availability of water necessary for agriculture, the main occupation of man.
19. (d) Earthworms help in agriculture because they make the soil soft and porous.
20. (c) 'A' is true but 'R' is false. The decrease in weight is due to the upward thrust (or bouyant force) which is equal to the rate of the liquid displaced by the body.
21. (a) As the reaction of the floor and weight of the person balance each other, there is no apparent change in his weight.
22. (c) 'A' is true but 'R' is false. Salt water fishes are hypotonic to their surroundings. since their blood has higher concentration than surrounding sea water, water molecules diffuse out of their blood into the sea water by osmosis, which urges these fishes to drink water.
23. (b) Both are 'A' and 'R' correct but 'R' is not the correct explanation of 'A'. The territory of India comprises Union territories as well.
24. (d) Both A and R are true but R is not correct explanation of A because alcohol is used for higher boiling point than Mercury.
25. (a) Noise pollution interferes with communication hence is an unwanted accumulation of noise in the atmosphere.
26. (c) Assertion is correct but Reason is false. 'A' is a fact but 'R' is irrelevant.
27. (d) Earthworms make the soil fertile, hence Assertion is false and Reason is true.
28. (b) The Assertion is correct because most of the ancient civilisation grew near the rivers as land over there was fertile and water was available. But Reason is not the correct explanation of the Assertion.
29. (c) Food materials should not be soaked in water for a long time because it leads to loss of vitamins. However, the Reason is false.
30. (c) Pluto is the farthest planet from the sun, and hence is the coldest planet. However, Reason is false.