ASSERTION AND REASON QUESTIONS

For these questions, two statements are given – one labelled *Assertion* (A) and the other labelled *Reason* (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) A is false but R is true.

Chapter 1: Crop Production

1. **Assertion:** Rabi crops are called winter crops.
   Reason: Rabi crops are sown in October-November.
2. **Assertion:** A wooden plank is used to level the field after harvesting.
   Reason: Levelling prevents the loss of moisture from the soil.
3. **Assertion:** Broadcasting is a method of sowing seeds.
   Reason: Seed drills are driven either by bullocks or a tractor.
4. **Assertion:** Fertilisers are organic compounds made in factories.
   Reason: Fertilisers provide specific nutrient required by the crop.
5. **Assertion:** A combine machine is a combination of harvester and thresher.
   Reason: There is no need of winnowing when the crop is harvested by a combine.

Chapter 2: Microorganisms

1. **Assertion:** Microorganisms are found everywhere.
   Reason: Louis Pasteur discovered microorganisms in air.
2. **Assertion:** Organisms that obtain their food from other organisms are called saprophytes.
   Reason: Some microbes are useful in agriculture and many industries.
3. **Assertion:** Fungi are plant-like nongreen organisms.
   Reason: Fungi lack green pigment chlorophyll in their cells.
4. **Assertion:** Algae form a green-sheet on the surface of stagnant water.
   Reason: Algae are heterotrophic organisms.
5. **Assertion:** Bacteria are harmful as well as useful to us.
   Reason: Some bacteria are used in leather industry for tanning of hide.

Chapter 3: Synthetic Fibres and Plastic

1. **Assertion:** Rayon is obtained from cellulose but considered as synthetic fibre.
   Reason: Cellulose needs extensive chemical treatment to form rayon.
2. **Assertion:** Polywool is made by mixing polyester and wool.
   Reason: Polyester is resistant to most chemicals.
3. **Assertion:** Melamine is used in making electrical plugs and switches.
   Reason: Melamine is a fire-resistant and heat-tolerant material.
4. **Assertion:** Recycling of plastic is very cheap and easy.
   Reason: Plastic can be moulded to make new products.

5. **Assertion:** Acrylic is used in making woollen garments and blankets.
   Reason: Acrylic is a natural fibre which has a wool-like feel.

Chapter 4: Metals and Nonmetals

1. **Assertion:** Bells are made of metals.
   Reason: Metals make a ringing sound when struck.
2. **Assertion:** Hydrogen is included in the reactivity series of metals.
   Reason: Hydrogen ion has positive charge like metal ions.
3. **Assertion:** Least reactive metal is placed at the bottom of the reactivity series of metals.
   Reason: Gold is the least reactive metal.
4. **Assertion:** Bromine is liquid at room temperature.
   Reason: Bromine absorbs heat from surroundings.
5. **Assertion:** Iodine is used as a disinfectant.
   Reason: Iodine has antiseptic properties.

Chapter 5: Coal and Petroleum

1. **Assertion:** CNG is a cleaner fuel.
   Reason: CNG does not produce smoke or ash on burning.
2. **Assertion:** Use of coal and petrol harms the environment.
   Reason: Coal and petrol produce many pollutants on burning.
3. **Assertion:** The stores of fossil fuels in nature are limited.
   Reason: Solar energy is an alternative source of energy.
4. **Assertion:** Coal is obtained by the distillation process.
   Reason: Coal is formed by the process of carbonisation.
5. **Assertion:** Rainwater containing acids in it is called acid rain.
   Reason: Acids from industrial waste are the main cause of acid rain.

Chapter 6: Combustion and Flame

1. **Assertion:** Water can be used to put out all types of fire.
   Reason: Water is a common fire extinguisher.
2. **Assertion:** CNG and biogas are cleaner fuels.
   Reason: CNG and biogas are gaseous fuels.
3. **Assertion:** Carbon dioxide gas is used as fire extinguisher.
   Reason: Carbon dioxide gas is nonflammable and heavier than oxygen.
4. **Assertion:** Air is necessary for combustion.
   Reason: Air helps in attaining low ignition temperature.
5. **Assertion:** A candle burns with a flame.
   Reason: On burning, wax of candle vaporises, catches fire and forms flame.

Chapter 7: Conservation of Biodiversity

1. **Assertion:** Deforestation results in droughts.
   Reason: Removal of trees causes reduced rain and lowering of water table.

2. **Assertion:** Poaching has resulted in the reduction of many wild animals.
   Reason: An illegal hunting of wild animals is called poaching.
3. **Assertion:** In national parks, only plants and animals of national importance are kept.
   Reason: In national parks, wild animals live in their natural habitats.
4. **Assertion:** Project Tiger was launched to save tigers from poaching.
   Reason: In India, there are 10 tiger reserves.
5. **Assertion:** The Red Data Book records all the information of wildlife.
   Reason: The Red Data Book is maintained by WCU, Swetzerland.

Chapter 8: The Cell

1. **Assertion:** Cell wall provides rigidity to the cells of plants.
   Reason: Cell wall is found in plant cells only.
2. **Assertion:** Chloroplasts are green in colour.
   Reason: Chloroplasts contain a green pigment called chlorophyll.
3. **Assertion:** Most flowers are colourful.
   Reason: Flowers have pigments of different colours.
4. **Assertion:** Cells are studied with the help of a microscope.
   Reason: A microscope keeps the cells moist.
5. **Assertion:** Genes are the structures found in DNA.
   Reason: Genes are passed from parents to their offspring.

Chapter 9: Reproduction in Animals

1. **Assertion:** The embryo of frog develops outside the female body.
   Reason: A frog is an oviparous animal.
2. **Assertion:** A pupa eats vigorously and rests inside the cocoon.
   Reason: A pupa changes into an adult butterfly.
3. **Assertion:** In asexual reproduction, zygote is not formed.
   Reason: *Hydra* reproduces by asexual reproduction.
4. **Assertion:** A zygote is formed by the fusion of a male gamete and a female gamete.
   Reason: A zygote grows rapidly and changes into an adult.
5. **Assertion:** In binary fission, male and female gametes are not required.
   Reason: Binary fission is a mode of asexual reproduction.

Chapter 10: Reaching the Age of Adolescence

1. **Assertion:** Adolescence is the period between childhood and adulthood.
   Reason: Adolescence starts at the age of 11 years and ends up to 19 years of age.
2. **Assertion:** Appearance of Adam's apple marks the start of adolescence.
   Reason: Adam's apple is prominent in males.
3. **Assertion:** Menarche is the start of first menstrual cycle in a girl.
   Reason: Menarche marks the end of reproductive phase in a human female.
4. **Assertion:** An adolescent needs a balanced diet.
   Reason: Iron-rich food is good for adolescents.

5. **Assertion:** Sex of a child is determined at the time of fertilisation.
   Reason: Sex chromosomes X and Y determine the sex of a child.

Chapter 11: Force and Pressure

1. **Assertion:** Barometer is used to measure atmospheric pressure.
   Reason: Sudden fall in atmospheric pressure indicates rain or snowfall.
2. **Assertion:** Pillars of bridges have broad bases.
   Reason: Broad bases of pillars can bear the heavy weight of bridges.
3. **Assertion:** Gravitational force is a natural force of attraction.
   Reason: Earth pulls lighter objects with greater force.
4. **Assertion:** Magnetic force acts only when two objects are in contact.
   Reason: Magnetic force acts between two magnets or between a magnet and an iron object.
5. **Assertion:** Unbalanced forces are unequal and act in opposite directions.
   Reason: An object moves in the direction of bigger force when acted upon by unbalanced forces.

Chapter 12: Friction

1. **Assertion:** Friction stops a ball rolling over a floor.
   Reason: Friction is a force which acts between two surfaces in a direction opposite to motion.
2. **Assertion:** Spring balance is used to measure friction.
   Reason: Friction is a natural force that opposes motion.
3. **Assertion:** Machine oil is used for smooth working of machines.
   Reason: Lubrication reduces the friction.
4. **Assertion:** Liquids exert friction on objects moving through them.
   Reason: Friction by liquids makes objects moving through them lighter.
5. **Assertion:** Drag gives energy to birds to fly.
   Reason: Birds have streamlined shape of body.

Chapter 13: Sound

1. **Assertion:** We hear sound with our ears.
   Reason: Sound is a kind of energy which stimulates our ears.
2. **Assertion:** Vibrating objects produce sound.
   Reason: Vibrations make the air around to vibrate that reaches our ear as sound.
3. **Assertion:** Guitar is a string instrument.
   Reason: Guitar produces sound by rubbing its strings.
4. **Assertion:** We produce sound with the help of vocal cords.
   Reason: Men have longer vocal cords than women.
5. **Assertion:** Decibel is the measure of quality of sound.
   Reason: 1 dB is equal to 1/10 of a bel.

Chapter 14: Chemical Effects of Electric Current

1. **Assertion:** Chrome plating is done to insulate metal against electric current.
   Reason: Chrome plating is done with chromium metal.

2. **Assertion:** Distilled water is a poor conductor of electricity.
   Reason: Adding salt to distilled water makes it good conductor of electricity.
3. **Assertion:** Electrolysis is the chemical effect of electric current.
   Reason: In electrolysis, electrolyte breaks up on passing electric current through it.
4. **Assertion:** We may get an electric shock on touching an electric switch with wet hands.
   Reason: Water on wet hands conducts electricity.
5. **Assertion:** An LED has longer life than bulbs and CFLs.
   Reason: Smaller electrical devices have longer life.

Chapter 15: Some Natural Phenomena

1. **Assertion:** Electrical appliances are generally earthed.
   Reason: Earthing prevents the user from getting electric shocks.
2. **Assertion:** Electric current is a flow of electrons.
   Reason: Electrons make an object charged.
3. **Assertion:** Oppositely charged clouds produce lightning.
   Reason: The heat of lightning causes thunder.
4. **Assertion:** An earthquake originates at the epicentre.
   Reason: Earthquakes occur where tectonic plates meet with each other.
5. **Assertion:** A seismograph records the intensity of an earthquake.
   Reason: A seismograph absorbs heat generated during an earthquake.

Chapter 16: Light

1. **Assertion:** We see objects in the presence of light.
   Reason: Light is a form of energy that stimulates our eyes.
2. **Assertion:** The angle of incidence is equal to angle of reflection.
   Reason: Incident ray, reflected ray and the normal always lie in the same plane.
3. **Assertion:** The sunlight is made up of yellow colour.
   Reason: A glass prism splits the sunlight into seven colours.
4. **Assertion:** Optic nerve takes the message of image formation to the brain.
   Reason: Optic nerve picks the visual signals from retina and sends them to the brain.
5. **Assertion:** Braille fonts are made a little raised from the surface of the paper.
   Reason: A Braille character is made up of seven dot positions.

Chapter 17: Stars and the Solar System

1. **Assertion:** The sun is the largest star in the universe.
   Reason: The light from the sun reaches the earth in 8 minutes 20 seconds.
2. **Assertion:** The Pole Star does not appear to move.
   Reason: Pole Star is situated just above the north end of the axis of the earth.
3. **Assertion:** The man-made satellites revolve around the earth.
   Reason: The first Indian satellite was Bhaskar.
4. **Assertion:** The sun appears to rise in the east and sets in the west.
   Reason: The earth rotates on its axis from west to east.

5. **Assertion:** We always see the same side of the moon.
Reason: We see the near side of the moon.

Chapter 18: Pollution of Air and Water

1. **Assertion:** Carbon dioxide present in excess acts as a pollutant.
Reason: Carbon dioxide forms a protective layer in the stratosphere of atmosphere.
2. **Assertion:** Carbon monoxide blocks the oxygen-binding capacity of haemoglobin.
Reason: Carbon monoxide is produced due to incomplete burning of fuel.
3. **Assertion:** Global warming is a serious environmental problem.
Reason: An increase in overall temperature of the earth's atmosphere is termed as global warming.
4. **Assertion:** Boiled water is safe to drink.
Reason: Boiling kills the germs present in water.
5. **Assertion:** Ozone cleans the air in atmosphere.
Reason: Ozone shields the earth from harmful UV rays of the sun.

ANSWERS

Chapter 1
1. (a) 2. (d) 3. (b) 4. (d) 5. (b)

Chapter 2
1. (b) 2. (d) 3. (a) 4. (c) 5. (b)

Chapter 3
1. (a) 2. (b) 3. (d) 4. (d) 5. (c)

Chapter 4
1. (a) 2. (a) 3. (b) 4. (c) 5. (d)

Chapter 5
1. (a) 2. (a) 3. (b) 4. (d) 5. (c)

Chapter 6
1. (d) 2. (b) 3. (a) 4. (c) 5. (a)

Chapter 7
1. (a) 2. (b) 3. (d) 4. (c) 5. (b)

Chapter 8
1. (b) 2. (a) 3. (a) 4. (c) 5. (d)

Chapter 9
1. (a) 2. (d) 3. (b) 4. (c) 5. (a)

Chapter 10
1. (a) 2. (d) 3. (c) 4. (b) 5. (a)

Chapter 11
1. (b) 2. (a) 3. (c) 4. (d) 5. (b)

Chapter 12
1. (a) 2. (b) 3. (a) 4. (c) 5. (d)

Chapter 13
1. (a) 2. (a) 3. (c) 4. (b) 5. (d)

Chapter 14
1. (d) 2. (b) 3. (a) 4. (a) 5. (c)

Chapter 15
1. (a) 2. (b) 3. (b) 4. (d) 5. (c)

Chapter 16
1. (a) 2. (b) 3. (d) 4. (a) 5. (c)

Chapter 17
1. (d) 2. (a) 3. (c) 4. (a) 5. (b)

Chapter 18
1. (c) 2. (b) 3. (a) 4. (a) 5. (d)