Teacher Manual Informative Science

1 to 5

Informative Science 1

Unit 1. Plant Kingdom

1. Kinds of Plants

A. **1.** Herbs are very small plants with soft stems. **2.** (i) rose plant (ii) cotton plant **3.** Creepers grow and spread along the ground. **4.** the root, flower, leaf, fruit and the stem. **B. 1.** Earth **2.** trees **3.** woody **4.** vegetables **C. 1.** mango **2.** rose **3.** spinach **4.** grapevine **D. 1.** root, stem. **2.** trees, shrubs. **3.** cactus, keekar. **4.** leaves, flowers. **E. 1.** (ii) **2.** (ii) **3.** (ii) **4.** (i) **F**. Trees – Palm; Herbs – tulsi, cauliflower; Shrubs –cactus, rose; climbers – grapevine; creepers – water melon.

2. Growing of Plants

A. 1. A plant comes from a seed. **2.** flowers **3.** air, water and sunlight. **4.** papaya and guava. **B. 1.** smell **2.** from seed. **3.** many seeds **4.** many seeds. **C. 1.** rose, lotus **2.** apple, papaya **3.** guava, papaya **4.** brinjal, tomato. **D. 1.** false **2.** false **3.** true **4.** true **5.** true.

3. Food from Plants

A. 1. fruit, vegetable, cereals and pulses **2.** carrot, tomato and radish **3.** rice and maize **4.** clove and cardamom. **B. 1.** plants **2.** like **3.** maize **4.** cereals **C. 1.** almond, cashew nut **2.** arhar, moong **3.** wheat, maize **4.** cabbage, carrot. **D. 1.** Vegetables– potato, tomato, brinjal; Fruits– apple, grapes, orange, mango, guava; Oils– coconut oil, mustard oil; Dry fruits– walnut, almond, cashewnut; Food grains– maize, wheat, rice; Pulses– arhar, gram, urad, moong.

Assignment Test -1

1. (a) **2.** (b) **3.** (b) **4.** (a) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) wheat, maize, rice (b) arhar, moong, rajma (c) clove, cardamom, black pepper.

Unit 2. Animal Kingdom

4. Kinds of Animals

A. 1. dog and cat **2.** Aquatic animals can live only in water but amphibians can live on land as well as in water. **3.** horse and donkey **4.** They fly with the help of their wings. **B. 1.** cow **2.** fish **3.** cockroach **4.** snake **C. 1.** do not have eyelids. **2.** have six

legs. **3.** is a domestic animal. **4.** is a kind of fish. **D.** 1. tiger, giraffe 2. cow, sheep 3. frog, crocodile 4. snake, lizard 5. crow, parrot. **E. 1.** (ii) **2.** (iii) **3.** (iii) **4.** (ii) **F.** wild animals– wolf, lion; Domestic animals– cow, horse; Pet animals – dog, cat.

5. Animals' Food and Shelter

A. 1. flesh of animals **2.** from flowers **3.** goat and horse **4.** grains **B. 1.** grass **2.** grains **3.** herbivores **4.** carnivores **C. 1.** grass **2.** dead rat **3.** nectar **4.** frog **D. 1.** cow, horse **2.** tiger, lion **3.** bear, dog **4.** hen, pigeon **E. 1.** (i) **2.** (i) **3.** (ii) **4.** (iii) **F.** Plant eaters – he goat, horse; Flesh eaters – leopard, lion; omnivores – bear, dog.

6. Animals and their Babies

A. 1. joey, foal and kitten **2.** birds and snakes **3.** cow and goat **4.** young one of dog. **B. 1.** puppy **2.** cow **3.** eggs **4.** babies **C. 1.** cow, cat **2.** snake, lizard **3.** cow, elephant **4.** mare, cow **D.** Animals that lay eggs – snake, hen, chameleon; animals that produce babies – dog, cow, horse.

Assignment Test -2

1. (b) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) cow, horse, sheep (b) cockroach, ant, mosquito (c) parrot, peacock, crow.

Unit 3. Air, Water and Weather

7. Air

A. 1. (i) Air occupies space. (ii) Air has weight. **2.** Fishes use the air mixed in water to breathe. **3.** Fast moving air is called wind. **4.** We can feel air by blowing balloon or playing flute. **B. 1.** weight **2.** occupies **3.** air **4.** wind **C. 1.** boat **2.** weight **3.** it moves around us. **4.** wind **D. 1.** true **2.** false **3.** false **4.** true **5.** true **E. 1.** (iii) **2.** (i) **3.** (ii)

8. Water

A. 1. for drink, bathe, cook, wash, etc **2.** No **3.** rain **4.** (i) for ice (ii) for drink (iii) for bathe (iv) for cooking food (v) for wash. **B. 1.** water **2.** thirsty **3.** boil **4.** water **C. 1.** grow **2.** rain **3.** cooking **4.** water **D. 1.** false **2.** true **3.** false **4.** true **E. 1.** (i) **2.** (i) **3.** (iii) **4.** (ii)

9. Weather and Seasons

A. 1. Black clouds hide the sun. **2.** New leaves grow. **3.** umbrella and raincoat. **4.** woollen clothes. **B. 1.** keeps changing **2.** are rainy days **3.** cotton clothes **4.** woollen clothes. **C. 1.** (i) **2.** (i) **3.** (i) **4.** (ii) **D. 1.** Summer season – cooler, cotton clothes; Winter season – fire, woollen clothes; Rainy season – gumboots, rain coat.

Assignment Test -3

1. (b) **2.** (a) **3.** (b) **4.** (b) **5.** (a) **6.** (a) **7.** (b) **8.** (a) **9.** (a) in breathing, in burning, in sailing boat. (b) in drinking, in bathing, in cooking (c) winter, summer, rainy.

Unit 4. Our Universe

10. The Sun, Moon and Stars

A. 1. The Sun is a big ball of fire. It makes life on our planet possible. **2.** Moon and stars **3.** They are very- very far away from us. **4.** In the west. **5.** Yes. **B. 1.** east **2.**

everyday **3.** night **4.** afternoon **5.** night **C. 1.** heat. **2.** full moon. **3.** are very-very far away. **4.** shines at night. **5.** rises in the east. **D. 1.** false **2.** true **3.** false **4.** false **5.** true **E. 1.** (ii) **2.** (iii) **3.** (iii) **4.** (ii) **5.** (iii)

Assignment Test-4

1. (b) **2.** (a) **3.** (b) **4.** (b) **5.** (b) **6.** (a) **7.** (a) **8.** (b) **9.** (a)

Unit 5. Our Body and Health

11. Our Body

A. 1. eyes, nose, ears, tongue and skin **2.** by tasting **3.** putting food in the mouth using hands, etc **4.** skin. **B. 1.** see **2.** smell **3.** hear **4.** taste **5.** touch **C. 1.** true **2.** true **3.** false **4.** false **D. 1.** to clean teeth **2.** to bath **3.** to comb **4.** to cut nails. **E. 1.** (ii) **2.** (iii)

12. Our Basic Needs

A. 1. Because the house protects us from heat, cold, rain and storm. **2.** fresh air **3.** to cover our bodies **4.** food. **B. 1.** fresh **2.** cold **3.** grow **4.** close **C. 1.** is unhealthy and will make us unwell. **2.** should be drunk. **3.** protects us from heat, cold and rain. **4.** keep us warm. **D. 1.** true **2.** false **3.** true **4.** false **E. 1.** (i) **2.** (i) **3.** (i)

13. Good Habits

A. 1. To stay healthy and strong. **2.** (i)Put bag at a proper place. (ii) Do not throw shoes here and there. (iii) Put books on the shelf. (iv) Do not leave the clothes on bed or floor. (v) Keep toys in the toy box. **3.** (i) Do not jump on desks. (ii) Keep classroom clean. **4.** (i)I put the books on shelf. (ii) I do not tear books. (iii) I always obey my teachers (iv) I do not jump on desk. (v) I sit quietly in class. **B. 1.** bath **2.** hanky **3.** toy box **4.** quietly **C. 1.** bath everyday. **2.** our books on the shelf. **3.** obey our teachers. **4.** quietly in the class. **D. 1.** Bad **2.** Bad **3.** Bad **4.** Good. **E. 1.** (ii) **2.** (ii) **3.** (ii) **4.** (ii) **F.** tooth brush, comb, hanky, towel, soap.

14. Cleanliness and Good Health

A. 1. Healthy food and proper rest. **2.** At least eight hours. **3.** Keep hair clean and comb it. **4.** It is good for health. **B. 1.** rest **2.** Exercise **3.** Running **4.** teeth **C. 1.** trimmed regularly. **2.** to stay active. **3.** we can fall sick. **4.** our teeth twice a day. **D. 1.** false **2.** true **3.** true **4.** false **5.** true. **E. 1.** (i) **2.** (ii) **3.** (ii) **4.** (ii)

Assignment Test -5

1. (a) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) ears, nose, eyes (b) air, water, food (c) swimming, running, playing

Unit-6. Safety Rules and First-aid

15. Safety Rules

A. 1. Traffic lights have three colours–Red is to 'stop'; Yellow is to 'wait' and Green is to 'go'. **2.** (i) Do not climb and jump on desks and chairs. (ii) Do not peep out of the bus. **3.** We can get hurt /accident. **4.** (i) Do not try to play with fire. (ii) Do not play with sharp things. **B. 1.** tricks **2.** zebra crossing **3.** wet **4.** playground **C. 1.** to stop **2.** to go **3.** to wait **4.** pavement **D. 1.** yes **2.** no **3.** no **4.** yes **5.** yes

Assignment Test -6

1. (b) **2.** (a) **3.** (a) **4.** (b) **5.** (a) **6.** (a) **7.** (b) **8.** (a) **9.** (a) football, cricket, carrom (b) knife, blade, scissors.

Unit-7 Our Homes

16. Our Homes and Helpers

A. 1. (i) watch TV (ii) eat meals (iii) cook food (iv) sleep **2.** The house protects us from heat, cold, rain, animals etc. **3.** an architect **4.** tub, bucket, soap, shampoo **B. 1.** cook food **2.** sleep **3.** sheep **4.** jackets **C. 1.** sleep **2.** food **3.** bath **4.** carpenter **5.** plumber **D. 1.** (ii) **2.** (i) **3.** (ii)

Assignment Test -7

1. (a) **2.** (b) **3.** (a) **4.** (b) **5.** (a) **6.** (b) **7.** (a) **8.** (b) **9.** (a).

Informative Science 2

Unit 1. Plant Kingdom

1. Importance of Plants

A. 1. many things, like wood, shadow, food, shelter, fibres, fruits, flowers, medicines, rubber. etc, **2.** rose, jasmine **3.** tulsi, neem, **4.** wheat, maize. **B. 1.** cotton **2.** spinach, cabbage **3.** rice, wheat **4.** potato **C. 1.** tulsi, neem **2.** cotton plant, jute plant **3.** turnip, carrot **4.** potato, ginger. **D. 1.** false **2.** false **3.** true **4.** false **5.** true

E. 1. (ii) **2.** (ii) **3.** (iii) **4.** (ii) **F. 1.** carrot **2.** ginger, grapevine **3.** rose **4.** wheat **5.** tea **6.** apple

2. Kinds of Plants

A. 1. herbs, shrubs, trees and climbers. **2.** Climber needs support to grow and climb up. **3.** Roots of a plant grow under the ground in the soil **4.** guava, orange and papaya **B. 1.** trees **2.** trunk **3.** climbers **4.** shrubs **5.** herbs **C. 1.** tulsi, spinach **2.** banyan tree, mango tree **3.** rose plant, jasmine plant **4.** money plant, pea plant. **D. 1.** true **2.** false **3.** false **4.** true **5.** true **E. 1.** (iii) **2.** (i) **3.** (ii) **4.** (ii) **F.** Trees–date tree, neem tree; Herbs – tulsi; Shrubs – cotton plant, rose plant; Climbers – grapevine.

Assignment Test-1

1. (a) **2.** (a) **3.** (b) **4.** (b) **5.** (a) **6.** (b) **7.** (a) **8.** (b) **9.** (a) neem, tulsi, cinchona (b) mustard plant, coconut plant

Unit 2. Animal Kingdom

3. Domestic and Wild Animals

A. 1. cow, buffalo **2.** Pets in our homes are called domestic animals **3.** meat eaters **4.** Animals, that eat flesh of dead animals. **5.** Animals that live in jungle. **B. 1.** silkworm **2.** duck, hen **3.** carnivores **4.** scavenger **5.** domestic **C. 1.** rabbit, monkey **2.** jackal, vulture **3.** dog, donkey **4.** fox, tiger **5.** lion, tiger. **D. 1.** false **2.** true **3.** true **4.** true **5.** false. **E. 1.** (ii) **2.** (ii) **3.** (i) **4.** (i) **5.** (i) **F.** Herbivores – horse, rabbit, ape; Pet animals – dog carnivores – tiger, lion.

4. Animals' Behaviour

A. 1. Animals create sounds to scare their enemies. **2.** one baby **3.** Animals look after their babies with love and care. **4.** cow – calf, horse – colt, goat – kid, lion – cub, duck – duckling. **B. 1.** sounds **2.** feed **3.** chatter **4.** duckling **5.** milk **C. 1.** horse, cow

2. rat, rabbit **3.** calf, puppy **4.** bear, lion. **D. 1.** true **2.** false **3.** true **4.** true **5.** true. **E. 1.** (iii) **2.** (ii) **3.** (ii) **4.** (i) **F.** Animals reproduce one baby – cow, mare; animals reproduce many babies – bitch, rat.

Assignment Test-2

1. (a) **2.** (b) **3.** (a) **4.** (b) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) rabbit, monkey, giraffe. (b) lion, tiger, snake.

Unit 3. Air, Wind and Water

5. The Air We Breathe in

A. 1. Water vapour converts into water. **2.** dust and smoke **3.** to get fresh air **4.** factories and vehicles. **B. 1.** summer **2.** dry up **3.** Impure **4.** lungs **C. 1.** Air has water vapours. Air has smoke. **2.** Fruits and vegetables become dry due to evaporation. **3.** oxygen, nitrogen. **4.** smoke, germs. **D. 1.** (i) **2.** (ii) **3.** (ii) **4.** (i)

6. Moving Air - Wind

A. 1. moving air. **2.** (i) moving sailboat (ii) windmill (iii) for grinding grains. **3.** very fast wind. **4.** Storms damage houses, crops, trees and animals. **B. 1.** wind **2.** storms **3.** weathercock **4.** direction **C. 1.** direction, speed **2.** houses, crops **3.** wind mill, sailing boat 4. storm, breeze. **D. 1.** storm **2.** electricity **3.** direction of wind **4.** cause damage. **E. 1.** (ii) **2.** (i) **3.** (i) **4.** (i) **F.** sailboat, wind mill, weathercock

7. Sources of Water

A. 1. Clean water. **2.** Water changes into vapours. **3.** Water becomes ice. **4.** Circulation of water in nature as water vapour, clouds, rain and ground water. **B. 1.** clean **2.** Boiling **3.** Rain water **4.** evaporate **C. 1.** liquid **2.** clouds **3.** the soil **4.** gas **D. 1.** drinking, bathing **2.** pond, river **3.** boiled water, filtered water **4.** solid, liquid **5.** clouds, rain. **E. 1.** (ii) **2.** (iii) **3.** (ii) **F.** Do yourself

Assignment Test -3

1. (b) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) steam, ice, water (b) river, hand pump, snow

Unit 4. Our Universe

8. The Sun and Shadow

A. 1. light and heat **2.** long shadow–morning and evening, short shadow–at noon **3.** shadow forms **4.** in winter. **B. 1.** light **2.** light source **3.** opposite **4.** west **C. 1.** round **2.** large shadow **3.** west **4.** in opposite direction of light falling. **D. 1.** false **2.** true **3.** true **4.** false **5.** false. **E. 1.** heat, light **2.** winter, summer **3.** morning, evening **4.** North, South **F. 1.** (iii) **2.** (i) **3.** (ii) **4.** (ii)

9. The Moon and Stars

A. 1. No, there is no water. **2.** on a clear night. **3.** The Sun. **4.** Neil Armstrong. **B. 1.** night **2.** moon **3.** sand **4.** Neil Armstrong **C. 1.** cool **2.** twinkle **3.** by rocket **4.** on moon **D. 1.** air, water **2.** rocks, sand **3.** moon, stars **4.** full moon, new moon. **E. 1.** (iii) **2.** (iii) **3.** (ii) **4.** (ii)

10. Our Earth

A. 1. Sun **2.** It is far away. **3.** spin movement of the Earth **4.** in water **B. 1.** orange **2.**

bigger **3.** spins **4.** day **C. 1.** satellite **2.** spins around the Sun **3.** day and night **4.** 70 percent **5.** planet. **D. 3.** (✓) **4.** (✓) **E. 1.** (i) **2.** (iii) **3.** (ii)

11. Rocks and Minerals

A. 1. hard white rock **2.** diamond **3.** granite, diamond **4.** talc, graphite. **B. 1.** marble **2.** colours **3.** earth **4.** sand stone **C. 1.** graphite **2.** running engine **3.** China clay **4.** marble **D. 1.** false **2.** true **3.** false **4.** true **E. 1.** (ii) **2.** (i) **3.** (i) **4.** (i)

Assignment Test -4

1. (a) **2.** (b) **3.** (a) **4.** (b) **5.** (a) **6.** (b) **7.** (b) **8.** (b) **9.** (a)

Unit 5. Our Body, Food and Health

12. Our Bones and Muscles

A. 1. bones and muscles **2.** by doing exercise **3.** bones-206, muscles more than 600 **4.** to make our body move. **B. 1.** harder **2.** move **3.** shape **4.** skin **C. 1.** skin **2.** more than 600 **3.** 206 **4.** movement **D. 1.** false **2.** false **3.** true **4.** false **E. 1.** (iii) **2.** (iii) **3.** (ii) **4.** (ii)

13. Correct Postures

A. 1. It is the position of body when we stand, sit or move. **2.** Walk with your back straight, head high, swing arms freely. **3.** by regular exercise **4.** by correct posture.

B. 1. head **2.** postures **3.** straight **4.** exercise **C. 1.** running, walking **2.** good postures, bad postures **3.** exercise, good posture **4.** in good shape, healthy **D. 1.** (ii) **2.** (i) **3.** (i) **4.** (i)

14. Food and Health

A. 1. To get energy. **2.** Butter, rice, bread. **3.** Dirty food carries germs. **4.** Because they keep away diseases. **B. 1.** balanced **2.** energy **3.** stale **4.** unwashed **C. 1.** Bad **2.** Bad **3.** Good **4.** Bad **5.** Bad **D. 1.** (i) **2.** (i) **3.** (i) **4.** (i) **E.** Plants product – almond, apple, banana, mango, biscuit, papaya, rice. Animal product – fish, chicken, egg, ice cream.

Assignment Test -5

1. (b) **2.** (b) **3.** (b) **4.** (a) **5.** (b) **6.** (b) **7.** (a) **8.** (b) **9.** (a) running, playing, walking (b) mango, apple, banana

Unit-6 Safety and First-aid

15. Safety Rules

A. 1. on the footpath **2.** Play with safe toys, keep the things at their places. **3.** It can cause accidents. **4.** at the zebra crossing. **B. 1.** footpath **2.** play **3.** help **4.** zebra crossing **5.** swimming **C. 1.** bad **2.** good **3.** good **4.** good **5.** bad **D. 1.** (ii) **2.** (iii) **3.** (i) **4.** (i)

16. First-aid

A. 1. immediate help to a hurt person **2.** Scissors, spoon, cotton, plaster, bandage, anti-septic lotion, burnol etc. **3.** to save injured person **4.** doctor **B. 1.** help **2.** doctor **3.** wound **4.** bandage **C. 1.** bad **2.** good **3.** bad **4.** good **5.** good **D. 1.** (i) **2.** (i) **3.** (ii) **4.** (i)

Assignment Test -6

1. (b) **2.** (a) **3.** (a) **4.** (b) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) bandage, dettol, scissors (b) carrom, football, cricket.

Unit-7 Our Homes

17. Types of Houses

A. 1. To live safe and comfort in all seasons. **2.** mud, twigs, bamboo and hay **3.** house of snow **4.** Good house has a lot of sunlight and fresh air. **B. 1.** buildings **2.** tent **3.** gypsies **4.** fresh air **C. 1.** false **2.** false **3.** true **4.** true **5.** false **D. 1.** (ii) **2.** (ii) **3.** (ii) **4.** (ii)

Assignment Test -7

1. (b) **2.** (b) **3.** (a) **4.** (b) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) mud, twigs, bamboos (b) huts, igloo, tent (c) sunlight, fresh air, cleanness.

Informative Science 3

Unit 1. Living and Non-living Things

1. The World Around Us

A. 1. Food gives us energy. **2.** through stomata. **3.** being non-living thing. **4.** They sleep for a long time. **5.** mostly from seeds. **B. 1.** grow **2.** breathe **3.** eggs, babies **4.** Living things **5.** stomata **C. 1.** move **2.** fly **3.** swims **4.** in sunlight **5.** to produce young ones **D. 1.** chair, table **2.** animals, plants **3.** air, water **4.** computer, fan **5.** growth, reproduction **E. 1.** (iii) **2.** (iii)

2. Animal Life

A. 1. To live, grow and become healthy. **2.** to tear flesh **3.** They swallow their prey. **4.** chewing of swallowed food. **B. 1.** flesh **2.** mosquito **3.** kind **4.** swallow **5.** bear **C. 1.** lion **2.** soil **3.** rabbit **4.** butterfly **5.** web **D. 1.** cow, buffalo **2.** jackal, hyena **3.** lion, wolf **4.** horse, camel **5.** bear, cat **E. 1.** (iii) **2.** (iii)

3. Plants Life

A. 1. Root grows under ground and shoot, above the ground. **2.** Stem helps the plant to stand upright, carrying of water and minerals etc. **3.** Leaves make food for plant. **4.** Fruits protect the seeds. **B. 1.** anchor **2.** water, nutrients **3.** grow **4.** straight **C. 1.** make food. **2.** produces seeds **3.** grows into a new plant. **4.** takes in water from soil. **D. 1.** mustard plant, cotton plant **2.** wheat plant, grass **3.** carrot, radish **4.** lotus flower, rose flower **E. 1.** (ii) **2.** (iii) **3.** (ii)

4. Birds

A. 1. It enables birds to fly. **2.** Ostrich, kiwi, penguin. **3.** Space between the toes is filled with skin. **4.** small broad beak. **5.** contour feathers, down feathers and body feathers.**B. 1.** hen **2.** kiwi **3.** strong, hooked **4.** sharp, nuts **5.** swallowers **C. 1.** short and broad beak **2.** sharp, strong and hooked beak **3.** long and pointed beak **4.** thin, sharp and strong beak **5.** flat and broad beak **D. 1.** parrot, pigeon **2.** eagle, hawk **3.** duck, goose **4.** penguin, ostrich **E. 1.** (i) **2.** (i) **3.** (i) **4.** (i) **5.** (ii)

Assignment Test -1

1. (a) **2.** (b) **3.** (a) **4.** (b) **5.** (a) **6.** (b) **7.** (a) **8.** (b) **9.** (a) carrot, radish, turnip (b) horse, cow, camel (c) computer, car, aeroplane

Unit 2. Soil, Matter and Weather

5. Soil

A. 1. Soil is formed by the breakdown of rocks. **2.** Humus, clay, gravel. **3.** Loamy soil. **4.** Size of sand particles. **5.** Humus contain dead remains of plants and animals. **B. 1.** soil **2.** fertile **3.** toys and pots **4.** clay **5.** loamy **C. 1.** rocky soil **2.** sea shore **3.** fine grains **4.** humus **5.** light soil **D. 1.** gravel soil **2.** clayey soil **3.** sandy soil **4.** loamy soil **5.** gravel soil. **E. 1.** (ii) **2.** (i) **3.** (ii) **4.** (i) **5.** (ii)

6. States of Matter

A. 1. Air occupies space and has no shape or size **2.** solid, liquid and gas **3.** water **4.** Change of water into water vapour. **5.** An apparatus to measure rain. **B. 1.** occupy **2.** state, another **3.** shape **4.** liquid **5.** evaporation **C. 1.** solid state of matter **2.** lighter than water **3.** rain gauge **4.** evaporation **5.** condensation. **D. 1.** true **2.** false **3.** true **4.** false **5.** true **E. 1.** (ii) **2.** (ii) **3.** (ii)

7. Weather and its Effects

A. 1. General condition of atmosphere at particular time and place. **2.** Sun is directly overhead at noon. **3.** To be warm. **4.** Soft blowing wind is breeze and fast blowing wind is storm. **5.** Clouds do not let the heat of the Earth go out into atmosphere. **B. 1.** changes **2.** heat **3.** four **4.** hotter **5.** puts **C. 1.** cotton clothes **2.** umbrella **3.** uprooted trees **4.** woollen clothes. **D. 1.** false **2.** false **3.** false **4.** false **5.** false **E. 1.** (ii) **2.** (i) **3.** (i) **4.** (iii) **5.** (ii)

8. Our Environment

A. 1. By keeping surroundings clean. **2.** contamination of environment **3.** Because they will soon exhaust. **4.** It has bad effect on health. **5.** typhoid , jaundice, cholera. **B. 1.** clean **2.** garbage **3.** drinking **4.** more **5.** drainage **C. 1.** that is around us. **2.** fresh air and pure water. **3.** our surroundings clean . **4.** in stagnant water. **5.** are important for us. **6.** a pollution check. **D. 1.** false **2.** true **3.** false **4.** false **5.** true **E. 1.** (i) **2.** (i) **3.** (i) **4.** (i) **5.** (i)

Assignment Test -2

1. (a) **2.** (b) **3.** (a) **4.** (b) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) gravel soil, sandy soil, loamy soil (b) solid, liquid, gas (c) air pollution, water pollution, sound pollution

Unit 3. Our Universe

9. Solar System

A. 1. crescent, gibbous, new moon, full moon. **2.** Star light comes through different layers of air. **3.** The revolution of the Earth. **4.** movement of the Earth around the Sun **5.** Group of stars in a fixed pattern. **6.** People who study about stars. Aryabhatta, Bhaskara. **B. 1.** planet **2.** night **3.** eight **4.** Sun **5.** small **6.** Pythagoras **7.** axis **8.** 24 **C. 1.** stars in the sky. **2.** third planet from the Sun.

3. is a star. **4.** no light of its own. **D. 1.** Earth **2.** moon **3.** constellation **4.** 3,84,400 km **E. 1.** (iii) **2.** (i) **3.** (i) **4.** (ii)

10. Space and The Moon

A. 1. Power of attraction of the Earth. **2.** Yuri Gagarin **3.** Neil Armstrong **4.** large shaped cavities on the moon. **B. 1.** space **2.** strong **3.** countries **4.** air **5.** Earth **C. 1.** true **2.** false **3.** true **4.** true **D. 1.** Earth, Mars **2.** stars, planets, moon **3.** Apollo-II, INSAT-2B **4.** Ursa major, Scorpios **E. 1.** (iii) **2.** (ii) **3.** (iii)

Assignment Test -3

1. (a) **2.** (a) **3.** (a) **4.** (b) **5.** (a) **6.** (b) **7.** (a) **8.** (a) **9.** (a) Mars, Earth, Jupiter (b) Sun, Stars, Planets (c) Ursa major, Scorpios, Leo

Unit 4. The Human Body

11. Human Body

A. 1. Group of cells having similar shape. **2.** It gives shape, strength and support to the body. **3.** to move body. **4.** 8 main organ systems. **5.** Eyes-to see, ears-to hear, nose-to smell, tongue-to taste, skin-to touch. **B. 1.** digestive system **2.** respiratory system **3.** muscular system **4.** circulatory system **5.** nervous system **C. 1.** organ **2.** oxygen **3.** skeleton **4.** heart **5.** nervous system **D. 1.** respiratory system **2.** nervous system **3.** muscular system **4.** skeletal system **E. 1.** (i) **2.** (ii) **3.** (iii) **4.** (i) **5.** (iii)

Assignment Test -4

1. (b) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (b) **7.** (b) **8.** (a) **9.** (a) eyes, ears, nose, tongue, skin (b) artery, vein, capillary

Unit 5. Safety and First-aid

12. Safety Habits

A. 1. Accidents occur due to not following safety rules. **2.** give him first aid. **3.** first help to injured person. **4.** Clean the wound with antiseptic and tie bandage. **B. 1.** on footpath. **2.** balcony railing. **3.** and down the stairs. **4.** from desks. **C. 1.** zebra **2.** lit **3.** swings **4.** desks **D. 1.** bad **2.** good **3.** bad **4.** good **5.** good. **E. 1.** (iii) **2.** (i) **3.** (iii) **4.** (iii)

Unit 6. Our Homes

13. Our Homes

A. 1. for good health **2.** to carry dirty water away from the house. **3.** bricks, iron and steel, wood, glass, cement, marble, etc. **4.** wool, silk, cotton, jute. **B. 1.** germs free **2.** cleaned **3.** wire netting **4.** sunlight **C. 1.** kills germs. **2.** covered. **3.** swept and mopped everyday. **4.**fibres from plant. **D. 1.** false **2.** false **3.** true **4.** false. **E. 1.** (iii) **2.** (ii) **3.** (i)

Unit 7. Measurements

14. Measurements

A. 1. weighing machine **2.** quantity of liquid, litres and millilitres **3.** seconds, minutes and hours **4.** Do yourself. **B. 1.** many things in our daily life. **2.** different types of scales. **3.** temperature in degrees. **4.** is measured by volume. **5.** weight in

gram and kilogram. **C. 1.** scale **2.** litre **3.** gram and kilogram **4.** time. **D. 1.** false **2.** true **3.** false **4.** false **E. 1.** (i) **2.** (i) **3.** (iii) **4.** (ii)

Informative Science 4

Unit 1. Plant Kingdom

1. Functions of Parts of a Plant

A. 1. water, carbon dioxide and sunlight. **2.** Animals breathe out carbon dioxide for plants to make food. **3.** process of making food by green plants. **4.** to get energy through respiration **5.** to maintain balance in nature. **B. 1.** roots **2.** light putting together **3.** chlorophyll **4.** food **5.** photosynthesis **6.** croton **7.** leaves **8.** kitchen **C. 1.** green substance in a leaf **2.** removing green colour **3.** pipeline of cells in a leaf **4.** grow on decayed food **5.** opening on the undersides of a leaf **6.** starch formation in plants. **D. 1.** Photosynthesis **2.** stomata **3.** pollination **4.** Sun **5.** Vanamahotsava. **E. 1.** (iii) **2.** (ii) **3.** (ii) **4.** (ii) **5.** (ii)

2. Habitats of Plants

A. 1. temperature, type of soil, amount of rainfall **2.** yes **3.** provide food items for human and animals **4.** Trees that shed all their leaves once in a year. Teak, neem **5.** Thorny leaves prevent water evaporation, thick stem store water and perform photosynthesis. **6.** by aerial roots **7.** Long hollow stem, broad leaves and stomata on upper side only. **B. 1.** plants **2.** aquatic **3.** step **4.** insectivorous **5.** rhizopora **C. 1.** Climate and water suit them. **2.** to prevent evaporation of water. **3.** to catch insects. **4.** so that the snow slides off easily. **5.** to provide oxygen. **D. 1.** tall, thin and cone-shaped **2.** mangroves **3.** desert plant **4.** fixed aquatic plant **5.** insectivorous plant **E. 1.** (i) **2.** (iii) **3.** (ii) **4.** (i) **5.** (ii)

Assignment Test-1

1. (b) **2.** (a) **3.** (a) **4.** (b) **5.** (a) **6.** (a) **7.** (b) **8.** (a) **9.** (a) water hyacinth, lotus, duckweed (b) neem, gulmohar, banyan (c) fir, pine, spruce.

Unit 2. Animal Kingdom

3. Reproduction in Animals

A. 1. race will die out **2.** to give warmth to eggs **3.** young one of insect, by the process of moulting **4.** egg, larva, pupa, adult **5.** by feeding with their milk and teaching them. **B. 1.** tadpole **2.** embryo **3.** caterpillar **4.** nymph **5.** reproduction **C. 1.** reptile **2.** frog **3.** mammal **4.** cockroach **5.** butterfly **D. 1.** elephant, dog **2.** snake, lizard **3.** mosquito, cockroach **4.** snake, tortoise **5.** sexual, asexual **E. 1.** (ii) **2.** (i) **3.** (i) **4.** (ii)

4. Habitats of Animals

A. 1. Vertebrate, we have backbone. **2.** To change itself to suit surroundings. **3.** Well developed tearing teeth. **4.** Breathe by lungs. **5.** By crawling. **6.** They have claws and broad hip girdles. **B. 1.** Dinosaurs **2.** Archaeopteryx **3.** scorpions, spiders **4.** camel **5.** abdomen **6.** gills **7.** insects **C. 1.** tapeworm, mosquito **2.** frog,

salamander **3.** earth worm, spider **4.** crocodile, man **5.** lion, tiger **D. 1.** (ii) **2.** (ii) **3.** (i) **4.** (i)

Assignment Test-2

1. (a) **2.** (b) **3.** (a) **4.** (b) **5.** (a) **6.** (b) **7.** (a) **8.** (b) **9.** (a) lizard, snake crocodile (b) man, horse, cat (c) duck, pigeon, frog

Unit 3. Our Body and Health

5. Food and Nutrition

A. 1. proteins, carbohydrates, fats, vitamins, minerals, etc. **2.** It is energy giving and body building. **3.** They fight with diseases. **4.** absorption of food **5.** changing food into simple form. **B. 1.** carbohydrates **2.** fats **3.** structure **4.** nutrient **5.** grow **6.** nutrients **7.** temperature **C. 1.** proteins **2.** carbohydrates **3.** saliva **4.** small intestine **5.** digestion **6.** vitamins **D. 1.** (i) **2.** (ii) **3.** (i) **4.** (ii) **5.** (ii)

6. Our Teeth

A. 1. crown, neck and root **2.** bad breathe **3.** salt with tip, sweet in middle, bitter in rear and sour along sides **4.** help in cracking hard food **5.** to prevent tooth decay. **B. 1.** four **2.** calcium **3.** plague **4.** dentine **5.** milk teeth **C. 1.** (ii) **2.** (ii) **3.** (ii)

7. The World of Microbes

A. 1. tiny living organism, cannot be seen by naked eyes **2.** eat clean food and keep surroundings clean **3.** typhoid **4.** used as food–mushroom **5.** preserving food for future use. **B. 1.** microscope **2.** fungi **3.** mosquito **4.** viruses **5.** virus **6.** microbes **C. 1.** (✓) **2.** (✓) **3.** (✓) **4.** (×) **5.** (✓) **D. 1.** single-celled organism **2.** decaying matter **3.** first animal **4.** food spoilage **5.** fungi **6.** refrigerating **E. 1.** (ii) **2.** (i) **3.** (ii) **4.** (iii) **5.** (ii)

Assignment Test -3

1. (b) **2.** (a) **3.** (a) **4.** (b) **5.** (a) **6.** (b) **7.** (a) **8.** (a) **9.** (a) bacteria, virus, protozoa (b) small-pox, polio, AIDS (c) typhoid, pneumonia, tuberculosis

Unit 4. Safety Rules

8. Safety and First-aid

A. 1. due to carelessness **2.** walk on footpath **3.** by following safety rules, do not play with sharp tools and matches **4.** spoiled food **5.** First help to injured person **6.** Stop bleeding and apply bandage. **B. 1.** safety **2.** carefully **3.** run **4.** accidents, carelessness **5.** handling **6.** unhygenically **7.** First-Aid **C. 1.** (✓) **2.** (×) **3.** (✓) **4.** (×) **5.** (✓) **6.** (×) **D. 1.** road **2.** observe **3.** injury **4.** safely **5.** footpath **6.** wet floors **E. 1.** (iii) **2.** (ii) **3.** (iii) **4.** (ii) **5.** (iii)

Unit 5. Clothes, Weather and Soil

9. Clothes

A. 1. Clothes protect us from dust, cold, rain, and germs etc. **2.** loose, light colour cotton clothes. They keep us cool. **3.** remove stain and wash with detergent. **4.** No **5.** to keep us warm. **B. 1.** Food, shelter **2.** cotton **3.** absorb **4.** woollen **5.** silver fish **C. 1.** cotton clothes **2.** umbrella **3.** woollen clothes **4.** common synthetic **5.** damped

before ironing **D. 1.** cotton clothes **2.** woollen clothes **3.** synthetic fibres **4.** rainy season **5.** synthetic clothes. **E. 1.** (ii) **2.** (iii) **3.** (iii) **4.** (i)

10. Weather

A. 1. At noon, sun is directly over head. **2.** Air flowing off shore due to high pressure at land and low pressure on water. **3.** Warm air comes in contact with cool surface. **4.** soluble and insoluble **5.** sedimentation, decantation and filteration **6.** due to rising of water vapours. **B. 1.** important **2.** tilted **3.** noon **4.** wind **5.** temperature **6.** taps **C. 1.** is a part of nature. **2.** has pressure. **3.** is any moisture in small drops. **4.** occupies more space. **5.** also contains water. **6.** is the tiny ice crystals. **7.** is very precious. **D. 1.** Loo **2.** condensation **3.** evaporation **4.** water cycle **5.** ice **E. 1.** (iii) **2.** (i) **3.** (i) **4.** (i) **5.** (i)

11. Soil

A. 1. by weathering of rocks **2.** gravel, sand, silt, clay, loam **3.** by water, wind, deforestation, overgrazing **4.** Protection of soil from being blown away. **5.** Process of carrying away of soil by natural forces. **B. 1.** nutrients **2.** weathering **3.** bed rock **4.** loamy **5.** plantation **C. 1.** best for growth of plants. **2.** form by dead plants and animals. **3.** carrying away of the soil. **4.** clearing of forest. **5.** protection of soil. **D. 1.** false **2.** false **3.** true **4.** false **5.** true **E. 1.** (iii) **2.** (ii) **3.** (iii)

Assignment Test -4

1. (b) **2.** (a) **3.** (a) **4.** (b) **5.** (a) **6.** (b) **7.** (b) **8.** (b) **9.** (a) winter, summer, rainy (b) nylon, polyester, lycra (c) ice, water, water vapour

Unit 6. Our Universe

12. The Solar System

A. 1. Imaginary path of Earth around the Sun. **2.** Eight planets together with the Sun. **3.** crust, mantle, outer core, inner core **4.** Blanket of gases around the planet. **5**. summer, autumn, winter and spring. **B. 1.** universe **2.** planet **3.** Sun **4.** Mercury **5.** satellite **C. 1.** 24 moons **2.** twinkling stars **3.** solar system **4.** biggest planet **5.** weather **6.** energy **D. 1.** false **2.** false **3.** false **4.** true **5.** false **6.** true **E. 1.** (ii) **2.** (i) **3.** (iii) **4.** (ii) **5.** (iii)

Assignment Test-5

1. (b) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) Mercury Venus, Earth (b) winter, summer, spring (c) Sun, stars, plants

Unit 7. Science World

13. States of Matter

A. 1. Anything that occupy space. Solid, liquid, gas **2.** It has definite volume but no definite shape. **3.** Solids have definite shape but liquids do not. **4.** due to change in temperature **5.** Solid substance dissolved in liquid to form solution. Dissolving substance is called solvent. **B. 1.** matter **2.** three **3.** gases **4.** solvent **5.** liquids **6.** water **C. 1.** is the mixture of gases. **2.** have a definite volume. **3.** have a fixed shape. **4.** liquid changes into gas. **5.** mixture of solute and solvent. **D. 1.** iron, wood **2.** milk, water **3.** oxygen, carbon dioxide **4.** salt, sugar **5.** solid, liquid **E. 1.** Solids have

definite shape but liquids do not. **2.** Liquids have a fixed volume but goses do not. **3.** Solids have definite shape and volume but gases do not. **4.** Solute is a dissolved substance and solvent is a dissolving substance. **5.** Lime water is prepared by lemon while soda water is a liquid carbon dioxide. **F. 1.** (i) **2.** (ii) **3.** (i) **4.** (i)

14. Work and Energy

A. 1. due to friction **2.** by solar cooker **3.** to change the direction of force **4.** due to gravitation **5.** Sun **B. 1.** energy **2.** electrical energy **3.** atom **4.** energy **C. 1.** energy **2.** wind **3.** solar energy **4.** atomic energy **5.** hydel energy. **D. 1.** (✓) **2.** (×) **3.** (✓) **4.** (×) **E. 1.** (i) **2.** (ii) **3.** (ii) **4.** (ii) **5.** (ii)

Assignment Test -6

1. (a) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (b) **7.** (b) **8.** (a) **9.** (a) atomic energy, muscular energy, wind energy (b) solid, liquid, gas (c) wood, stone, sugar.

Informative Science 5

Unit 1. Living Things

1. Plants Life

A. 1. No **2.** Enough air and water, suitable soil. **3.** To grow crops by cutting steps in the mountains. **4.** by wind, by water, by animals, by splitting **5.** Ploughing fields, use of fertilizers, use pesticides to kill pests. **B. 1.** seeds **2.** conversion **3.** rabi **4.** kharif **C. 1.** wheat **2.** jute **3.** rabi **4.** ploughing **5.** mustard **D. 1.** five **2.** tree **3.** seeds **4.** summer **5.** kharif **E. 1.** true **2.** false **3.** true **4.** true **5.** true **F. 1.** (ii) **2.** (iii) **3.** (ii) **4.** (i) **5.** (ii)

2. Animal Life

A. 1. The surroundings in which an animal lives. **2.** Most animals and human breathe through lungs, fishes breathe with gills. **3.** Tadpole has gills, while frog breathes through lungs and skin. **4.** flesh eaters like-tiger, fox **5.** To move from one place to another temporarily, to escape the harsh winter weather to find food. **B. 1.** breathing, feeding **2.** special **3.** spiracles **4.** Herbivores, Carnivores **C. 1.** lizard **2.** mosquito **3.** herbivorous **4.** gills **D. 1.** moist skin **2.** reptile **3.** gills **4.** plant eating animals **5.** spiracles. **E. 1.** (i) **2.** (ii) **3.** (i) **4.** (i)

Assignment Test -1

1. (b) **2.** (b) **3.** (b) **4.** (a) **5.** (b) **6.** (b) **7.** (a) **8.** (a) **9.** (a) cockroach, mosquito, housefly (b) whale, starfish, horse fish (c) rabi, kharif, jayad

Unit 2. Our Body and Health

3. Skeletal and Muscular System

A. 1. Give support, shape to body and protection against injury. **2.** Voluntary muscles are under our control, while involuntary muscles movement are not under our control. **3.** Place where two bones meet, movable joints, immovable joints **4.** hinge joint, ball socket joint, pivot joint, gliding joints **5.** pumping blood throughout the body. **B. 1.** invertebrates **2.** 12 **3.** femur **4.** movable **5.** cardiac **C. 1.** stomach **2.** spine **3.** jaws **4.** between skull and first vertebra **5.** rib cage

D. 1. organ **2.** backbone **3.** hind limbs **4.** joint **5.** muscle **E. 1.** (ii) **2.** (i) **3.** (i) **4.** (iii)

4. The Nervous System

A. 1. It help us to react and to think. **2.** cerebrum-largest part of brain for thinking, memory. Cerebellum-for maintaining balance of body. **3.** To keep them free from germs and diseases. **4.** keep dirt and unwanted stuff out of our eyes **5.** Motor nerves-carry messages from brain. Sensory nerves-carry messages from sense organ. Mixed nerves-do both the functions. **B. 1.** brain **2.** motor **3.** reflex action **4.** 1.4 **5.** medulla **C. 1.** eyes **2.** tongue **3.** skin **4.** nose **5.** spinal cord **D. 1.** cardiac muscles **2.** cerebrum **3.** skin **E. 1.** (iii) **2.** (i) **3.** (ii) **4.** (ii)

5. The Respiratory System

A. 1. animals living on land **2.** inhalation-breathing in, exhalation-breathing out **3.** tiny holes on the body of insects **4.** Animals that live under water. **B. 1.** gills **2.** gills **3.** moist skin **4.** spiracles **C. 1.** inhalation **2.** exhalation **3.** tiny holes **4.** 72 times/minute **D. 1.** gills **2.** oxygen **3.** carbon dioxide **4.** moist skin **E. 1.** (ii) **2.** (iii) **3.** (i) **4.** (ii)

6. Food and Health

A. 1. A diet that contains sufficient amount of different components of food as proteins, fats, carbohydrates, minerals, etc. **2.** Diseases that do not spread from one person to another. **3.** balanced diet, regular exercise, fresh air, clean water and surroundings **4.** because of germs **5.** It protects children from diseases. **B. 1.** healthy **2.** germs **3.** neat, clean **4.** nutrients **5.** anopheles mosquito **C. 1.** basic necessity **2.** diet **3.** value **4.** method **5.** system **D. 1.** viral disease **2.** virus **3.** bacteria **4.** mosquito **5.** oxygen. **E. 1.** (ii) **2.** (i) **3.** (ii) **4.** (ii)

Assignment Test-2

1. (a) **2.** (b) **3.** (a) **4.** (b) **5.** (a) **6.** (b) **7.** (a) **8.** (b) **9.** (a) eyes, nose, ears (b) cholera, typhoid, plague (c) scurvy, hepatitis, diabetes

UNIT-3. Safety Rules

7. Safety and First aid

A. 1. Follow traffic signals, walk on footpath **2.** due to soapy water on floor, uncovered electric connections **3.** Fracture is a crack in the bone and sprain is tissue damage. **4.** apply cold water on burns **5.** Press nose to stop bleeding and keep head straight. **B. 1.** animal **2.** sting **3.** blanket **4.** fracture **5.** doctor **C. 1.** subway **2.** sand **3.** sprain **4.** tetanus **D. 1.** fracture **2.** to an injured person **3.** tourniquet **4.** blisters **E. 1.** (ii) **2.** (i) **3.** (iii) **4.** (i)

Assignment Test -3

1. (b) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) bandage, tourniquet, dettol (b) blade, knife, scissors (c) red, yellow, green

Unit 4. Our Universe

8. Our Universe

A. 1. Right temperature, atmosphere and water. **2.** Saturn and uranus have rings around them. The rings are made of pieces of rocks, and ice. **3.** Yellow dwarf

star, mainly of hydrogen and helium gases. **4.** It reflects the light of the Sun. **5.** man made satellites– INSAT-2A, INSAT-2B. **B. 1.** 386000 km **2.** moon **3.** closest **4.** light **5.** Sun **C. 1.** false **2.** true **3.** true **4.** true **5.** false **D. 1.** Aryabhatta **2.** Valentine Tereshkova **3.** Kalpana Chawla **4.** Yuri Gagarin **5.** Neil Armstrong **E. 1.** (iii) **2.** (i) **3.** (iii) **4.** (i) **5.** (ii)

9. Shadows and Eclipses

A. 1. An object through which light can pass partially. **2.** Light does not pass through opaque object and causes formation of shadow. **3.** Instrument used to get idea of time with the help of shadow. **4.** When the Earth comes between the Sun and the moon **5.** When the moon comes between the Sun and the Earth. **B. 1.** astronomy **2.** noon **3.** opaque **4.** solar **C. 1.** opaque object **2.** lunar eclipse **3.** solar eclipse **4.** transparent object **D. 1.** false **2.** false **3.** false **4.** false **E. 1.** (ii) **2.** (i) **3.** (ii) **4.** (i)

Assignment Test -4

1. (b) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (a) **7.** (a) **8.** (b) **9.** (a) Aryabhatta, INSAT-2A, INSAT-2B (b) Mars, Earth, Jupiter.

Unit 5. Science World

10. Force and Energy

A. 1. Simple machine consisting of fulcrum, load and the effort, first class, second class and third class. **2.** Simple machine with grooved wheels and rope, they are fixed at one place. **3.** ability to do work, heat, light, sound, electricity **4.** Light energy can be produced on burning fuel. **5.** force of earth's attraction towards its surface . **B. 1.** screwdriver **2.** effort **3.** force **4.** energy **5.** gear **C. 1.** sun, fuel **2.** plier, scissors **3.** screwdriver, bottle opener **4.** magnetic, gravitational . **D. 1.** second class lever **2.** first class lever **3.** third class lever **4.** eyergy **5.** Sun **E. 1.** (ii) **2.** (ii) **3.** (ii) **4.** (i)

11. States of Matter

A. 1. tiny particles of matter **2.** Molecules move freely. **3.** Physical change-state of matter changes and can recover its original state. Chemical changes-state of matter changes permanently. **4.** Miscible liquid can dissolve completely while immiscible liquids do not dissolve. **B. 1.** temporary **2.** less **3.** density **4.** buoyant **C. 1.** hydrogen **2.** carbon dioxide **3.** salt **4.** hydrometer **5.** permanent change **D. 1.** sodium chloride **2.** compact **3.** physical change **4.** chemical change **5.** hydrometer **E. 1.** (ii) **2.** (ii) **3.** (iii) **4.** (iii) **5.** (iii)

12. Magnet

A. 1. Substance having property of attracting the material. **2.** in loudspeakers, microphones, electric motors, door bells, etc **3.** field of magnetic force around the magnet **4.** On hanging freely, it always points towards North-South direction. **5.** force exerted by magnet. **B. 1.** earth **2.** magnetic field **3.** magnetic **4.** north, south **5.** long, narrow. **C. 1.** magnet **2.** has magnetic property **3.** repel **4.** attract

5. narrow **D. 1.** poles **2.** neutral zone **3.** north-south direction **4.** two **5.** attraction. **E. 1.** (ii) **2.** (ii) **3.** (ii) **4.** (ii)

13. Heat

A. 1. measurement of wormth and coldness of matter **2.** Heat-a form of energy, temperature-measure of hotness **3.** temperature increases **4.** solids melt **5.** Good conductors let pass heat through them, bad conductors do not pass. **B. 1.** molecules **2.** thermometer **3.** temperature **4.** expand **5.** state **C. 1.** into ash **2.** on heating **3.** feel heat **4.** things expand **D. 1.** energy **2.** thermometer **3.** temperature **4.** conduction **5.** radiation **E. 1.** (ii) **2.** (iii) **3.** (i) **4.** (ii)

Assignment Test -5

1. (b) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (a) **7.** (b) **8.** (a) **9.** (a) fixed pulley, movable pulley, combined pulley (b) solid, liquid, gas (c) glass, rubber, plastic

Unit 6. Air, Water and Soil

14. Air and Water

A. We need air to live. **2.** By sedimentation and decantation **3.** Impure water can be harmful and make us sick. **4.** Air occupies space, air has weight, air exerts pressure. **5.** Sedimentation is rough method and take long time, while filtration is the best method to separate impurities quickly. **B. 1.** kind of oxygen **2.** air pressure **3.** chlorination **4.** impurities **5.** water vapour in air **C. 1.** carbon-dioxide **2.** humidity **3.** Neon **4.** rainwater **5.** Barometer **D. 1.** cooling **2.** Nitrogen **3.** Iodine **4.** purities **E. 1.** (ii) **2.** (ii) **3.** (ii) **4.** (ii)

15. Soil

A. 1. by weathering of rocks due to heat, rain, water. **2.** Plants grow in soil. Soil is the home of many species. **3.** loss of soil **4.** water, wind, deforestation **5.** Protection of soil against erosion. **B. 1.** topsoil **2.** Running water **3.** wind and water **4.** deforestation **5.** conserve **C. 1.** insect. **2.** cause soil erosion. **3.** is very important. **4.** eat insects. **5.** the topmost layer of the Earth. **6.** is essential for good plant growth.

D. 1. true **2.** true **3.** false **4.** true **5.** true **E. 1.** (ii) **2.** (i) **3.** (ii) **4.** (ii) **5.** (iii)

16. Rocks and Minerals

A. 1. Hard material may have many type of minerals, igneous, sedimentary, metamorphic. **2.** Rocks break due to rain, temperature, water, etc. **3.** by cooling of melted lava **4.** Naturally occuring chemical elements like-iron, copper, lead, etc. **5.** Coal and petroleum are mineral fuels. These are fossil fuels derived from rocks. These are non-renewable resources. **B. 1.** large rocks **2.** lava **3.** granite **4.** pumice **C. 1.** metamorphic **2.** sand stone **3.** lava **4.** Igneous **5.** shale **D. 1.** non-renewable **2.** marble **3.** utensils **4.** granite **5.** energy from the Sun **E. 1.** (i) **2.** (ii) **3.** (ii) **4.** (ii) **5.** (i).

Assignment Test-6

1. (a) **2.** (a) **3.** (b) **4.** (a) **5.** (b) **6.** (b) **7.** (b) **8.** (a) **9.** (a) coal, petroleum, kerosene (b) igneous, metamorphic, sedimentary (c) Air has weight. Air exert pressure. Air occupies space.

JUST Imagine

Teacher Manual

Informative

SCIENCE

6 to 8

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1. Sources of Food

A. 1. rabbit, cow 2. butter, ghee, wheat 3. carrot, radish 4. milk, egg 5. fruits-mango, apple, guava, grapes, orange; dry fruits-cashewnut, almond, dried grapes, walnut, dried date. B. 1. to get energy 2. flesh of animals 3. U.P.- Chapati, dal. Punjab- lassi, sarson ka sag, makki ki roti, Gujrat Dhokla, Tamil Nadu- Dossa, idli, etc. 4. Plants and animals, (mango, orange, onion, chilli, potato) 5. Fruits, leaves, roots, stems, etc. 6. hen, goat, sheep, duck, geese, etc. C. 1. Wheat→ Making flour → making chapati Flowers → Beehives (nectar) → honey 2. give energy, body growth & body activities 3. (i) plant eater (ii) eat plants and animals (iii) link between root & leaves of plant (iv) reproductive part of plant. D. 1. F 2. T 3. F 4. T 5. F E. 1. (iv) 2. (v) 3. (i) 4. (iii) 5. (ii)

2. Components of Food

A. 1. rice, wheat 2. butter, ghee 3. rickets 4. carbohydrates 5. energy value of the food B. 1. Carbohydrates, proteins, fats, vitamins and minerals . vitamin B and C 3. pulses, beans, milk 4. Basal Metabolic Rate 5. apple, amla 6. food 7. Food having all essential nutritive substances 8. to provide energy 9. Vitamins-organic compounds. Source-fruits, vegetables, meat, milk. Minerals- inorganic salts, Source-fish, meat, milk. 10. Fat makes a paper translucent on rubbing. C. 1. Carbohydrate-provide energy- rice, wheat, fats-energy bank-meat, fish, proteins-for body growth-pulses, beans. vitamins-prevent diseases-fruits, vegetables, minerals-for water retention meat, milk. 2. Rich in nutrients, provide quantum of energy, keep body healthy. 3. Adult ration-to decrease the quality of food. Nutrients-Essential substances for body growth. 4. Organic components as protective food 5. It regulates the process of digestion and help the food to pass. D. 1. T 2. T 3. T 4. T 5. F 6. F 7. F 8. T E. 1. (iv) 2. (v) 3. (i) 4. (iii) 5. (ii) 6. (vii) 7. (viii) 8. (vi)

3. Fibre Materials

A. 1. cotton, wool 2. dry climate 3. cotton cloth 4. banana 5. to make ropes, carpets. B. 1. From animals and plants 2. To protect us against weather & insects. 3. Wool-sheep, silk-silkworm 4. alluvial soil 5. long and thin substances, obtained from animals and plants. 6. chemical fibres prepared by acids and petroleum with cellulose, natural fibres are warm. 7. A plant, used to make cloth (coarse), rope, carpet, etc. 8. In hospitals, clothes, paper, etc. C. 1. use of bark/leaves of trees, during Neolithic age, man made cloth by cotton and jute 2. Natural fibres- plants–cotton, jute,

Animals- sheep wool, silk worm-silk synthetic fibre–chemical compounds–polyester, nylon, rayon and acrylic. uses-in clothes, mats, bags, paper, etc. 3. (a) cotton-plant fibre, soft used for clothes, hospital. (b) jute-plant fibre, for coarse clothes, ropes. (c) synthetic fibre-chemicals including acids and petroleum. D. 1. F 2. T 3. T 4. F E.1. (iv) 2. (v) 3. (iii) 4. (i) 5. (ii) F.1. c 2. c 3. c 4. d 5. c 6. c.

4. Different Kinds of Materials

A. 1. cotton, jute, wool, silk 2. sugar, salt 3. shape, volume 4. Plastic do not allow heat to pass through. 5. Material through which light can pass partially. B. 1. Grouping objects with similar properties 2. to make study easier 3. Their uses, colours, size, shape, etc. 4. solubility, heat & electric conduction, diffusion 5. Anything that occupies space and has mass. 6. solid in solution. 7. intermix of matter 8. metallic shining 9. ability to dissolve. C.1. Air occupies space and has mass. 2. Solid- having definite shape and volume. Liquid- having no definite shape but have definite volume, Gas-shape and volume are not definite. 3. Give heat to one end, the other end will heat up itself. 4. Light rays pass through the material-glass, pure water, air, etc. 5. solids like sugar, salt are soluble in water. Materials like wood, sand are insoluble. Liquids are mostly insoluble except vinegar, alcohol, lemon juice. Gases are mostly insoluble. Oxygen & carbon-dioxide are slightly soluble. D. 1. T 2. F 3. F 4. F 5. F 6. T 7. T E. 1. (iv) 2. (iii) 3. (i) 4. (vi) 5. (ii) 6. (v)

5. Changes Around Us

A. summer 2. solubility increases 3. changes produce effects 4. burning candle, rusting of iron, making curd 5. Earth's rotation, pendulum. B.1. It is a long time process-germination of seed, growth of a body 2. Sudden change-cracker bursting, burning of paper, 3. Changing occurs after a fixed time 4. In reversible-substance can get back, but not in irreversible 5. For farmer-desirable, for builder-undesirable. 6. desirable during winter and undesirable is burning of house. 7. Substance remain same 8. New substance formed 9. endothermic-heat absorb, exothermic-heat exist. 10. Seed converts into plant. C. 1. Match stick burns and left mark on match box. 2. Burning wood in cooking is desirable but burning of hut is undesirable. 3. (i) Substance remain same (ii) Technique to slow down spoilage of milk. (iii) Energy is either absorbed or evolved. 4. by observation, to find remedies of undesirable changes. pasteurization, refrigeration, etc. 5. Yes, burning of paper-fast, chemical, undesirable, irreversible change.

D. 1. F 2. F 3. F 4. F 5. F 6. T

E. 1 (ii) 2. (i) 3. (iii) 4. (v) 5. (iv) F. 1. c 2. a 3. a

G. 1. physical 2. physical 3. chemical 4. physical 5. physical 6. chemical.

6. Separation of substances

A. 1. yes 2. Air contain many gases and other substances. 3. filteration 4. hand picking 5. by loading or coagulation B. 1. Molecules in a pure substance are similar. 2. Two or more substances not chemically combined. 3. Constituents can not seen easily. 4. Constituents can be seen easily. 5. light particles blown off by air and heavy particles left behind. 6. To separate different sizes of components by sieve 7. Transparent, have definite boiling & freezing point. 8. Changing of solid directly into gaseous state. 9. To separate insoluble solid from liquid. 10. Separating suspended particles by rotating liquid. 11. Separating floating particles from solids. 12. Separating dissolved solids from liquid. 13. Separating impurities by vaporising and condensing the liquid. 14. Transferring of liquid without disturbing sediments. 15. For filtration 16. By centrifugation. C. 1. To remove undesirable harmful components and to obtain useful and pure substances 2. Decantation- separating pure liquid without disturbing mixture. loading-separating suspended particles from liquid by adding some chemical. 3. Filtration is more effective because in filteration impurity cannot left while in decantation, impurities may left. 4. (a) Hand picking (b) centrifugation (c) magnetic separation, filtration, evaporation (d) distillation (e) decantation (f) sublimation 5. Magnetism, solubility, size of particle, density of substance, etc. 6. Add alum in muddy water, sediments will deposit at bottom. 7. By rotating milk in closed container, suspended cream collect at centre due to centrifugal force. 8. Rate of absorption or diffusion is different for different colours.

D 1. F 2. T 3. T 4. T 5. T 6. F 7. T 8. F

E. 1. (vii) 2. (v) 3. (iii) 4. (vi) 5. (iv) 6. (ii) 7. (i)

F. 1. d 2. a 3. d 4. a 5. b

7. The Living World-Characteristics

A. 1. in order to get energy 2. stomata 3. increase in size 4. period of life 5. plants move towards light. B. 1. Gradual increase in size of organism 2. Preparing food by green plants in presence of water, carbon-dioxide and sunlight 3. They have chlorophyll. 4. The getting rid of waste materials 5. Oxidation of food. 6. To accommodate ourself as per environment 7. Plant needs sunlight for photosynthesis. C. 1. Living things have life activities growth, movement, respiration, reproduction. etc, non-living things do not

have such characters. 2. Animals move in search of food and shelter, plants prepare their own food. 3. Living things move, respire, respond and reproduce while non-living things do not.

D. 1. F 2. F 3. F 4. T 5. T

E. 1. iv 2. vi 3. ii 4. i 5. iii 6. v

F. 1. c 2. b

8. Habitat

A. 1. aquatic 2. lion, horse, rat 3. The camel is superbly adopted for xeric conditions. 4. living and non-living 5. unicellular living things, unable to see with naked eyes. B. 1. habitat 2. making their own food 3. Depend on plants or producers for food. 4. Non-living or physical components 5. Break down the molecules of dead organisms. 6. Buffaloes cannot tolerate hot weather. 7. Accommodate to survive in a particular environment 8. Hydrophyte, mesophyte, xerophytes. C. 1. Fat filled hump on back provide water, adjust its body temperature, can drink solitaries of water and excrete very less. 2. stem is thick, fleshy and succulent to store water, leaves modify in spines to reduce evaporation 3. To get heat and light energy, essential for photosynthesis and other life activities. 4. (i) terrestrial-habitat on land, aquatic-habitat in water. (ii) herbivores-plant eater, carnivores-animal (flesh) eater. 5. habitat is a group biotic and abiotic factors.

D. 1. F 2. T 3. T 4. F 5. F 6. T 7. T 8. T

E. 1. iv 2. v 3. vi 4. i 5. ii 6. iii

F. 1. d 2. d 3. a 4. c 5. a

9. Plants-Forms and Functions

A. 1. the root system, the shoot system 2. A single main primary root grows with lateral branches. 3. stem, leaves, flowers, fruits 4. male gamets 5. make food by photosynthesis 6. in reproduction. B. 1. Root system and shoot system 2. New roots from the stem. 3. Length of stem between two successive nodes. 4. modified buds into thin, wiry, coiled structure. 5. modified leaves 6. flower link with stem 7. developed ovule 8. Transfer of pollens from anther to stigma. 9. Asexual and sexual. 10. stigma, style, ovary 11. Base of flower 12. Reproductive part of plant 13. It helps in pollination, fertilization and preparation fruit & seed. 14. Root holds plant with, soil absorb water and mineral. 15. photosynthesis, respiration, evaporation 16. Conducts water and minerals, give support to plant 17. Oxidation of absorbed food. 18. Opening of leaves surface 19. protect the flower in bud stage 20. Tap root- main root goes deep, fibrous root-main root and branch roots are same. C. 1. Food storage-Carrot, climbing-betal,

support-maize, nodulated-beans 2. food storage-potato, provide support-grape, leaf-cactus 3. Calyx-group of sepals, corolla-group of petals androcium-male part, gynoecium-female part. 4. stem under the soil, storage of food & reproduction. 5. Root system-hold the plant with soil, absorb water and minerals, shoot system-give support to plant, transport of water & minerals 6. Male and female gamets fuse together, develop into fruit and seed. 7. After fertilization, ovule develop into seed.

D. 1. T 2. T 3. T 4. F 5. T

E. 1. v 2. i 3. ii 4. iv 5. iii 6. vi 7. viii 8. vii

F. 1. a 2. c 3. a 4. b 5. b

10. Animals–Forms and Functions

A. 1. Unicellular organism 2. heart, lungs 3. 33 4. Exoskeleton comprises of hollow tubes and flat plates 5. convex surface of one bone fixes into concave surface of another bone 6. 350 bones. B. 1. (i) digestive (ii) circulatory (iii) respiratory (iv) nervous, (v) skeletal, (vi) muscular system. 2. organs unite together to perform similar work. (i) Digestive (ii) Respiratory (iii) Nervous (iv) Excretory system. 3. bone- rib, skull 4. strong, stretchy bands 5. knee and elbow joints. 6. protect spinal chord 7. Forms framework of body, protect delicate organs. C. 1. Two or more bones meet together-hinge, pivot, gliding, ball and socket joint. 2. By modified forelimbs 3. With the help of fins and tails 4. (i) skull-bony cage to protect brain. Rib cage-protect heart and lungs (ii) hinge joints-movement in knee and elbow, gliding joints-in wrist side and backward movement.

D. 1. T 2. F 3. F 4. T 5. T 6. T

E. 1. vi 2. iv 3. i 4. ii 5. iii 6. v

F. 1. a 2. a 3. a 4. d.

11. Measurements and Motions

A. 1. yes 2. no 3. translatory motion, circular motion, periodic motion 4. oscillatory motion 5. metre. B. 1. To measure accurate 2. The quantity that can measured-length, weight, time. 3. Reading error due to wrong position, can avoided by correct position. 4.use small letter, symbol not followed full stop, not in plural , scientist name symbol in capital. 5. 1/29979225 m/sec. 6. Change in position of body with time. 7. Position of body remain same. 8. move in straight line. 9. move in fixed axis. 10. move to and fro. C. 1. change of position of body with time-circular fan, oscillatory-pendulum, translatory-moving car. 2. Rest position same, motion changes in position 3. 880 cm 4. 100005. D. 1. F 2. F 3. F 4. F 5. F 6. F 7. T E. 1. v 2. vi 3. i 4. iii 5. iv 6. ii F. 1. b 2. c 3. b.

12. Light

A. 1. Light passes through an object. 2. wood 3. Sun 4. partial shadow 5. stars, fireflies 6. glass, water. B. 1. Position of image differ angularly 2. Incident ray, reflected ray and normal lies at the same plane, incident angle = reflected angle 3. 1/299792256 m/sec 4. Image seen without actual meeting of rays. 5. brightness 6. rectilinear propagation, reflection 7. when an opaque body comes in the path of light rays. 8. Inverted and real. C. 1. Light travels in a straight line, formation of shadow 2. Instrument to take image of object. 3. Plants grow in sunlight, they prepare food by photosynthesis. 4. by comparing length of shadow of other known object. 5. Parallel beam-they never meet, same intensity upto long range. Convergent beam-meet at a point. Divergent beam-light spread 6. Transparent-light can pass-glass, translucent-partially light pass-ground glass. Opaque-light cannot pass-wood.

D. 1. F 2. F 3. F 4. T 5. T 6. T 7. F

E. 1. ii 2. i 3. v 4. iii 5. iv

13. Magnet and magnetism

A. 1. Materials that are attracted by a magnet. 2. magnetite 3. permanent magnet 4. lose magnetism 5. Plastic does not attracted by a magnet. 6. iron, cobalt 7. compass. B. 1. Material which attract iron 2. Naturally occurring magnet 3. made artificially 4. Substances which are attracted by magnet. 5. Poles 6. repulsion 7. Dipolar, neutral at centre 8. natural-permanent naturally. Artificial-temporary man made 9. Each piece works as magnet. 10. Due to earth magnetism. C. 1. Substance which attracted by magnet, magnetic substances can be separated by a magnet. 2. Magnetic lines of force emit & meet at poles.

D. 1. T 2. F 3. F 4. F 5. F

E 1. c 2. a 3. b 4. c 5. a

14. Electric Current and Circuits

A. 1. electric switch 2. Metals are good conductor of electricity. 3. to avoid electric shock 4. Insulators do not pass electricity through them. 5. Current flows through a closed circuit. B. 1. combination of cells 2. path of electricity through electric components 3. copper, iron 4. wood, plastic 5. cell is unit of battery 6. cell works on solar energy-watch, calculator 7. A device produces DC current. 8. A device convert electric energy to light energy. 9. path of electricity through electric components. C. 1. do it yourself 2. Negative terminal of one cell connect with positive terminal of another cell. 3. do it yourself 4. Temporary connection to glow bulb.

Connect positive terminal of cell to bulb centre and negative to bulb body case.

D. 1. F 2. T 3. F 4. F 5. F

E. 1. iv 2. vi 3. ii 4. v 5. i 6. iii

F. 1. a 2. c 3. b

15. Importance of Water

A. 1. river, rain, lake 2. for existance of life 3. surface water 4. changes of water into water vapour 5. building, living things. B. 1. compound 2. underground water 3. ice, water, water vapour 4. water on Earth surface 5. Circulation of water in nature 6. Body of organism contain 70-90 % water. 7. overflow of revers 8. reduction of water 9. due to discharge of clouds 10. forming of ozone layer. C. 1. Due to continue evaporation and condensation of water. 2. Clouds of opposite charges get discharged. 3. Poverty, less agriculture production. Control-by afforestation, making of wells & water reservoir 4. Intense storms and excess rains 5. (i) Resources that are available naturally (ii) Which can be recycled and replaced. (iii) Material once used up cannot be replaced and recycled 6. renewable can recycled and replaced as water, soil, but nonrenewable cannot recycled as coal, petroleum, etc.

D. 1. F 2. F 3. F 4. T 5. T

E. 1. vi 2. ii 3. v 4. viii 5. iii 6. vii 7. i 8. iv

F. 1. d 2. b

16. Importance of Air

A. 1. in breathing, burning 2. oxygen 3. life supporting gas 4. nitrogen, oxygen 5. air contain oxygen. B. 1. 78.03% 2. 20.99% 3. 0.03% 4. Small openings on leaves 5. Mixture of various gases, It controls the temperature, brings rain, and used in breathing 6. Nitrogen 78.03%, oxygen 20.99%, argon 0.93%, carbon dioxide 0.03% 7. life supporting gas 8. through stomata 9. with nose and lungs. C. 1. Blanket of air around Earth-control temp, bring rain, etc. 3. Animals breath out carbon-dioxide which is used by plants in photosynthesis. In this process plants exert oxygen which is utilized by animals in respiration.

D. 1. F 2. T 3. T 4. T 5. T

E. 1. iv 2. iii 3. v 4. i 5. ii

F. 1. b 2. a 3. c 4. b 5. c

17. Waste and Its Disposal

A. 1. bandages, expired medicines 2. domestic wastes, industrial water

3. worms 4. waste materials 5. garbage, vegetable peels. B. 1. manure 2. Harmless organic matter converts into manure 3. Biodegradable waste can be decomposed by the micro-organisms into simpler substances, non-biodegraduble waste cannot be decomposed. 4. organic waste 5. refuse, reduce, reuse, recycling 6. fertilizers are used to increase crop production. Pesticides are used for crop protection. C. 1. To reduce energy use glass, metal, plastic, paper can be recycled while polythene, synthetic, pesticides cannot recycled. 2. acids, chemicals, metals and their compounds 3. make small pieces, wet in water, after squeezing press and get recycled paper 4. mix soil with rotten fruits, vegetables, tea bags, etc and put in box. Now cover it. After 4 weeks compost is ready 5. shops, restaurants, hotels, plastic, scrap paper.

D. 1. T. 2. T 3. T 4. F 5. T 6. T 7. T

E. 1. v. 2. ii 3. i 4 iv 5. iii

F. 1. c 2. a 3. a 4. a 5. b.

Informative Science 7

1. Nutrition in Plants

A. 1. sheep 2. tiger 3. bear 4. tapeworm 5. Venus flytrap. B. 1. Autotrophic & Heterotrophic 2. Saprophytic, epiphytes, symbiosis, special carnivores plants 3. Saprophyte–yeast. mushrooms. Parasite–tapeworm, roundworm. 4. symbiosis 5. carbon–dioxide 6. chlorophyll. C. 1. Nutrition 2. Green plants make their food in sunlight with water and carbon dioxide. 3. $6CO_2 + 6H_2O$ sunlight & chlorophyll $C_6H_{12}O_6+6O_2$ 4. Process of intake of food by animals and plants, autotroph and heterotroph. 5. Plants and animals depend on others for their food, elephant, tiger.

D. 1. F 2. F 3. T 4. T 5. T

E. 1. (ii) 2. (iii) 3. (iv) 4. (v) 5. (i)

F. 1. a 2. d 3. a 4. a 5. d

2. Nutrition in Animals

A. 1. Paramecium 2. spider 3. hydra 4. amoeba 5. break and chew the food 6. salivary glands 7. gastric juice B. 1. Chewing and breaking food. 2. through pseudopodium. through cell membrane 3. Pepsin 4. Biological Catalyst, ptyalin, pepsin 5. Remove excess water from waste. 6. Mouth, stomach, duodenum, 7. eating solid food 8. oxidation of food.

C. 2. Incisors and canines break food in pieces, premolar & molar then

chew it. 3. Animals that chew cud. 4. Ingestion, digestion, absorption, assimilation egestion. 5. It is absorbed and carried to all cells for oxidation to produce energy.

D. 1. T 2. F 3. T 4. T 5. T 6. F 7. T 8. F 9. T

E. 1. v 2. vi 3. i 4. ii 5. iii 6. iv

F. 1. b 2. c 3. b 4. a 5. c

A. 1. clipping hair of sheep 2. Huang Di 3. outer coat of silkworm 4. combing of woollen thread 5. cotton 6. silk. B. 1. Silk–Silkworm, wool–sheep 2. Silkworm 3. mulberry 4. Parachutes, bicycle tyres. 5. for future production. 6. Silk thread made by twisted filament. 7. 2.5 kg approx 8. combed in parallel fibre 9. rolling of slivers. 10. woollen system, worsted system 11. It has wire toothed rollers. C. 1. Wool is fibres from animals sources–sheep, camel, goat and rabbit. 2. natural protein fibre–silkworm, other insects, spider. 3. Silkworms–cacoons boiling in water–raw silk 4. throwing–twisting of thread– grading–weaving 5. sheering by electric sheers once in a year. Grading–before weaving. wool is graded as per length, fineness, colour and strength of fibre.

D. 1. F 2. F 3. F 4. F 5. T 6. F 7. F 8. F 9. T 10. T

E. 1. (ii) 2. (iii) 3. (i) 4. (v) 5. (iv)

F. 1. a 2. b 3. b 4. a

4. Heat

A. 1. calorie 2. degree celsius 3. 20°C to 40°C 4. thermometer 5. Kelvin scale 6. joule/°C 7. 0°C B. 1. It is form of energy having sensation of warmth, unit–calorie 2. Volume increase on heating. 3. degree of hotness. 4. matter expend, essential of life process 5. equal expansion. 6. Qty of heat requires to raise the temp of 1 gm of water by 1°c. 1 calorie = 4.184 J 7. Amount of heat require to change the state of matter without change in temp. 8. Transfer of heat in solids 9. Unevenly heated Earth surface create conventional currents. 10. Transfer of heat without effecting medium. C. 1. Pass a metal ball through exact size ring. Now heat up the ball, it will not pass through ring due to expansion. 2. During summer, rail may bend due to expansion and cause accident. 4. Size, material of body and pressure 5. heat capacity = total amount of heat absorb/rise in temp. specific heat capacity–qty of heat absorbed/mass of substance X rise in temp. 6. transfer of heat in solids by one molecule to another, material of substance contact between molecule. 7. Good conductor–material which conduct heat rapidly. Bad conductor-material which do not conduct heat rapidly to protect hands

from heat. 8. Transfer of heat without effecting medium, radiation of Sun heat. 9. Take water in test tube and heat top portion, temp. of bottom does not increase. 10. Vacuumed body with cork to stop conduction and convection, polished surface reduce radiation.

D. 1. T 2. F 3. F 4. F 5. F 6. T 7. T 8. F 9. T

E. 1. b 2. d 3. b 4. d

5. Acids, Bases and Salts

A. 1. acids 2. bases 3. acids 4. bases 5. alkalies 6. Substances that change their colour on coming in contact with other substances. 7. between 1 and 7 8. bases. B. 1. Citric–fruits, lactic–milk, tartaric–tamarind 2. water soluble base 3. forms compound by reacting with air (oxygen) 4. Compound made up of acid & base 5. by reacting with acids 6. acid react by base. 7. obtain by replacement of hydrogen atom in acid, $NaHSO_4$ 8. number of H^+ ions in a solution 9. Substance that change colour on coming in contact. C. 1. replacement of H^+ in acid by metal ion 2. $SO_3+H_2O \rightarrow H_2SO_4$ 3. $CaO + H_2O \rightarrow Ca(OH)_2$ 4. in cooking food, in manufacture of soap, as preservative 5. in batteries, fire extinguisher, in aqua regia 6. in white wash, to prepare artificial milk, in bleaching powder 7. Fat is heated with fixed amount of alkali. 8. Sodium bicarbonate–in laundries, in fire extinguisher.

D. 1. F 2. T 3. F 4. F 5. F 6. T 7. F 8. T

E. 1. $2KOH + H_2So_4 \rightarrow K_2SO_4 + 2H_2O$ 2. $P_2O_5 + 3H_2O \rightarrow 2H_3PO_4$ 3. $Ca + 2HCl \rightarrow CaCl_2 + H_2$ 4. $2K + 2HCl \rightarrow 2KCl + H_2$ 5. $Mg + 2\,Hcl \rightarrow MgCl_2 + H_2$ 6. $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$ 7. $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$ 8. $2K+2HNO_3 \rightarrow 2KNO_3 + H_2$ 9. $2Na + 2HNO_3 \rightarrow 2NaNO_3 + H_2$ 10. $2Na + 2HCl \rightarrow 2NaCl + H_2$ 11. $ZnSO_4 + 2NaOH \rightarrow Na_2SO_4 + Zn(OH)_2$ 12. $2NaOH + So_2 \rightarrow Na_2SO_3 + H_2O$.

F. 1. → b 2. → d 3. → a 4. → b 5. → c

6. Physical and chemical Changes

A. 1. physical 2. chemical 3. physical 4. chemical 5. physical

B. 1. Fix boiling and freezing point 2. (a) $2Na + 2H_2O \rightarrow 2NaOH + H_2$ (b) $C + O_2 \rightarrow CO_2$ + Heat (c) $CuCO_3 \rightarrow CuO + CO_2$ (d) $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$ 3. melting point increased 4. $CuO + H_2 \rightarrow Cu + H_2O$ 5. temp at which solid starts melt, temp at which liquid boil. C. 1. new substance produce, gas may evolve, colour may change, precipitate may form. 2. temp at which solid starts molt. 3. Temp at which liquid start boiling 4. Exothermic, endothermic, reversible, irreversible, decomposition,

displacement. oxidation, reduction reaction. D. 1. → F 2. → T 3. → T 4. → F 5. → F

E. 1. Chemical substances involve and new substance produce. 2. Heat absorb during reaction 3. Heat release during reaction 4. One of the product is insoluble as solid 5. Substance break into two or more simple substances. 6. two ionic comound interchanged precipitate is must. 7. addition of oxygen 8. Addition of hydrogen.

F. 1. → d 2. → c 3. → a 4. → c 5. → a 6. → c

7. Soil

A. 1. flood 2. three 3. weathering 4. loamy soil 5. red soil, black soil, alluvial soil, desert soil, mountain soil, laterite soil 6. loamy soil.

B. 1. Humus, clay, silt, sand, gravel 2. bacteria, fungi and algae 3. Sand, clay, humus. 4. breaking of rocks 5. Removal of top soil 6. to make soil fertile 7. in agriculture, minerals product, for building bridges 8. red soil. black soil, alluvial soil, desert soil, mountain soil, laterite soil. 9. worm cast is rich in plant nutrients. 10. by weathering of rocks 11. due to very sticky 12. mixture of sand, clay, humus. C. 1. layers of soil, A-horizon is top layer, B-horizon is called sub soil C-horizon is lowest layer. 2. use of pesticides, insecticides be controlled, crop rotation. 3. planting trees, covering soil, control over grazing 4. red, black, desert, laterite, mountain and alluvial soil, alluvial soil is most fertile 5. mineral particles, inorganic, organic substance and micro organism.

D. 1. → T 2. → T 3. → F 4. → T 5. → T 6. → T

E. 1. → (iii) 2. → (iv) 3. → (ii) 4. → (I) 5. → (v) 6. → (vii) 7. → (viii) 8. → (vi)

F. 1. → b 2. → c 3. → d 4. → a 5. → a 6. → a

8. Respiration

A. 1. anaerobic respiration 2. insects 3. aerobic respiration, anaerobic respiration 4. carbon dioxide 5. haemoglobin. B. 1. oxidation of food, breathing and internal oxidation 2. through skin 3. Aerobic–with air, Anaerobic-without air 4.hard and woody stem of trees 5. expand 6. volume of air in breathing 7. ethyl alcohol and carbon dioxide and energy 8. nose, throat, trachea, lungs. C. 1. use of oxygen in respiration, $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$+Energy 2. Roots-through stomata, stems-through lenticels. 3. Nose, throat, trachea, bronchi, lungs 4. Respire through spiracles 5. Chest expand when breathe in and contract when breathe out.

D. 1. → F 2. → T 3. → F 4. → F 5. → T 6. → T 7. → T

E. 1.→(iii) 2.→(i) 3.→(ii) 4.→(v) 5.→(vi) 6.→(iv)

F. 1.→d 2.→b 3.→b 4.→a 5.→b 6.→a

9. Transport and Excretion

A. 1. xylem 2. phloem 3. photosynthesis 4. circulatory system 5. arteries, veins, capillaries 6. four 7. connective tissue 8. stethoscope. B. 1. to carry 2. transport of food from leaves 3. xylem, phloem 4. evaporation of water through stomata 5. Carbohydrates, protein, fats, minerals 6. diseases 7. coiled tube in kidney 8. gum, renin 9. skin, kidney, lungs, large intestine 10. ureter. C. 1. through xylem & phloem 2. transpiration or evaporation of water through stomata. 3. Kidney filters the blood. 4. transport through arteries, veins and capillaries in the form of blood 5. (a) Kidneys are the main organs of excretory system. They filter waste products from the blood (b) Red blood cells contain haemoglobin that carries oxygen to the body cells and carbon dioxide wastes back to the lungs.

D. 1.→T 2.→T 3.→F 4.→F 5.→T 6.→T 7.→T 8.→F 9.→F 10.→T.

E. 1.→(iv) 2.→(v) 3.→(ii) 4.→(iii) 5.→(i)

F. 1.→c 2.→b 3.→a 4.→c

10. Reproduction in plants

A. 1. asexual and sexual 2. hydra 3. Gamets are sex cells. Male gemet is a sperm cell and female gemet is an egg cell. 4. Embryo is a tiny plant within the seed. 5. fruit 6. flower. B. 1. amoeba, hydra 2. binary fission, budding, spore formation, vegetative reproduction, fragmentation 3. Sexual, binary fission, budding 4. producing offspring of same kind 5. Hydra, lizard 6. Transfer of pollen grains from anther to stigma 7. scattering of seed 8. contact of male and female gamets. C. 1. Most of plants reproduce through vegetative propagation. 2. Transfer of pollen grain from anther to stigma by self or by medium. 3. External fertilization take place outside the body while internal fertilization takes place in female's body. 4. disposal of seeds by ocean, river and stream.

D. 1.→F 2.→T 3.→T 4. → T 5.→T

E. 1.→(iv) 2.→(iii) 3.→(v) 4.→(i) 5.→(ii)

F. 1.→b 2.→b 3.→a 4.→b 5. c

11. Motion and Time

A. 1. metre per second 2. to measure time 3. circular motion 4. oscillatory motion 5. random motion. B. 1. Rate of change of displacement

2. Position remain same 3. straight movement on wheels 4. body moves along a fixed axis-fan. 3. to and fro motion 6. moving-planets.

C. 1. movement of body with time, rectilinear- walking man on road, circular-fan, random-flying bees. 2. body changes the position while in rest, it does not. 3. equal distance in equal time, in non uniform motion, movement is not equal. 4. 25 Km/hr, 6. 95 m/sec. 5. 4Hrs 6. 150 Km. D. 1. Rectilinear 2. random 3. oscillatory 4. circular 5. periodic 6. simultaneous.

E. 1. → T 2. → F 3. → T 4. → T 5. → T 6. → T 7. → T

F. 1. → (iii) 2. → (iv) 3. → (v) 4. → (ii) 5. → (i)

G. 1. → a 2. → b 3. → c 4. → b 5. → b 6. → b

12. Electricity

A. 1. battery 2. electromagnet 3. electric circuit 4. ampere 5. fuse. B. 1. Electric bell, electric motor, telephone, fans, 2. magnetic force produce magnetism in magnetic substances 3. magnetic field causes electric current 4. induction of electric current by changing of magnetic lines of force 5. move magnet near a conductor. 6. Flow of electrons by potential difference between positive and negative terminal.

C. 1. Flow of electron, the path of electron flow through electric components. 2. Electricity produced by magnet-Electric bell, dynamo, electric motor. 4. Current is inducing in solenoid by moving magnet over it. 5. Induction of electric current by changing magnetic lines of force, Faraday.

D. 1. → T 2. → F 3. → T 4. → F 5. → T 6. → T

E. 1. → (ii) 2. → (iii) 3. → (v) 4. → (iv) 5. → (i)

F. 1. → c 2. → b 3. → d 4. → c

13. Winds and Storms

A. 1. storm 2. calm centre of storm 3. moving air 4. great storm of USA and West Indies 5. due to water cycle. B. 1. local wind, global wind 2. Top of building 3. spinning storm 4. violent disturbance in atmosphere, thunder storm, cyclone, tornado 5. giant vacuum cleaner 6. Anemometer 7. from cumulonimbus clouds. C. 1. Scale of wind speed is called beaufort scale, upto 4-breeze, upto 8-strong wind, at 11 and above-storm 2. Greatest storm, wind speed about 117 Km/hr. cover several hundred square km area. 3. develop from cumulonimbus clouds 4. Direction from where it blows, wind vane 5. Pressure in moving air is less than the pressure under roof causes roofs blown up.

D. 1. → F 2. → T 3. → T 4. → T 5. → F

E. 1. → (ii) 2. → (i) 3. → (v) 4. → (iii) 5. → (iv)

F. 1. → b 2. → b 3. → a

14. Light

A. 1. bouncing back of light 2. a point of meeting rays after reflection/refraction from a spherical surface. 3. shaving mirror 4. splitting of white light 5. bending of light 6. virtual, erect and diminished image 7. beyond focus. B. 1. straight path of light ray 2. Real image formed by actual intersection of rays. In virtual umage, rays appears to come from a point. 3. concave mirror forms enlarged image. 4. enlarged image 5. concave mirror is polished from outer side and convex mirror is polished from inner side. 6. (i) The angle of incidence is equal to angle of reflection (ii) The incident ray, reflected ray and the normal all lie in the same plane. C. 1. as shaving mirror, as reflectors 2. real, inverted image 3. (i) An incident ray passes through the focus, after reflection goes parallel to the principal axis. (ii) An incident ray parallel to the principal axis, after reflection passes through the focus. (iii) An incident ray passing through the centre of curvature, after reflection retraces its path in the opposite direction. 4. newton's disc is prepared by painting seven colours of spectrum.

D. 1. T 2. F 3. T 4. T 5. T

E. 1. (ii) 2. (iv) 3. (iii) 4. (v) 5. (vi) 6. (i)

F. 1. b 2. c 3. a 4. c 5. c 6. b

15. Water

A. 1. rain 2. substance to be dissolved in liquid 3. process of breaking down a compound by electricity 4. drinking water 5. Sea water is polluted. 6. Hydrogen and oxygen 7. domestic sewage, pesticides. B. 1. liquid 2. for drinking, a universal solvent 3. Dissolve most of the substances 4. oxygen 5. domestic, industrial, agriculture 6. all the rock salts carry in sea. 7. 4°C 8. process to desalinate sea water 9. sodium chloride. C. 1. in food, in blood and other cells. 2. circulation of water 3. deep water of lake is warmer than surface water. 4. Freezing point-0°C, boiling point 100°C, specific heat 4.2 J, max. density at 4°C, a universal solvent 5. by bleaching powder, using filters. 6. sedimentation, filtration, aeration and chlorination. 7. in radiators survival of aquatic animals, to regulate temp.

D. 1. → T 2. → T 3. → T 4. → T 5. → T 6. → T 7. → F 8. → T

E. 1. → (iii) 2. → (v) 3. → (vii) 4. → (viii) 5. → (i) 6. → (ii) 7. → (iv) 8. → (vi)

F. 1.→ d 2.→ a 3.→ b 4.→ c 5.→ b 6.→ b

16. Pollution

A. 1. dichloro diphenyl trichloro ethane 2. heavy industries, motor vehicles 3. rain polluted by acid 4. drinking water 5. Eutrophication is usage of oxygen by weeds in greater amounts. B. 1. anything excess in atmosphere causing harm 2. carbon-dioxide 3. in refrigeration, fire extinguisher 4. drinking water 5. essential for existence of life 6. produce carbon-monoxide 7. physical, chemical, biological. C. 1. burning of fossil fuel. 2. Green house effect, lung diseases, acid rain 3. pollutants mix in rivers, lakes streams, oceans & seas 4. typhoid, cholera, jaundice, dysentary and destroys fishes & micro organisms 5. Waste should not thrown in water bodies, afforestation.

D. 1.→ (iii) 2.→ (iv) 3.→ (v) 4.→ (vi) 5.→ (ii) 6.→ (i)

E. 1.→ c 2.→ b 3.→ b 4.→ a

17. Forests

A. 1. vegetables, fruits 2. removal of plants 3. growing of plants 4. do yourself 5. plants. B. 1. one-third 2. carbon-dioxide 3. urbanisation, increasing population & industrialisation 4. network of food chain is food web, food chain is inter dependency of living thing on each other example-Grass-deer-lion. 5. for food, for shelter, to get oxygen. C. 1. prevent soil erosion, provide wood, fuel, clothing. medicine, paper 2. urbanisation, industrialisa-tion, increasing population 3. for food, to get oxygen, shelter 4. forest facilitate percolation of water 5. afforestation, overgrazing not to allowed, cutting trees should controlled.

D. 1.→ F 2.→ F 3.→ T 4. →T 5.→ F

E. 1.→ (iii) 2.→ (v) 3.→ (I) 4.→ (ii) 5.→ (iv)

18. Waste Management

A. 1. paper, plastic, metal, glass 2. from homes, from industries 3. DDT, plastic 4. human excreta, vegetable peels. B. 1. waste water, consisting human excreta, soap, detergent 2. to utilise waste water, sewer treatment 3. to kill disease causing organisms 4. healthy atmosphere. C. 1. Sewage water should be treated for neutralization. 2. Wastes should not thrown in rivers and ponds. Contaminated water should be treated before disposal. 3. house hold waste, industrial wastes, agricultural waste.

D. 1.→ T 2.→ T 3.→ F 4.→ T

E. 1.→ (iv) 2.→ (i) 3.→ (ii) 4.→ (iii)

F. 1. → c 2. → a 3. → b

Informative Science 8

1. Crop Production

A. 1. tilling or ploughing 2. plough 3. seed drill 4. watering the crop plants in the fields 5. unwanted plants 6. Branch of agriculture deals with feeding, shelter, health and breeding of domestic animals. 7. grains 8. queen bee, drones, workers. B. 1. Science deals with growth of plants & animals for humans. 2. Art of growing fruits, vegetable & ornamental plants 3. Rearing of fishes 4. sowing of seeds 5. Separating grains from chaff. 6. Rearing of honey bees. 7. Keeping & breeding of animals for specific purpose. C. 1. Branch of agriculture deals with caring of animals. 2. manure-cattle dung, fertilizer-chemical compounds, NPK 3. Process of watering crop plants, furrow barin, sprinkler 4. to increase food production 5. to improve varieties of plants, Dr. M. S. Swaminathan 6. Advantages-uses of modern machines, fertilizers, hybrid technology. Disadvantages-excess use of pesticides cause pollution, lack of manuring, etc. 7. Percentage of mineral and chemicals not in proper ratio 8. different nutrients.

D. 1. T 2. T 3. F 4. F 5. T 6. T

E. 1. (v) 2. (i) 3. (ii) 4. (iii) 5. (iv)

F. 1. b 2. d 3. c 4. a 5. a

2. Micro-organisms

A. 1. Algae 2. nongreen plants 3. amoeba, plasmodium 4. Alexander Fleming 5. streptomycin, chloromycetin 6. paramecium. B. 1. in soil, in water, in air 2. Aerobic–bacteria using oxygen, Anaerobic–bacteria not using oxygen 3. Staphylococci and clostridium botulinum. 4. dead organic matter or in dark, moist and warm place 5. spoils food due to fermentation 6. unicellular-spirogyra, multicellular;-anabaena 7. high mountains, polar region, in living organism. 8. by asexual and sexual 9. virus enter in living cell and utilise energy of host cell to reproduce. 10. Human-Smallpox, Animal-FMDV, Plant-TMV. C. 1. Bacteria, fungi, protozoa, algae, viruses, 2. useful-making curd, decompose animal waste, pickup nitrogen from air, Harmful-causes diseases, causes spoilage of food and food poisoning. 3. Bacteria–by binary fission, fungi-vegetative, asexual & sexual 4. (a) Bacteria-, making curd (b) making bread, cake, idli, wines and fruit juices. (c) as human food, as fertilizer, in antibiotics.

D. 1. F 2. F 3. F 4. F 5. F

E. 1 (iii) 2. (v) 3. (i) 4. (iv) 5. (ii)

F. 1. c 2. b 3. d 4. a

3. Fibrous Materials

A. 1. making tyre cords 2. thermosetting plastic 3. plastic polymers 4. polythene, polystyrene 5. polyvinyl chloride 6. rayon, polyester, nylon. B. 1. chain of molecules of monomer 2. obtained by heating & moulding material 3. copolymer 4. Thermoplastic, thermosetting Plastic 5. High polymer of vinyl chloride 6. Synthetic fibre 7. making electric switches 8. PVC is prepared by heating vinyle chloride in presence of dibenzoyl peroxide. 9. Teflon 10. Neoprene. C. 1. Prepared by polymerisation of ethene gas 2. for packing of textile material and food, carpets and toys. 3. Pure cotton soaked in caustic soda-warmth with carbon disulphide-Cellulose xanthate dissolved (viscous solution) dil. H_2SO_4 bath-fine filament. 4. (i) Teflon-making seal & gasket, insulator, used for coating utensils. (ii) vinyl chloride-making rain coat, hand bag, toys.

D. 1. T 2. T 3. F 4. T 5. F

E. 1. (iv) 2. (iii) 3. (ii) 4. (i) 5. (v)

F. 1. a 2. d 3. c 4. d 5. d 6. b 7. a

4. Metals and Non-metals

A. 1. sodium 2. to make sulphur dioxide, sulphuric acid, black gunpowder, matches and insecticides 3. copper, tin, zine 4. can be beaten into sheets 5. diamond 6. drawn into wires. B. 1. process of eating away of metals by oxygen, water, acids and other chemicals 2. Hydrogen 3. Mg 4. Ag, Au, Pt 5. using oil and grease, paint, galvanization, electroplating, anodizing 6. graphite 7. Iron is more reactive than gold. 8. purity of gold 9. layer of chemical to protect from corrosion 10. having some property of metals. C. 1. Reactive metals produce compounds, which are used for different purposes. 2. Homogenous mixture of two or more metals or non-metals, harder than metals, low melting point, more resistant to corrosion. 3. Eating away of metals by O_2, H_2O and other acids, by oil, grease, paint. 4. In term of carat. 24 carat is purest form of gold. 5. Metal-Good conductor of heat and electricity, ductile, lusture. Non metal-dull appearance, insulators. do not produce sound, low density, have low tensile strength.

D. 1. F 2. F 3. T 4. T 5. F 6. F

E. 1. (iii) 2. (v) 3. (vii) 4. (i) 5. (ii) 6. (iv) 7. (vi)

F. 1. b 2. none of them 3. a 4. c

5. Combustion

A. 1. carbon dioxide 2. CNG 3. oxygen 4. carbon dioxide, heat, light 5. coal, charcoal 6. LPG, Kerosene B. 1. Compounds of hydrogen and carbon 2. Amount of heat of 1 kg fuel 3. ethyl mercaptan 4. burning a fuel 5. Temp at which substance catch fire 6. fuel, oxygen, heat. C. 1. mixture of carbon and its compounds with H_2 & O_2 2. Different fractions boil at different temp. Crude oil heated upto 400° C 3. Explosion, spontaneous, rapid, sow 4. A region where combustion of gases takes place, dark zone, luminous zone, non-luminous zone. 5. Soda Acid type-CO_2 is produced Soda and acid. Foam type-saponin is added to produce foam.

D. 1. T 2. F 3. T 4. T 5. F 6. T

E. 1. (ii) 2. (iv) 3. (i) 4. (iii)

F. 1. c 2. b 3. b 4. c 5. c

6. Conservation of Biodiversity

A. 1. plants 2. information on threatened species of plants and animals 3. golden eagle 4. area for animal protection 5. crocodile, blue whale. B. 1. Jim Corbett National Park Uttarakhand 2. Biodiversity under threat 3. To preserve the quality of environment 4. UNEP–United Nations Environment Programme, TERI–Tata Energy Research Institute 5. list of plants growing in protected areas. C. 1. Wise and judicious use of resources 2. include all forms of life present on Earth. 3. Lost species, species in danger of extinction, species restricted to a particular geographical region 4. Afforestation, avoid hunting, establish protected areas. 5. There will be no life on Earth. 6. Deforestation excess grazing, poisoning, monoculture cropping.

D. 1. T 2. F 3. F 4. T 5. F

E. 1. (iv) 2. (v) 3. (i) 4. (iii) 5. (ii)

F. 1. a 2. d 3. b 4. c

7. Cell Structure

A. 1. amoeba, hydra 2. help in protein synthesis 3. fluid or gas filled spaces 4. plastids 5. cell. B. 1. Structural and functional unit of life 2. Robert Hooke 3. Cell Membrane, Nucleus, Cytoplasm 4. Mitochondria, Ribosomes, golgi bodies 5. Genes 6. Protect the cell 7. chloroplast, plastids 8. Produce energy during respiration. C. 1. It produces energy from food during respiration 2. Plant cell contains cell wall, chloroplast, plastids, large central vacuole. These are absent in animal cell. 3. mitochondria-produces energy, endoplasmic reticulum-transport of substance. Ribosomes-protein synthesis. 4. (i) in photosynthesis (ii) contain DNA for passing genetic

character.

D. 1. T 2. F 3. F 4. F 5. F 6. T

E. 1. (i) 2. (v) 3. (iv) 4. (vi) 5. (vii) 6. (iii)

F. 1. c 2. b 3. a 4. b 5. c

8. Reproduction

A. 1. testis 2. ovary 3. asexual reproduction 4. two 5. anther 6. two

B. 1. Hydra, Amoeba 2. Binary fission, budding, spore formation, fragmentation 3. lizard, hydra 4. Transfer of pollen grains from anther to stigma. 5. Anther, pollen grain, filament 6. Stigma, style, ovary, ovule 7. sperms, egg cells 8. Male and female gamets join together to make zygote. 9. Single organism produce offspring 10. Male and female jointly produce offspring. C. 1. Ovary contains oviduct with style and stigma at the top 2. Stamen contains anther, filament and pollen grains. 3. Internal fertilization takes place inside female body while external fertilization takes place out side body. 4. In pollination, pollen falls from anther to stigma and through pollen tubes, male gamets contact oviduct for fertilization.

D. 1. F 2. T 3. T 4. T 5. T

E. 1. (iii) 2. (ii) 3. (v) 4. (i) 5. (iv)

F. 1. a 2. b 3. b 4. a 5. c

9. Force

A. 1. frictional force, mechanical force 2. Force can stop the moving objects. 3. 4 Kg f 4. slow down. B. 1. Push or pull 2. Newton 3. act at surface of contact 4. Force act on body directly or through connector 5. Frictional, Mechanical, gravitational, biological, magnetic, electric 6. Measurement of force in kilogram 7. Scooter will slow down. C. 1. Force of attraction by bodies, force is directly proportional to the weight of body. 2. (a) Biological, mechanical, frictional, etc (b) Do not make direct contact–gravity of Earth, electric force, etc. 3. Force of wind covert into mechanical force. 4. opening door and window, pulling a cart. 5. (a) rickshaw, pulling a wheel cart (b) petrol engine, steam engine (c) piece of stone attract Earth force of gravity (d) riding bicycle, moving ball.

D. 1. F 2. F 3. F 4. F 5. F

E. 1. b 2. c 3. c 4. a 5. c

10. Friction

A. 1. friction 2. to reduce friction 3. to reduce friction 4. due to friction 5. use of lubricants. B. 1. Force opposes the motion. 2. Yes 3. Which opposes the surface just to side on over the other. 4. To increase friction.

2. To change the direction of friction. 6. due to air friction 7. weight, roughness of surfaces, area of contact. C. 1. static, sliding, rolling, limiting 2. It makes the vehicle move, walking, setting on chair, etc. 3. Rolling-Frictional farce exists between two surfaces, sliding-to maintain the motion of body. 4. Make surface slippery to reduce friction. 5. Produce heat and noise, wear and tear and loss of energy. 6. Use dry surface, increasing weight, making, rough surface.

D. 1. F 2. T 3. F 4. F 5. F 6. F

E. 1. ii 2. i 3. iii 4. v 5. iv

F. 1. a 2. a 3. c 4. c

11. Pressure

A. 1. due to less area 2. having less area 3. due to air pressure 4. area, force 5. Pressure is directly proportional to force. B. 1. Force acting per unit area 2. by manometer 3. Fill the container with water and make a hole at bottom 4. Pascal 5. forecast of weather. C. 1. To reduce the area, it will increase pressure 2. 1500 Pa 3. Take a tin with so many small holes at equal height, By filling it with water, it will leak at equal pressure. 4. Ink of pen leaks due to air pressure. 5. Due to high atmospheric pressure.

D. 1. (iii) 2. (iv) 3. (i) 4. (ii)

E. 1. T 2. F 3. T 4. T 5. T

F. 1. c 2. b 3. b 4. a 5. a

12. Sound

A. 1. frequency 2. light 3. a form of energy 4. music-pleasant sound, noise-sound produced by irregular vibrations 5. between 20 and 20,000 Hz 6. sound frequency greater than 20,000 Hz. B. 1. Very slow vibrations 2. Number of oscillation per second 3. Reflection of sound 4. beyond audible range 5. lower than 20 Hz 6. Amplitude 7. damage hearing 8. Maximum displacement of vibrating body. C. 1. (i) Maximum displacement of vibrating body (ii) Time taken in one oscillation (iii) Number of oscillations per second. 2. Air vibrations vibrate the eardrum which produces electric signals 3. Echos are the reflection of sound. 4. In communication, infrasonic used for drilling well, ultrasonic in technology. 5. Unwanted and unpleasant sound, use silencer in vehicles, banned on loud speakers.

D. 1. T 2. T 3. T 4. F 5. F 6. F

E. 1. (iii) 2. (ii) 3. (i) 4. (iv) 5. (v)

F. 1. b 2. b 3. c 4. d

13. Electricity

A. 1. Material through which electricity can pass. 2. copper, iron 3. an ionic compound of the metal 4. no, it is a bad conductor 5. electrolyte 6. rubber, plastic. B. 1. The process by which a liquid is decomposed into ions is called electrolysis. 2. Electrolysis of water is used for production of oxygen and hydrogen. 3. The process of depositing a thin layer of metal through electrolysis. 4. Electroplating of zinc on iron and steel 5. chromium plating gives a bright attractive appearance, it resists scratches and wear. 6. direct current. C. 1. Through electrolysis of common salt 2. Galvanized iron sheets do not react with water. 3. Chromium does not corrode, it gives a bright appearance which resists scratches and wear. 4. In electroplating, object is made the cathode and dip in electrolysis with a DC supply.

D. 1. T 2. T 3. T 4. F 5. F 6. T 7. T

E. 1. d 2. a 3. c 4. a 5. a

14. Atmospheric Electricity

A. 1. positive 2. loud noise caused by lightning 3. electricity 4. no 5. uncharged body comes in direct contact with a charged body. B. 1. excess or lacking of electrons on a body 2. device to protect building from lightning 3. like charges repel & unlike charges attract each other 4. attraction. C. 1. Repulsion is possible only between like charges but a charged body attract opposite charge and uncharged body also. 2. Device to protect building from lightning, it directly pass the charge to ground. 3. Due to electric charge produce in clouds. 4. Damage building towers etc. 5. Electric charge of the clouds flow to the Earth through it. 6. Repulsion takes place only between like charges. 7. Due to movement of clouds, there is friction between air and dust particles with clouds.

D. 1. Repulsion 2. Negative 3. Attraction 4. Positive 5. lightning.

E. 1. d 2. b 3. a 4. b 5. b

15. Light

A. 1. Bending of light rays when it travels from one medium to another. 2. ratio of velocity of light in space to that medium 3. convex lens 4. myopia 5. real 6. do yourself 7. the farthest point upto with we can see. It is infinity for normal human eye. B. 1. towards normal 2. mirage 3. Speed of different colours of light is different. 4. Violet, indigo, blue, green, yellow, orange, red 5. dispersion 6. violet, indigo, blue, green, yellow, orange, red 7. u

8. Imaginary line passing through focus and optical centre. 9. spectacles, microscope, telescope, camera. 10. Reciprocal of focal length, dioptre. 11. convex lens is thicker in middle while concave lens is thinner in middle 12. dispersion. C. 1. Speed of light differ one media to another, twinkling of stars 3. Real, inverted image form due to convergence of light passing through lens. 4. Body of camera, lens, film, diaphragm 5. inverted, virtual, enlarged. Objective forms diminished image which further enlarged by eyepiece. 6. Myopia-by increasing curve of lens-corrected by using concave lens Hypermetropia–by increasing focal length of lens-corrected by convex lens. 7. Eye lens forms inverted, diminished and real image on retina further sent to brain through signals.

D. 1. d 2. b 3. a 4. b 5. b

16. Celestial Objects

A. 1. Branch of science deals with study of heavenly bodies. 2. vast expanse of space including stars, planets galaxies 3. group of stars arranged in a pattern 4. moon 5. pieces of stony and metallic rock scattered throughout solar system 6. Earth 7. heavenly bodies having own light 8. vast expanse of space including everything that exists 9. heavenly bodies that revolve around the Sun 10. a large number of rocky and crystalline particles with frozen ice moves around the Sun. B. 1. Distance travelled by light in one year. 2. Revolution-move around in its orbit. Rotation-move on its axis. 3. Group of stars arrange in a pattern 4. Stars are bigger in size emit their own light. Planets are smaller than stars and they do not have their light. 5. Does not have atmosphere due to less gravity. 6. Small bodies of rocks revolve around Sun. 7. Pieces of stones scattered in solar system. They burn in Earth's atmosphere and produce craters on surface. 8. Shooting star burns with a tail while stars are not. 9. Saturn. C. 1. Stars-emit their own light. Planet-revolve around sun. Satellite-revolve around planets. 2. Eight planets, asteroids, revolve around Sun. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune 3. Huge balls of hydrogen and helium gases. 4. Man-made, space craft-weather fore cast, communication.

D. 1. F 2. F 3. F 4. F 5. T 6. F 7. T 8. F

E. 1. (iii) 2. (iv) 3. (i) 4. (ii) 5. (vi) 6. (v)

F. 1. c 2. d 3. d 4. d 5. b

17. Earthquakes

A. 1. Branch of science deals with study of earthquake 2. richter scale 3. volcanic eruptions B. 1. Shaking and trembling of Earth 2. (a) Place on surface directly above the seismic focus (b) Seismic sea waves. 3. (a)

ground vibrate (b) cause lot of damage to life and property 4. Seismology 5. construction of dams & reservoirs, deep mining 6. Centre point of Earthquake waves. C. 1. Rocks break at a point called focus, waves reach at epicentre and cause greatest damage. 2. land slide, flash flood, loss of life and property. 3. measured on Richter scale. Each large unit indicate ten times as long as previous one 4. In Bihar in 1934, in Kashmir in 2005 5. These are seismic sea waves. Its steepness is extreme low, ripples spread upto 720 km/hr.

D. 1. b 2. b 3. b and c 4. c 5. c.

18. Environment and Natural Resources

A. 1. substances provided by the nature 2. floods deforestation 3. management of forests to conserve them 4. compact form of carbon to form strong residue 5. loss of top soil. B. 1. Renewable-soil, nonrenewable-fossil fuels. 2. Large area of tree covered land. 3. cultivation and settlement 4. play important role in maintaining nature. 5. Petroleum diesel, Kerosene. C. 1. Forest provide habitat to wild life, help in water cycle and maintain balance in nature. 2. As fuel, in furniture, building, houses, paper, chemicals 3. Indiscriminate cutting of forest-demand of greater land for housing, industries & agriculture. 4. Management of forest to conserve them-they fence the forest, plant and care trees. 5. Buried of huge forest under surface of Earth. Carbonisation by anaerobic bacteria. Limited stock in nature, can not reproduce.

D. 1. d 2. a 3. c 4. a

19. Pollution

A. 1. suspended particulate matter 2. air containing harmful substances to humans, plants and other animals. 3. acid rain 4. compound 5. It corrodes buildings. B. 1. poisonous gas, it affects our lungs and cause acid rain 2. domestic waste, industrial waste, agricultural waste 3. avoid water wastage, drip irrigation, water harvesting 4. drinking water 5. industries, vehicles. C. 1. the rapid growth of algae in water in the presence of nitrogen and phosphorus. 2. coagulation sedimentation and decantation, biochemical treatment, final treatment 3. factories, automobiles.

D. 1. F 2. T 3. T 4. T 5. T

E. 1. b 2. a 3. b 4. a 5. a