

Items for Assessment of Learning Outcomes

Science Class 8



राज्य शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING
SECTOR-32 UT CHANDIGARH



CHAPTER I

CROP PRODUCTION & MANAGEMENT

Learning Objectives

- Compare the advantages of three major tools used for tilling and ploughing to justify the variety of agricultural practices
- Analyse the quality of seeds with respect to their germ in ability
- Compare the advantages of two major tools used for sowing to justify the variety of agricultural practices used in the country
- Distinguish between manure and fertilisers to identify ways in which nutrients in soil is replenished
- Evaluate how weeds adversely affects the growth of the plants in order to justify their removal and control
- Identify commonly known food items based on their sources to define animal husbandry

Learning Outcome

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

1. Identify the incorrect match:

- (a) Manure- Urea
- (b) Fertilizer- NPK
- (c) Pulses-Nitrogen fixation
- (d) Storage- silos

2. Pesticides are chemical substances that control pest they include:

- (a) Herbicides and Insecticides
- (b) Insecticides only
- (c) Insecticides and Rodenticide
- (d) Fungicides, Herbicides, Insecticides, Rodenticides and Nematicides

3. Crop rotation is performed to-

- (a) Improve the fertility of soil
- (b) Save nitrogenous fertilisers
- (c) Help in weed control and pest control
- (d) All of the above

Answers-

1 (a)

2 (d)

3 (d)

Learning Objectives

- Classify the major crops based on the time they are sown in the field to explain the months Kharif and Rabi crops are cultivated
- Sequence the tasks involved in cultivating the crop to list major steps of agricultural practices
- Describe the process of crop rotation to explain ways in which nutrients in soil is replenishes

Learning Outcome

- Classifies materials and organisms based on properties / characteristics, e.g., metals and non-metals; *kharif* and *rabi* crops; useful and harmful microorganisms; sexual and asexual reproduction; celestial objects; exhaustible and inexhaustible natural resources, etc.

1. Identify the correct match:

	Plant	Sowing	Harvesting
(a)	Rabi	June to July	September October
(b)	Kharif	June to July	September to October
(c)	Rabi	October to December	June to July
(d)	Both b and c		

2. Following are the steps of growing of crops. Identify the correct sequence:

- (i) Sowing of seeds
 - (ii) preparation of soil
 - (iii) harvesting of crops
 - (iv) Adding manures and fertilisers
- (a) (i), (ii), (iii), (iv)
(b) (ii), (iv), (i), (iii)
(c) (ii), (i), (iii), (iv)
(d) (iv), (ii), (iii), (i)

3. Identify the seeds that are sown with the method of broadcasting-

- (a) Mango (b) Mustard
(c) Rice (d) Rose

Answers-

1 (b)

2 (b)

3 (b)

Learning Objectives

- Explain why it is important to loosen the soil before sowing in order to elaborate the effect of loose soil in plant's growth
- Elaborate the process of harvesting to justify the reasons for employing combine and winnowing machine in the process of agriculture
- Distinguish between the practices of large scale and small- scale storage of food in order to conclude that stored grains need protection from pests and microorganisms

Learning Outcome

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

1. Preparation of soil helps the soil to turn and loose and this turning and losing of soil is necessary as:

- (a) the soil loosening helps moving the soil to other places
- (b) the loose soil helps in growth of earthworms and friendly microbes present in the soil.
- (c) nutrients present in soil become sink deeper for use by plants sown in next season
- (d) all of the above

2. Before sowing we must treat the seeds with

- (a) Fertilisers
- (b) Fungicides
- (c) Rodenticides
- (d) Manures

3. Factor/s responsible for increase in crop production in India is:

- (a) Use of improved seeds developed by plant breeding and scientific methods
- (b) Protection of plants against pest and better storage
- (c) Control of plant diseases
- (d) All of the above

Answers-

1 (d)

2 (b)

3 (d)

Learning Objectives

- Compare and analyse the traditional and modern methods of irrigation based on cost and efficiency in order to predict suitable irrigation method in real life situations
- Describe the process of crop rotation to explain ways in which nutrients in soil is replenished

Learning Outcome

- Makes efforts to protect environment, e.g., using resources judiciously; making controlled use of fertilisers and pesticides; suggesting ways to cope with environmental hazards, etc.
- 1. Post independence Green Revolution was initiated in India to improve crop production, however it has some undesirable effects as well. Identify the undesirable effect/s.**
 - (a) Excessive use of fertilisers, pesticides etc.
 - (b) Excess food production
 - (c) Overflow of underground water resources
 - (d) All of the above
 - 2. The students of a class performed the following experiment they took two beakers and filled them half with water they put some seeds of mustard in them and store them and waited for sometime according to you what could have been the observations made by the students:**
 - (a) healthy seeds being lighter float on the surface of water
 - (b) damaged seeds being lighter float on the surface of water
 - (c) some healthy seeds and some damaged seeds float on the surface of water
 - (d) damaged seeds being heavier settle down at the bottom
 - 3. The most suitable method of irrigation to avoid water wastage is-**
 - (a) Chain pump
 - (b) Drip system
 - (c) Rahat
 - (d) Sprinkler system

Answers-

1 (a)

2 (c)

3 (b)

CHAPTER II

MICROORGANISMS- FRIEND AND FOE

Learning Objectives

- Differentiate between microorganisms and viruses to establish that viruses reproduce only in the host body

Learning Outcome

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

1. Which of the following is a incorrect match?

- (a) Alexander Fleming : : penicillin
- (b) Edward Jenner :: vaccination
- (c) Louis pasture :: fermentation
- (d) Leeuwenhoek :: fertilisation

2. Typhoid is a disease caused by _____ and smallpox is a disease caused by _____

- (a) bacteria, protozoa
- (b) bacteria, virus
- (c) virus, bacteria
- (d) virus protozoon

3. It is difficult to make an antiviral medicine because-

- (a) Viruses have a long life
- (b) Viruses have few organelles
- (c) Viruses have only genetic material and a protein coat
- (d) Viruses use the machinery of the host to divide

Answers-

1 (d)

2 (b)

3 (d)

Learning Objectives

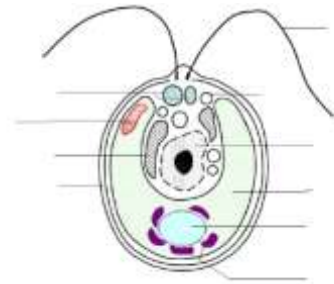
- Recall four major categories of microorganisms (bacteria, fungi, protozoa, algae)
- Define pathogens to list the class of harmful microorganisms

Learning Outcome

- Classifies materials and organisms based on properties / characteristics, e.g., metals and non-metals; *kharif* and *rabi* crops; useful and harmful microorganisms; sexual and asexual reproduction; celestial objects; exhaustible and inexhaustible natural resources, etc.

1. **Identify the organism shown in the figure and select the group of microorganisms to which it belongs:**

- (a) Algae
- (b) Bacteria
- (c) Fungi
- (d) Parasitic protozoa



2. **Identify the organism shown in the figure:**



- (a) Bacterium that eats other bacteria
- (b) Virus that uses bacteria as a host
- (c) It is one of the types of bacteria
- (d) None of these

3. **Which among the following insects carry diseases?**

- (a) Housefly
- (b) Female Anopheles Mosquito
- (c) Female Aedes Mosquito
- (d) All of these

Answers-

1 (a)

2 (b)

3 (d)

Learning Objectives

- Elucidate the reason for increasing volume when yeast is added to dough in baking industry to explain fermentation
- Describe how mosquitoes spread malaria and dengue to explain the role of carriers in spreading communicable disease

Learning Outcome

- Conducts simple investigations to seek answers to queries, e.g., what are the conditions required for combustion? Why do we add salt and sugar in pickles and *murabbas*? Do liquids exert equal pressure at the same depth?
- 1. Sudha's father makes excellent pickles at home. One day he makes mango pickles and adds all spices and oil, but he forgets to add salt. After a few days he observes that while coloured cotton like growth has appeared in the pickle and it gets spoiled. What could be the probable reason?**
 - (a) salt dehydrates the pickle and prevents fungal growth
 - (b) salt adds to the taste of the pickle
 - (c) salt activates bacteria
 - (d) salt has no role in preservation of food
 - 2. In the above case, which chemical preservative could have Sudha's father used to preserve the pickles?**
 - (a) Chlorine
 - (b) Potassium permanganate
 - (c) Sodium meta bisulphite
 - (d) Alum
 - 3. A report stated that incidence of dengue has increased in your locality. You and your friends decide to survey its probable cause. You check all roads and houses in your locality. What could be your observations?**
 - (a) the houses have uncovered fresh water storage
 - (b) the roads have potholes with standing water
 - (c) stagnant water was seen in flower pots
 - (d) all of the above

Answers-

1 (a)

2 (c)

3 (d)

Learning Objectives

- List examples of diseases in humans, plants and animal caused by microorganisms in order to explain the harmful effects of microorganisms

Learning Outcome

- Relates processes and phenomenon with causes, e.g., smog formation with the presence of pollutants in air; deterioration of monuments with acid rain, etc.

1. Identify the incorrect match

- (a) Malaria: Protozoa
- (b) Dengue: Virus
- (c) Citrus Canker: Virus
- (d) Hepatitis A: Virus

2. Identify the disease that is not transmitted through air.

- (a) Typhoid
- (b) Measles
- (c) Chicken Pox
- (d) Tuberculosis

3. Spread of diseases like malaria and dengue are associated with stagnant water because:

- (a) they are water borne diseases
- (b) they are spread by mosquitoes that breed in water
- (c) they are spread by the smell of water
- (d) there are certain plants that grow in standing water that cause this disease

Answers-

1 (b)

2 (a)

3 (b)

Learning Objectives

- Explain the role of antibiotics in order to demonstrate the medicinal uses of microorganisms
- Explain the role of vaccinations in fighting with diseases in order to appreciate the medicinal uses of microorganisms
- Explain microorganisms role in decomposing to describe importance

Learning Outcome

- Explains processes and phenomenon, e.g., reproduction in human and animals; production and propagation of sound; chemical effects of electric current; formation of multiple images; structure of flame, etc
- 1. Identify X in the given correlation if treatment: sterilisation, then vaccination: :X.**
 - (a) Fertilisation
 - (b) Immunisation
 - (c) Inoculation
 - (d) Sterilisation
 - 2. Identify the process/processes in which oxygen is used and carbon dioxide is released:**
 - (a) Combustion
 - (b) Decomposition
 - (c) Respiration
 - (d) All of the above
 - 3. The process of decomposition benefits the environment in the following ways except-**
 - (a) cleaning the environment
 - (b) recycling of nutrients
 - (c) spreading diseases
 - (d) increase soil fertility

Answers-

1 (b)

2 (d)

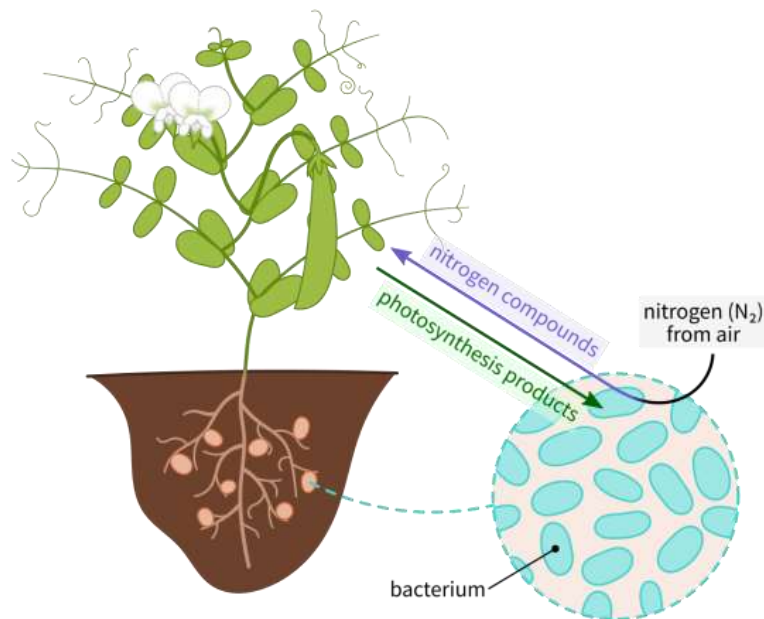
3 (c)

Learning Objectives

- Explain how microorganism help in increasing the nitrogen in soil to the agricultural uses of microorganisms
- Illustrate the process of fixing the nitrogen back in the soil to explain the role of microorganisms in increasing the fertility of soil

Learning Outcome

- Draws labelled diagram / flow charts, e.g., structure of cell, eye, human reproductive organs; experimental set ups, etc.
1. **Identify the bacterium that are present in the root nodules of leguminous plants:**



- (a) Nostoc
(b) Nitrosomonas
(c) Nitrobacter
(d) Rhizobium
2. **Why is the relationship of the bacteria with the root nodules of leguminous plants called symbiotic relationship?**
- (a) the host plant benefits and the bacteria is harmed
(b) the host plant and the bacteria mutually benefit
(c) the host plant is harmed and the bacteria is benefitted
(d) the two organisms just co exist without any interaction

3. Steps of Nitrogen Fixation-

- (i) Nitrogen fixation (conversion of nitrogen gas to nitrates)
- (ii) Denitrification (conversion of nitrogen compounds to nitrogen gas)
- (iii) Ammonification (organic nitrogen compounds to ammonia)
- (iv) Nitrification (conversion of ammonia to nitrite)
- (v) Assimilation (Incorporation of ammonia and nitrates into biological tissues)

Correct sequence of steps of nitrogen cycle is-

- (a) (i), (v), (iv), (iii), (ii)
- (b) (ii), (iv), (v), (i), (iii)
- (c) (i), (iv), (v), (iii), (ii)
- (d) (i), (iv), (ii), (iii), (v)

Answers-

1 (d)

2 (b)

3 (a)

Learning Objectives

- List various methods of preserving food in order to demonstrate the restriction of growth of microorganism

Learning Outcome

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.
- 1. Food preservation ensures that the food last for a longer time without getting spoiled .Which of the following methods is used to preserve the food materials?**
 - (a) Dehydration
 - (b) Oil immersion
 - (c) Saltation and sweetening
 - (d) All of the above
 - 2. The process of cooling and storing cells, tissues, or organs at very low temperatures to maintain their viability is _____**
 - (a) Cryopreservation
 - (b) Dehydration
 - (c) Refrigeration
 - (d) Pasteurisation
 - 3. Sodium benzoate helps in preservation of _____food materials such as pickles and squashes by_____.**
 - (a) basic, killing bacteria
 - (b) acidic, checking growth of bacteria
 - (c) basic, emitting poisons
 - (d) acidic, emitting fumes

Answers-

1 (d)

2 (a)

3 (b)

CHAPTER-III

SYNTHETIC FIBRES AND PLASTICS

Learning Objectives

- Distinguish between Synthetic & Natural fibres based on their properties
- List characteristics of plastic's ability to bend to differentiate between thermoplastics and thermosetting plastics
- Differentiate between plastics based on their ability to decompose in order to explain why plastics are a threat to the environment.

Learning Outcomes

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

QUESTIONS

1. Consider the following statement and choose the incorrect one:

- (a) Chemical name of natural polymer of cotton is cellulose
- (b) Rayon is often regarded as artificial silk
- (c) Terry cot is made by mixing terylene and cotton
- (d) None of the above

2. The resistance of the conductors is directly proportional to:

- (a) Length
- (b) Area of cross- section
- (c) Temperature
- (d) Resistivity

3. Which of the below option is/are examples of an organ that contain a smooth muscle?

- (a) Uterus only
- (b) Iris of eye
- (c) Bronchi only
- (d) All of the above

ANSWERS Q1 (d) Q2 (a) Q3 (a)

Learning Objectives

- Enlist different types of synthetic fibres and their characteristics in order to explain their specific uses
- Examine suggest the characteristics of plastic to explain its suitability in a variety of applications.

Learning Outcomes

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

QUESTIONS

1. **Why are non-biodegradable plastics a problem in the environment?**
 - (a) They do not decompose or break down naturally
 - (b) They can cause dead zones
 - (c) They are filling up lakes and ponds
 - (d) They contain poisons for wild life

2. **Increasing friction is necessary for which of the following?**
 - (a) Free wheel of bicycle
 - (b) Bicycle handle bar
 - (c) Chain of bicycle
 - (d) Ball bearing in front wheel

ANSWERS Q1 (a)

Q2 (b)

CHAPTER-IV
MATERIALS: METALS AND NON-METALS

Learning Objectives

- Elaborate the chemical reactions of metals and non-metals with oxygen, water, acids and bases in order to distinguish between them.
- Differentiate between the commonly known materials based on their ability to be bent and formed into sheets, be drawn into wires, ability to produce ringing sound, ability to conduct electricity, ability to conduct heat in order to define various properties of metal.

Learning Outcomes

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

QUESTIONS

1. **Rust is formed when iron combines with:**
 - (a) Nitrogen
 - (b) Hydrogen
 - (c) Moist air
 - (d) Ozone

2. **The property by which a substance can be drawn in to thin sheets is called:**
 - (a) Ductility
 - (b) Hardness
 - (c) Malleability
 - (d) Sonority

3. **The oxides of non-metals are generally _____ in nature.**
 - (a) Acidic
 - (b) Basic
 - (c) Neutral
 - (d) None of these

ANSWERS: Q1 (a) Q2 (c) Q3 (b)

Learning Objectives

- Categorize the commonly known materials as Metals & Non- metals in order to explain their physical properties.

Learning Outcomes

- Classifies materials and organisms based on properties/ characteristics, e.g., metals and non-metals; *kharif* and *rabi* crops; useful and harmful microorganisms; sexual and asexual reproduction; celestial objects; exhaustible and inexhaustible natural resources, etc.

QUESTIONS

- 1. The only metal known to occur in liquid form is:**
 - (a) Mercury
 - (b) Aluminum
 - (c) Gold
 - (d) Bronze
- 2. Which of the following metals is used for making foil to pack food stuff?**
 - (a) Gold
 - (b) Silver
 - (c) Aluminum
 - (d) Copper
- 3. The best malleable metal is:**
 - (a) Aluminum
 - (b) Copper
 - (c) Gold
 - (d) Zinc

ANSWERS: Q1 (a) Q2 (c) Q3 (c)

Learning Objectives

- Apply the concept of reactivity of a metal to predict if a given metal will displace other metal or not in a displacement reaction

Learning Outcomes

- Conducts simple investigations to seek answers to queries, e.g., what are the conditions required for combustion? Why do we add salt and sugar in pickles and *murabbas*? Do liquids exert equal pressure at the same depth?

QUESTIONS

1. The only non-metal which is liquid at room temperature is:

- (a) Bromine
- (b) Iodine
- (c) Graphite
- (d) Diamond

2. Which of the following metal is used for making jewellery?

- (a) Mercury
- (b) Platinum
- (c) Silver
- (d) Both b and c

3. Bauxite is the ore of:

- (a) Copper
- (b) Iron
- (c) Aluminum
- (d) Zinc

ANSWERS: Q1 (a) Q2 (d) Q3 (c)

Learning Objectives

- Elaborate the chemical reactions of metals and non-metals with oxygen, water, acids and bases in order to distinguish between them.
- Apply the concept of reactivity of a metal to predict if a given metal will displace other metal or not in a displacement reaction.

Learning Outcomes

- Writes word equation for chemical reactions, e.g., reactions of metals and non-metals with air, water and acids, etc.

QUESTIONS

1. Metals react with oxygen to form:

- (a) Basic oxides
- (b) Acidic oxides
- (c) Neutral oxides
- (d) Metalloids

2. Iron reacts with hydrochloric acid to produce _____ gas.

- (a) Oxygen
- (b) Carbon dioxide
- (c) Hydrogen
- (d) Sulphur

3. Sulphur reacts with oxygen to form:

- (a) Sulphur dioxide
- (b) Sulphur nitrate
- (c) Sulphate
- (d) Sulphide

ANSWERS: Q1 (a) Q2 (c) Q3 (a)

Learning Objectives

- Apply the concept of reactivity of a metal to predict if a given metal will displace another metal in a displacement reaction.
- Predict the utility of a given material for a specific task to reinforce the physical and chemical properties of metals and non-metals.

Learning Outcomes

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

QUESTIONS

- 1. Metals react with water to form _____ gas.**
 - (a) Hydrogen
 - (b) Nitrogen
 - (c) Oxygen
 - (d) Ozone
- 2. Which of the following is the most reactive metal?**
 - (a) Iron
 - (b) Zinc
 - (c) Copper
 - (d) Potassium
- 3. The property of metal used for making temple bell is:_____.**
 - (a) Ductility
 - (b) Malleability
 - (c) Sonority
 - (d) Hardness

ANSWERS: Q1 (a) Q2 (d) Q3 (c)

CHAPTER V

COAL AND PETROLEUM

Learning Objectives

- Classify natural resources based on their ability to replenish in order to distinguish between inexhaustible and exhaustible natural resources

Learning Outcomes

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

1. Minerals are

- (a) natural resources.
- (b) inexhaustible natural resources
- (c) exhaustible natural resources
- (d) all of these

2. Coal, petroleum, and methane are organic substances. They exist in different physical states. The physical state in which coal, petroleum and methane respectively exist are

- (a) solid, liquid and liquid
- (b) solid, liquid and solid
- (c) solid, liquid and gas
- (d) gas, liquid and solid

3. The layer containing petroleum oil & gas is

- (a) Above that of water
- (b) Below water
- (c) Between water and sand
- (d) Below sand

ANSWERS

Q1 (C)

Q2 (C)

Q3 (A)

Learning Objectives

- Classify natural resources based on their ability to replenish in order to distinguish between inexhaustible and exhaustible natural resources
- Classify different constituents of petroleum according to their use in daily life in order to derive various products besides fuel of petroleum that there is a large number of products obtained from petroleum other than fuel.

Learning Outcomes

- Classifies materials and organisms based on properties / characteristics, e.g., metals and non-metals; *kharif* and *rabi* crops; useful and harmful microorganisms; sexual and asexual reproduction; celestial objects; exhaustible and inexhaustible natural resources, etc.
- Conducts simple investigations to seek answers to queries, e.g., what are the conditions required for combustion? Why do we add salt and sugar in pickles and *murabbas*? Do liquids exert equal pressure at the same depth?

1. Which alternative incorrectly classified a natural resource on the basis of its availability?

- (a) Natural resource classification wild life exhaustible
- (b) Natural resource classification minerals exhaustible
- (c) Natural resource classification petroleum exhaustible
- (d) Natural resource classification wind exhaustible

2. Which of the following statements about fossil fuels is correct?

- (a) Only petroleum is prepared in laboratory
- (b) Petrochemicals are products of coal and petroleum
- (c) Both coal and petroleum are prepared in laboratory
- (d) Petrochemicals are products of petroleum and natural gas.

3. The earth's temperature is increasing due to Global warming which is due to

- (a) The Sun giving out more heat
- (b) The Earth slowly moving toward the sun
- (c) Increased use of fossil fuel
- (d) Less duration of winter every year

ANSWERS Q1 (C)

Q2 (D)

Q3 (C)

Learning Objectives

- Infer why gas, oil and water found in this particular sequence in location where petroleum is found in order to explain that gas, oil their densities and ability to mix with each other.
- Discuss the process of formation of coal to explain why coal is an exhaustible natural resource.
- List the useful by products after processing coal to explain that natural resources can used to obtain useful products other than fuel

Learning Outcomes

- Relates processes and phenomenon with causes, e.g., smog formation with the presence of pollutants in air; deterioration of monuments with acid rain, etc.
- Makes efforts to protect environment, e.g., using resources judiciously; making controlled use of fertilisers and pesticides; suggesting ways to cope with environmental hazards, etc.

1. **PCRA stands for**

- (a) Pollution Control Research association
- (b) Petroleum Conversation Research Association
- (c) Petroleum Control Research Association
- (d) Petrol, Coal Reserve Association

2. **What does natural gas mainly consist of?**

- (a) C_2H_6
- (b) C_3H_8
- (c) CH_4
- (d) C_4H_{10}

3. **Naphthalene balls used to repel moth and insect is derived from**

- (a) Petroleum
- (b) Sugar
- (c) Coal tar
- (d) LPG

ANSWERS

Q1 (B)

Q2 (C)

Q3 (C)

CHAPTER VI

COMBUSTION AND FLAME

Learning Objectives

- Differentiate between the type of combustion taking place in gas stove, burning of phosphorus and bursting of firecrackers to assess rapid combustion, spontaneous combustion and explosion
- Compile and list the commonly known inflammable substances to explain that certain substance catch fire than others.
- Explain the process of combustion in order to describe the role of fuel and oxygen in the process as necessary conditions for combustion to take place.

Learning Outcomes

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.
- Conducts simple investigations to seek answers to queries, e.g., what are the conditions required for combustion? Why do we add salt and sugar in pickles and *murabbas*? Do liquids exert equal pressure at the the same depth?

1. Which substance give heat and light after combustion

- (a) Combustion
- (b) Fuel
- (c) Flame
- (d) None of these

2. Ignition temperature is

- (a) Lowest temperature at which a substance catch fire
- (b) Higher temperature at which a substance catch fire
- (c) Any temperature
- (d) All of above

3. Which one of the following gases is used in combustion?

- (a) Nitrogen
- (b) Oxygen
- (c) Hydrogen
- (d) Carbon dioxide

ANSWERS

Q1(B)

Q2 (A)

Q3 (B)

Learning Objectives

- List harmful by-products of burning fuel to be aware of its harmful effects on individuals and environment such as global warming and acid rains
- Compare the calorific value of commonly used fuel to examine fuel efficiency

Learning Outcomes

- Relates processes and phenomenon with causes, e.g., smog formation with the presence of pollutants in air; deterioration of monuments with acid rain, etc.

1. Acid rain contains mainly

- (a) oxygen and nitrogen gas
- (b) fluorine and chlorine gas
- (c) magnesium oxide
- (d) nitrogen oxide and sulphur dioxide

2. Rahul was cooking potato curry on a Chulha. To his surprise, he observed that the copper vessel was getting blackened from outside. It may be due to

- (a) Proper combustion of fuel
- (b) Improper cooking of potato
- (c) Improper combustion of fuel
- (d) Burning of copper vessel

ANSWERS Q1(D)

Q2 (C)

Learning Objectives

- Define ignition temperature to explain why minimum temperature is required for a substance to catch fire.
- Explain the different parts of flame in order to explain why goldsmiths blow the outermost zone of a flame to melt gold and silver
- List the conditions necessary for producing fire to discover how combustible materials can be prevented from catching the fire.

Learning Outcomes

- Explains processes and phenomenon, e.g., reproduction in human and animals; production and propagation of sound; chemical effects of electric current; formation of multiple images; structure of flame, etc. Constructs models using materials from surroundings and explains their working, e.g., *ektara*, electroscope, fire extinguisher, etc.

1. Which one of the following statements is correct about inflammable substance?

- (a) Low ignition temperature and cannot catch fire easily.
- (b) High condition temperature and can catch fire easily.
- (c) High ignition temperature and can catch fire easily
- (d) Low ignition temperature and cannot catch fire easily

2. A substance which react with oxygen giving heat is called a combustible substance. Which one of the following is a combustible substance?

- (a) Iron nail
- (b) Glass
- (c) Wood
- (d) Stone

3. The suspended particles released by combustion of coal in air may lead to a health disease. Select the correct option.

- (a) Goitre
- (b) Arthritis
- (c) Asthma
- (d) Bone cancer

ANSWERS

Q1(D)

Q2 (C)

Q3 (C)

CHAPTER VII

CONSERVATION OF PLANTS AND ANIMALS

Learning Objectives

- List causes of deforestation to reflect on its rampant existence despite forest being essential to life
- Describe how droughts are caused to elaborate the consequence of deforestation
- Describe the process of desertification to explain the consequence of deforestation
- Interpret the importance of Red Data Book to explain why keeping a track of endangered species is important

Learning Outcome

- Relates processes and phenomenon with causes, e.g., smog formation with the presence of pollutants in air; deterioration of monuments with acid rain, etc.
- 1. The problem of desertification and deforestation is:**
 - (a) the result of overgrazing,
 - (b) indiscriminate cutting of trees,
 - (c) wastage of land resources,
 - (d) all of the above

 - 2. The harmful effects of deforestation are-**
 - (a) elevated water tables
 - (b) soil conservation
 - (c) destruction of habitat of wildlife,
 - (d) industrial growth

 - 3. In some countries it is illegal to buy and sell endangered animals because-**
 - (a) this makes them valuable,
 - (b) it helps increase their number,
 - (c) there are no buyers for animal products,
 - (d) to have more animals for experimentation

Answers-

1 (d)

2 (c)

3 (b)

Learning Objectives

- List some famous biosphere and wildlife sanctuaries to describe different mechanisms through which governments protect and conserve forest and wildlife
- List famous animal reserve e.g. Satpura Tiger Reserve to describe measures taken by government in protecting endangered animals
- Explain reforestation to describe ways to reduce it

Learning Outcome

- Makes efforts to protect environment, e.g., using resources judiciously; making controlled use of fertilisers and pesticides; suggesting ways to cope with environmental hazards, etc.
- 1. Tiger is an endangered species. Project tiger was initiated in India with the aim to create reserves in selected areas of India to increase the tiger population. Identify which of the following is not a tiger reserve.**
 - (a) Jim Corbett National Park
 - (b) Keoladeo Ghana National Park
 - (c) Kanha National Park
 - (d) Sunderbans Reserves
 - 2. I am a animal having top speed, I have a long tail, yellow coat with black spots. I fall in the category of cats and am considered extinct in India. Which animal am I?**
 - (a) Cheetah
 - (b) Fox
 - (c) Lion
 - (d) Tiger
 - 3. The best way to prevent desertification is:**
 - (a) shut down industries
 - (b) live in smaller houses
 - (c) plant more trees
 - (d) it cannot be stopped as it is a natural phenomenon

Answers-

1 (b)

2 (a)

3 (c)

Learning Objectives

- Explain recycling to describe ways to reduce deforestation

Learning Outcome

- Exhibits creativity in designing, planning, making use of available resources, etc.
- 1. It has been estimated that 24 trees are cut to make a ton of printing paper and writing paper. How can you as a student contribute to protect these trees?**
 - (a) I can use less paper and do rough work on board or use chalk
 - (b) I can use both sides of paper
 - (c) I can use every part of the paper while writing
 - (d) All of the above
 - 2. To reduce cutting of trees for making paper we can use alternatives like:**
 - (a) Cow waste
 - (b) Stubble
 - (c) Flax
 - (d) All of the above
 - 3. What is papier –mache?**
 - (a) method of recycling paper
 - (b) method of designing cloth
 - (c) method of forging metal
 - (d) method of making cloth

Answers-

1 (d)

2 (b)

3 (a)

CHAPTER VIII

CELL - STRUCTURE AND FUNCTIONS

Learning Objectives

- Classify animals based on their cell number, shape and size in order to describe unicellular and multicellular animals

Learning Outcome

- Classifies materials and organisms based on properties / characteristics, e.g., metals and non-metals; *kharif* and *rabi* crops; useful and harmful microorganisms; sexual and asexual reproduction; celestial objects; exhaustible and inexhaustible natural resources, etc.

1. Read the given statements and select the correct option

Statement 1: Plants have typical eukaryotic cell structures

Statement 2: All members are a chlorophyllous

- (a) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement one,
 - (b) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1,
 - (c) Statement 1 is true and statement 2 is false,
 - (d) Both statements 1 and 2 are false
2. **Plant cells can usually be distinguished from animal cells because only plant cells possess:**
- (a) Mitochondria and Lysosomes,
 - (b) Chromosomes and Lysosomes,
 - (c) Chloroplast and Cell wall,
 - (d) Chloroplast and Golgi complex
3. **The following organelles have their own genetic materials: (more than one option can be correct)**
- | | |
|------------------|------------------|
| (a) Chloroplast | (b) Golgi bodies |
| (c) Mitochondria | (d) Nucleus |

Answers-

1 (c)

2 (c)

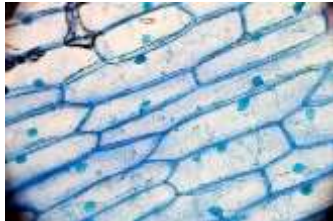
3 (a,c)

Learning Objectives

- List the different parts and functions of a typical cell in order to appreciate the unit structure in an organism
- Distinguish between plant and animal cells to explain the function of cell wall

Learning Outcome

- Prepares slides of microorganisms; onion peel, human cheek cells, etc., and describes their microscopic features
1. **A student makes a slide of a plant cell and an animal cell. But he forgets to label them. Out of the following observations in the microscope, which ones will help him decide the correct label for the slides? (more than one option may be correct)**



- (a) Plant cells have thick walls and animal cells have thin wall.
 - (b) In Plant cell the nucleus is peripheral and in animal cells nucleus is central in position.
 - (c) Both plant cells and animal cells are red in colour.
 - (d) Plant cells have cytoplasm and animal cells have protoplasm
2. _____ stain is used for making slide of section of plant tissue:
- (a) Eosin Y
 - (b) Iodine
 - (c) Methylene Blue
 - (d) Safranin
3. **We place the Cover slip on the mounted material on a slide very gently to avoid**
- (a) oozing of stain
 - (b) oozing of glycerine
 - (c) entry of air bubbles
 - (d) crushing of mounted materials

Answers- 1 (a,b)

2 (d)

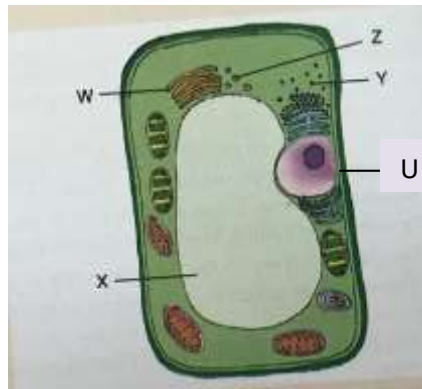
3 (c)

Learning Objectives

- List the different parts and functions of a typical cell in order to appreciate the unit structure in an organism
- Distinguish between plant and animal cells to explain the function of cell wall

Learning Outcome

- Draws labelled diagram / flow charts, e.g., structure of cell, eye, human reproductive organs; experimental



- 1. In the above figure identify the part 'U' that has genes and controls all the activities of the cell:**
 - (a) Vacuole
 - (b) Nucleus
 - (c) Mitochondria
 - (d) Chloroplast
- 2. Identify the part in the above figure that stores water and food.**
 - (a) X
 - (b) Y
 - (c) Z
 - (d) W
- 3. Identify the incorrect statements among the following: (more than one option may be chosen)**
 - (a) Cell wall is semi permeable membrane
 - (b) Lysosomes keep the cell clean
 - (c) Mitochondria carry out the function of cellular respiration,
 - (d) Vacuole helps in maintaining water balance in the cell

Answers-

1 (b)

2 (a)

3 (b,c,d)

CHAPTER IX REPRODUCTION IN ANIMALS

Learning Objectives

- Differentiate between asexual and sexual reproduction in order to list two modes of reproduction
- Differentiate between sex cells corresponding to parent in order to explain male and female gamete
- Differentiate between internal and external fertilization in order to describe two modes of fertilization in animals
- Classify animals based on their ability to give birth or lay eggs to differentiate between viviparous and oviparous animals

Learning Outcome

- Differentiates materials and organisms, such as, natural and human made fibres; contact and noncontact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

1. Match column-I with column-II

Column-I

- (A) Hydra
- (B) Fish
- (C) Livestock
- (D) Butterflies and moths

Column-II

- (i) Cocoon formation
- (ii) Budding
- (iii) Internal fertilization
- (iv) External fertilization

Select the correct option-

- (a) (A)-(i) , (B) -(iv) , (C) -(iii), (D) - (ii)
- (b) (A)-(ii) , (B) -(iv) , (C) -(iii), (D) - (i)
- (c) (A)-(ii) , (B) -(iii) , (C) -(iv), (D) - (i)
- (d) (A)-(iii) , (B) -(iv) , (C) -(i), (D) - (ii)

2. The birds and the frogs lay eggs. They are referred to as:

- (a) Viviparous
- (b) Oviparous
- (c) Ovoviviparous
- (d) all of the above

3. The cell formed after fertilisation is called:

- (a) Foetus
- (b) Zygote
- (c) Embryo
- (d) None of these

Answers-

1 (b)

2 (b)

3 (b)

Learning Objectives

- Classify animals based on their ability to give birth or lay eggs to differentiate between viviparous and oviparous animals

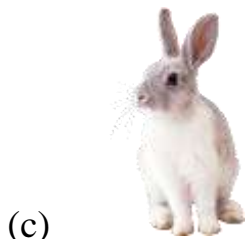
Learning Outcome

- Classifies materials and organisms based on properties / characteristics, e.g., metals and non-metals; *kharif* and *rabi* crops; useful and harmful microorganisms; sexual and asexual reproduction; celestial objects; exhaustible and inexhaustible natural resources, etc.

1. Identify the correct combination:

- (a) Salamander :: Ovoviviparous
(b) Human Beings :: Viviparous
(c) Fish :: Viviparous
(d) Snake :: Oviparous

2. Identify the Ovoviviparous animals from the following:



3. Statement 1: Oviparous produce young ones by means of eggs which are hatched after they have been laid by the parent.

Statement 2: In viviparous animals, young ones, after attaining a certain state of growth, are delivered out of the body of the female organism.

- (a) Statement 1 and Statement 2 are correct
(b) Statement 1 and Statement 2 are incorrect
(c) Statement 1 is incorrect and Statement 2 is correct
(d) Statement 1 is correct and Statement 2 is incorrect

Answers-

1 (b)

2 (d)

3 (a)

Learning Objectives

- Describe the process of fertilization in order to explain zygote formation
- Describe the process of embryo and foetus formation to explain how an individual is formed inside mother's womb
- Describe the life cycle of frogs from eggs to adult frogs in order to explain metamorphosis
- Describe the process of reproduction in hydra in order to explain the process of asexual reproduction

Learning Outcome

- Explains processes and phenomenon, e.g., reproduction in human and animals; production and propagation of sound; chemical effects of electric current; formation

1. Identify the correct order of developmental stages in human beings:

- (a) fertilisation, zygote formation, gamete formation, parturition
- (b) zygote formation, gamete formation, parturition, fertilisation,
- (c) gamete formation, fertilisation, zygote formation, parturition
- (d) fertilisation, zygote formation, parturition , gamete formation

2. Metamorphosis is defined as: (more than one option may be correct)

- (a) It is the process of transformation of larva into an adult through drastic changes.
- (b) Cell growth and differentiation is involved in this process
- (c) Physical development of organisms after birth or hatching
- (d) Development in stages including egg, larva, pupa and adult.

3. Both Hydra and Yeast undergo budding. What is the main difference between the two with respect to buds?

- (a) Yeast is unicellular and Hydra is multicellular
- (b) Yeast is Prokaryote and Hydra is Eukaryote
- (c) Yeast forms internal buds and Hydra forms external buds
- (d) Yeast and Hydra form same types of buds

Answers-

1 (b)

2 (a, d)

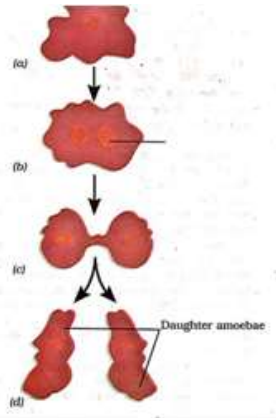
3 (c)

Learning Objectives

- Differentiate between asexual and sexual reproduction in order to describe two modes of reproduction in animals

Learning Outcome

- Draws labelled diagram / flow charts, e.g., structure of cell, eye, human reproductive organs; experimental set ups, etc.



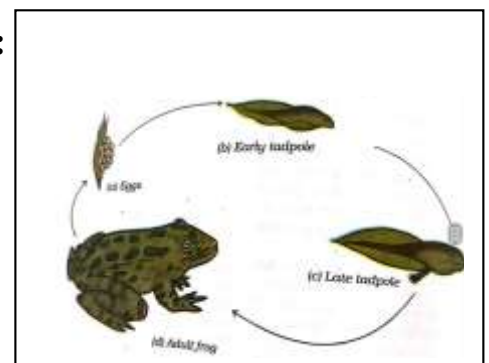
- 1. In the above diagram, which type of division is seen in (c)**
 - (a) cytokinesis
 - (b) exokinesis
 - (c) endokinesis
 - (d) karyokinesis
- 2. Amoeba are called immortal i.e. they do not die. Observe the above diagram, and find the correct statement:**
 - (a) Amoeba do not die a natural death
 - (b) Mother Amoeba cell divides into two to form daughter cells, which further divide.
 - (c) Amoeba are sent specially by God.
 - (d) All of the above
- 3. In the life cycle of frog, 'frogspawn' is clump of:**
 - (a) Tadpoles in jelly
 - (b) Eggs in jelly
 - (c) Froglets in jelly
 - (d) Larvae in jelly

Answers-

(e) 1 (b)

2 (b)

3 (b)



CHAPTER X

REACHING THE AGE OF ADOLESCENCE

Learning Objectives

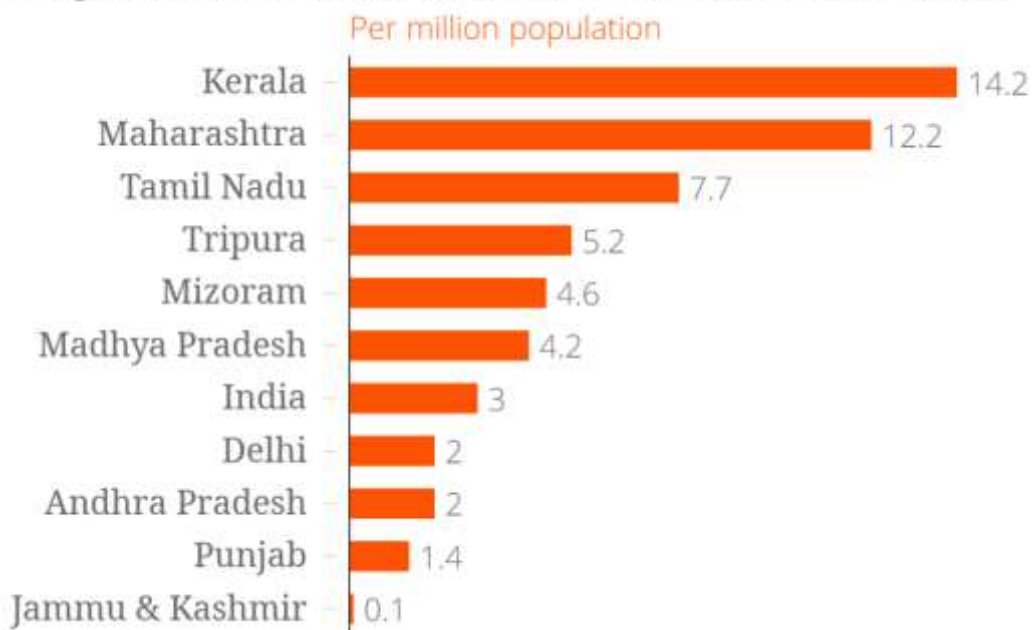
- Identify the consequences of taking drugs in order to explain why drugs are not a solution to confused and insecure feeling during adolescent

Learning Outcome

- Conducts simple investigations to seek answers to queries, e.g., what are the conditions required for combustion? Why do we add salt and sugar in pickles and *murabbas*? Do liquids exert equal pressure at the same depth?

1 In the data shown below you can see that drug abuse is a cause of suicides in many Indian states.

Drug addiction or abuse related suicides in some Indian states



Scroll.in

Data: Ministry of Social Justice and Empowerment

Identify the other consequences of drug abuse from the options given below:

- (a) Better concentration
- (b) Peer acceptance
- (c) Decreased mental health
- (d) Better immunity

- 2. It was also seen in a survey that the people addicted to drugs had higher rate of acquiring HIV. The reason for this could be:**
- (a) sharing the food
 - (b) sharing needles
 - (c) talking to HIV infected person
 - (d) taking care of HIV infected patient
- 3. In case you come across a person who is addicted to drugs, what are the signs that indicate the drug abuse?**
- (a) Watery or bloodshot eyes.
 - (b) Strange smells
 - (c) Disoriented
 - (d) All of the above

Answers-1 (c)

2 (b)

3 (d)

Learning Objectives

- Define adolescence and adolescent age in order to explain changes at puberty
- Enumerate different variations that take place in body at puberty to explain the effect of adolescence on changing human body
- Explain the effects of hormones in the development of secondary sexual characteristics in order to illustrate growth during puberty
- Elaborate the functions of hormones secreted by endocrine glands in order to explain the growth in male and female body at puberty
- Describe menstruation , menarche and menopause to explain the reproductive phases of life in humans
- Illustrate the procedure for the determining the sex of a baby in order to establish that the gender of the child is decided by the chromosome from male sperm
- Elucidate the need for a balanced diet in order to explain the nutritional needs of adolescents
- Identify the harmful consequences of taking drugs in order to explain why drugs are not solution to confused and insecure feeling during adolescence.

Learning Outcome

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

1. Read the following statements and select the correct option:

- (i) A daughter receives X-chromosome from her mother as well her father
 - (ii) Sex chromosomes of mother determine the sex of the unborn baby
 - (iii) A zygote is made up of a single cell
 - (vi) A embryo is formed as a result of fertilization.
-
- (a) Statements (i) and (iv) are false, while statements (ii)and (iii) are true.
 - (b) Statements (i) and (iii) are true, while statements (ii)and (iv) are false
 - (c) Statements (iii) and (iv) are false, while statements (i)and (iv) are true.

(d) Statements (iii) and (iv) are false, while statements (i) and (ii) are true.

2. Read the given statements and select the correct option.

Statement 1: Insulin is secreted by the pancreatic glands

Statement 2: Malfunctioning of pancreas result in ‘diabetes’, which causes increased blood sugar levels

- (a) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
- (b) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
- (c) Statement 1 is true and statement 2 is false.
- (d) Both statements 1 and 2 are false.

3. Which of the following is the correct matched pair?

Endocrine gland

Hormone

- | | | |
|--------------------|---|--------------|
| (a) Thyroid | - | thyroxine |
| (b) Pituitary | - | testosterone |
| (c) Pancreas | - | adrenaline |
| (d) Adrenal glands | - | Insulin |

Answers-1 (b)

2 (a)

3 (a)

CHAPTER XI

FORCE AND PRESSURE

Learning Objectives

- Classify common actions involving motion of object as push or pull in order to define the term force.

Learning Outcomes

- Classifies materials and organisms based on properties / characteristics, e.g., metals and non-metals; *kharif* and *rabi* crops; useful and harmful microorganisms; sexual and asexual reproduction; celestial objects; exhaustible and inexhaustible natural resources, etc.

1. A force when applied brings change in –

- (a) direction of motion of the body
- (b) speed of moving body
- (c) shape of the body
- (d) any/all of these

2. The force you will use to collect the iron nails scattered on a sandy ground is –

- (a) frictional force
- (b) gravitational force
- (c) magnetic force
- (d) None of these

3. Earth always pulls everything towards it due to

- (a) muscular force
- (b) mechanical force
- (c) gravitational force
- (d) electrostatic force

Answers Q1 (D)

Q2 (C)

Q3 (C)

Learning Objectives

- Provide examples where force is being applied in order to explain that two objects must interact for a force to come into play.
- Analyse motion of an object when force is applied in the same and opposite direction in order to conclude that forces in same direction add while forces in opposite directions subtract.
- Discover the direction of pressure applied by liquid when put in a container to conclude that liquids exert pressure on the walls of the container.
- Demonstrate and calculate the atmospheric pressure exerted due to the air column above a given area in order to establish that great atmospheric pressure is exerted without us realizing it.

Learning Outcomes

- Conducts simple investigations to seek answers to queries, e.g., what are the conditions required for combustion? Why do we add salt and sugar in pickles and *murabbas*? Do liquids exert equal pressure at the same depth?

- 1. You have two nails, one with sharp end and other with blunt end. If you apply equal force on each, the nail that will be hammered first will be**
 - (a) the nail with sharp end
 - (b) the nail with blunt end
 - (c) both will be hammered in same time
 - (d) none of these can be hammered

- 2. A force that opposes the motion of one surface sliding over another is called**
 - (a) friction
 - (b) newton
 - (c) lubrication
 - (d) ball bearing

- 3. Which among the following will exert maximum pressure when pushed with the same amount of force?**
 - (a) an eraser of area 2 cm^2
 - (b) a sharpened pencil tip
 - (c) the blunt end of a pencil
 - (d) The rear portion of closed safety pin

Answers Q1 (A)

Q2 (A)

Q3 (B)

Learning Objectives

- Derive the formula and calculate pressure for given force applied on a given area in order to explain common daily phenomenon requirement of sharp knife etc.

Learning Outcomes

- Explains processes and phenomenon, e.g., reproduction in human and animals; production and propagation of sound; chemical effects of electric current; formation of multiple images; structure of flame, etc.

1. Deep-sea diving vessels have to withstand pressure from the crushing effect of sea water acting

- (a) upwards
- (b) downwards
- (c) sideways
- (d) in all directions

2. A force applied on a moving body may

- (a) bring it to rest
- (b) increase its speed
- (c) decrease the speed
- (d) all of the above

3. A spring balance is used for measuring

- (a) weight
- (b) speed
- (c) acceleration
- (d) mass

4. A force of 500 dynes is applied on an area of 20 cm². Calculate the pressure exerted.

- (a) 2.5nm⁻²
- (b) 3.0nm⁻²
- (c) 3.5nm⁻²
- (d) 4.0nm⁻²

Answers

Q1 (C)

Q2 (D)

Q3 (A)

Q4 (A)

Learning Objectives

- Predict the motion of an object when force is applied viz-aviz force is not applied in order to explain that a force may bring a change in the state of motion of an object
- Predict the changes when force is applied to a body that is not free to move in order to explain that force can cause change in shape of objects
- Cite examples from daily life where an action causes change in movement or shape due to the contact between two objects in order to define contact forces

Learning Outcomes

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.
- 1. Four forces are acting on body. If body does not changes its shape or position. Then what does it mean?**
 - (a) Forces are similar and acting in same direction.
 - (b) Forces are parallel and opposite.
 - (c) Forces are added to zero and when taken as vectors
 - (d) Forces are different acting in the same direction.
 - 2. A force that opposes the motion of one surface sliding over another is called**
 - (a) Friction
 - (b) Newton
 - (c) Lubrication
 - (d) Ball bearing
 - 3. When two forces act in opposite directions, then net force acting two forces**
 - (a) Sum of two factors
 - (b) difference between two factors.
 - (c) both of these
 - (d) none of these

Answers Q1 (B)

Q2 (C)

Q3 (B)

CHAPTER XII

FRICTION

Learning Objectives

- Differentiate between rolling friction and sliding friction in order to explain why ball bearings are employed in machines e.g. bicycle wheels

Learning Outcome

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

1. Force of friction is directly proportional to

- (a) size
- (b) area
- (c) weight
- (d) all these factors of the moving body

2. The maximum value of force required to make the body just to slide is known as

- (a) dynamic friction
- (b) static friction
- (c) limiting friction
- (d) rolling friction

3. Rolling friction is always more than the

- (a) dynamic friction
- (b) static friction
- (c) limiting friction
- (d) none of these

Learning Objectives

- Analyse situations where resistance is felt while applying force to move a body in order to explain friction force where acts in opposite direction
- Analyse and identify number of bodies interacting when friction force is felt in order to establish that friction is a contact force.

Learning Outcome

- Conducts simple investigations to seek answers to queries, e.g., what are the conditions required for combustion? Why do we add salt and sugar in pickles and *murabbas*? Do liquids exert equal pressure at the same depth?

1. A body will experience the minimum friction in –

- (a) Vacuum
- (b) Air
- (c) Fresh water
- (d) Sea water

2. SI unit of force of friction is

- (a) N
- (b) kg wt
- (c) kg ms^{-2}
- (d) Joule

3. Friction is an interaction between

- (a) two bodies
- (b) the surfaces in contact of two bodies
- (c) three bodies
- (d) none of these

Answers Q1 (A)

Q2 (A)

Q3 (B)

Learning Objectives

- Discover the factors that cause friction when two bodies moving relatively in order to explain why it is easier to move an object on a smooth surface compared to a rough surface
- Provide advantages and disadvantages of friction in order to justify friction as necessary evil. Explain why the engine of an airplane is needed when flying in order to explain drag caused by air (friction caused by fluids)
- Identify factors causing friction in order to come up with formulate strategies to reduce

Learning Outcomes

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

1. Which of the following statements is correct about rolling and sliding friction ?

- (a) rolling friction is greater than sliding friction
- (b) rolling friction is lesser than sliding friction
- (c) rolling and sliding frictions acting on a body are equal
- (d) none of these

2. What can you use to reduce the force of friction on an object?

- (a) lubricate the surface
- (b) streamline the body shape
- (c) reduce the surface area in contact of two bodies
- (d) all of these

3. The frictional force with the in roughness of the surfaces

- (a) increases, increase
- (b) decreases, decrease
- (c) decreases, increase
- (d) increases, decrease

Answers Q1 (B)

Q2 (D)

Q3 (A)

CHAPTER XIII

SOUND

Learning Objectives

- Differentiate between frequency and amplitude in order to describe factors responsible for loudness and pitch of the sound
- Provide examples where sound travels from one point to another in order to establish that sound needs a medium to propagate

Learning Outcomes

- Differentiates materials and organisms, such as, natural and human made fibres; contact and noncontact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.
- Relates processes and phenomenon with causes, e.g., smog formation with the presence of pollutants in air; deterioration of monuments with acid rain, etc.

1. The loudness of a sound depends upon its–

- (a) amplitude
- (b) frequency
- (c) pitch
- (d) none of these

2. Two wires A and B of equal length differ only in their thickness. A is thinner than B. If both are plucked with same force, then–

- (a) a will produce sound of higher pitch than b
- (b) a will produce sound of lower pitch than b
- (c) both will produce sounds of equal pitch
- (d) none of these

3. Sound cannot travel through

- (A) air
- (B) water
- (C) iron
- (D) vacuum

Answers Q1 (A)

Q2 (A)

Q3 (D)

Learning Objectives

- List examples of body moving in to and fro motion in order to explain vibration
- Provide examples where sound travels from one point to another in order to establish that sound needs a medium to propagate
- Recall the audible range of sound for humans in order to explain why certain sounds cannot be heard by humans

Learning Outcomes

- Explains processes and phenomenon, e.g., reproduction in human and animals; production and propagation of sound; chemical effects of electric current; formation of multiple images.

1. A mosquito produces sound by vibrating its...

- (a) wings
- (b) vocal cords
- (c) legs
- (d) body

2. Sound is caused due to

- (a) propagation of light
- (b) vibrations
- (c) change in physical state
- (d) clouds

Q3 Which of the following sounds has the greatest frequency ?

- (a) man's voice
- (b) woman's voice
- (c) boy's voice
- (d) all have the same frequency

Answers Q1 (A)

Q2 (B)

Q3 (B)

Learning Objectives

- Describe the structure and function of an eardrum in order to explain how humans hear sound
- List commonly known musical instrument and identify parts that vibrate in order to explain that vibration produces sound
- List the harmful effects of noise pollution in order to mitigate it

Learning Outcomes

- Draws labelled diagram / flow charts, e.g., structure of cell, eye, human reproductive organs; experimental set ups, etc. Makes efforts to protect environment, e.g., using resources judiciously; making controlled use of fertilisers and pesticides; suggesting ways to cope with environmental hazards, etc.

1. Eardrum is a part of

- A) Sound producing organ
- B) Skeletal system
- C) Hearing organ
- D) Reproductive organ

2. Noise pollution is harmful for

- A) Human
- B) Cat
- C) Bird
- D) All

3. Which of the following is the correct group of wind instruments –

- (A) Violin, drum, nadaswaram
- (B) Shehnai, flute, nadaswaram
- (C) Shehnai, flute, cymbals
- (D) Gongs, jaltarang, shehnai

Answers Q1 (C)

Q2 (D)

Q3 (B)

Learning Objectives

- List commonly known musical instrument and identify parts that vibrate in order to explain that vibration produces sound
- List and identify functions of parts of human body that produces sound in order to explain the process of sound Production

Learning Outcome

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

1. **Violin is a musical instrument with**

- (a) stretched bow
- (b) stretched string
- (c) stretched membrane
- (d) none of these

2. **Which of the following are used in dishwasher or to wash the machines?**

- (a) infra-sonic waves
- (b) ultra-sonic waves
- (c) both (a) and (b)
- (d) neither (a) nor (b)

Answers Q1 (B)

Q2 (B)

CHAPTER XIV

CHEMICAL EFFECTS OF ELECTRIC CURRENT

Learning Objectives

- Distinguish between good and poor conductors of electricity in order to explain that various materials can conduct electricity under certain conditions

Learning Outcomes

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

1. Which of the following is a good conductor of electricity?

- (a) wood
- (b) steel spoon
- (c) dry air
- (d) chalk

2. Adding common salt to distilled water makes it

- (a) Good conductor
- (b) Insulator
- (c) No effect
- (d) Both a and b

3. Why do we add little dilute sulphuric acid to copper sulphate solution during electroplating?

- (a) To increase acidity
- (b) To increase conductivity
- (c) So that the colour becomes more prominent
- (d) To burn copper sulphate

Answers

Q1 (B)

Q2 (A)

Q3 (B)

Learning Objectives

- List commonly known chemical effects of electricity in order to establish that electricity causes chemical reactions

Learning Outcomes

- Explains processes and phenomenon, e.g., reproduction in human and animals; production and propagation of sound; chemical effects of electric current; formation of multiple images; structure of flame, etc
- 1. During purification of metals, the refined metal is obtained at the**
 - (a) cathode
 - (b) anode
 - (c) surface of electrolyte
 - (d) none of these

 - 2. The process by which a chemical change takes place in a substance when electric current is passed through it is called**
 - (a) electrolysis
 - (b) electroplating
 - (c) electrodes
 - (d) thermionic conduction

 - 3. The method of purifying metals by passing electricity is called**
 - (a) electrolysis
 - (b) electro-plating
 - (c) electro-refining
 - (d) none of these

Answers

Q1 (A)

Q2 (A)

Q3 (C)

Learning Objectives

- Describe the process of electroplating in order to explain the application of chemical effects of electricity on metals

-

Learning Outcomes

- Constructs models using materials from surroundings and explains their working, e.g., *ektara*, electroscope, fire extinguisher, etc.

1. The process of depositing a thin layer of any superior metal over an object of a cheaper metal with the help of electricity is called

- (a) electrorefining
- (b) electrometallurgy
- (c) electroplating
- (d) electrowinning

2. When electrodes are immersed in water and electricity passed, the bubbles formed on the negative terminal is actually _____ gas.

- (a) Hydrogen
- (b) Carbon dioxide
- (c) Oxygen
- (d) Nitrogen

3. Electroplating is based on

- (a) Chemical effect of electricity
- (b) Magnetic effect of electricity
- (c) Heating effect of electricity
- (d) Physical effect of electricity

Answers

Q1 (C)

Q2 (A)

Q3 (A)

Learning Objectives

- Describe the process of electroplating in order to explain the application of chemical effects of electricity on metals

Learning Outcomes

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

1. The gold leaf electroscope can be used to

- (a) detect charge only
- (b) detect or measure charge only
- (c) detect, measure and find the nature of charge
- (d) none of these

2. Which of the following solution is not used to glow the bulb

- (a) Sodium chloride
- (b) Copper sulphate
- (c) Silver nitrate
- (d) Sugar solution in diluted water

3. Mahesh's Uncle has set up an electroplating factory near his village. He should dispose all the waste of the factory in

- (a) In the nearby pond
- (b) In the nearby river
- (c) In the nearby cornfield
- (d) According to the disposal guidelines of the local authorities

Answers Q1 (C)

Q2 (D)

Q3 (D)

CHAPTER XV

SOME NATURAL PHENOMENON

Learning Objectives

- Analyse if two charged objects attract or repel each other in order to establish that similar charge repel each other while opposite charge attract each other
- Examine the sequence of lightening occurring in clouds in order to explain the process of electric discharge in nature
- Justify the phenomenon of earthquake in order to explain that the ground beneath us is not static

Learning Outcomes

- Explains processes and phenomenon, e.g., reproduction in human and animals; production and propagation of sound; chemical effects of electric current; formation of multiple images; structure of flame, etc.

QUESTIONS

- 1. The electric charge on a glass rod when it is rubbed with a silk cloth is:**
 - (a) Positive
 - (b) Negative
 - (c) Neutral
 - (d) Both positive and negative
- 2. Likes changes _____ each other.**
 - (a) Repel
 - (b) Attract
 - (c) Move near
 - (d) Move away
- 3. Charged glass rod and ebonite rod _____ each other.**
 - (a) Repel
 - (b) Attract
 - (c) Move away
 - (d) Move near

ANSWERS: Q1 (a) Q2 (a) Q3 (b)

Learning Objectives

- Examine the working of electroscope to detect if an object is charged or not in order to apply the concept of similar charge objects repel each other

Learning Outcomes

- Constructs models using materials from surroundings and explains their working, e.g., *ektara*, electroscope, fire extinguisher, etc.

QUESTIONS

1. Types of charges were discovered by:

- (a) Benjamin franklin
- (b) William Gibbert
- (c) Newton
- (d) Galileo Galilei

2. Trees get burnt due to:

- (a) Floods
- (b) Earth quake
- (c) Lightning
- (d) Thunder

3. A place of origin of an earthquake inside the earth is called:

- (a) Seismic focus
- (b) Epicentre
- (c) Seismic waves
- (d) Seismogram

ANSWERS: Q1 (a) Q2 (c) Q3 (c)

Learning Objectives

- Recall examples of visible sparks in order to explain the phenomenon of lightning.
- Investigate the process of earthing in order to assess the process of transferring charge from a charged object to earth in order to explain the advantages of earthing of electric circuits in households.
- Predict how lightning travels from the cloud to the ground in order to describe the measures that must be taken during lightning.

Learning Outcomes

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

QUESTIONS

1. The graphical record of the intensity of seismic waves is called:

- (a) Seismograph
- (b) Epicentre
- (c) Seismic waves
- (d) Seismogram

2. Which of the following is not a natural phenomenon?

- (a) Earthquake
- (b) Cyclone
- (c) Lightning
- (d) Nuclear explosion

3. Which of the following produces least friction?

- (a) Sliding friction
- (b) Rolling friction
- (c) Composite friction
- (d) Static friction

ANSWERS: Q1 (a) Q2 (d) Q3 (b)

CHAPTER XVI

LIGHT

Learning Objectives

- Distinguish between reflection from a rough and a smooth reflecting surface in order to differentiate between diffused and regular reflection

Learning Outcomes

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

1. Diffused reflection occurs if a ray of light is reflected by a

- (a) concave mirror
- (b) plane mirror
- (c) convex mirror
- (d) rough surface

2. The reflection taking place from the walls of a building is called

- (a) regular reflection
- (b) diffused reflection
- (c) multiple reflection
- (d) none of these

3. The reflection in which reflected rays travel as parallel beam is called

- (a) regular reflection
- (b) scattering
- (c) multiple reflection
- (d) none of these

Answers

Q1 (D)

Q2 (B)

Q3 (A)

Learning Objectives

- Compare and contrast between blind spot and field of view in order to explain how humans see object in the presence of light.

Learning Outcomes

- Conducts simple investigations to seek answers to queries, e.g., what are the conditions required for combustion? Why do we add salt and sugar in pickles and *murabbas*? Do liquids exert equal pressure at the same depth?

1. Which one of the following statements is correct regarding rods and cones in the human eye?

- (a) Cones are sensitive to dim light
- (b) Cones are sensitive to bright light
- (c) Rods are sensitive to bright light
- (d) Rods can sense colour

2. The amount of light entering the eye is controlled by

- (a) eye lens
- (b) cornea
- (c) iris
- (d) ciliary muscle

3. Blind spot is

- (a) sensitive to light
- (b) non – sensitive to light
- (c) both a & b
- (d) none of these

Answers

Q1 (B)

Q2 (C)

Q3 (B)

Learning Objectives

- Identify and calculate the angles of incidence and reflection of a ray of light to illustrate the laws of reflection in real life.
- Conclude the law of reflection and represent it by drawing a ray diagram identifying incident ray, reflected ray and the normal
- Establish that light can reflect multiple time with a set of mirrors by constructing a kaleidoscope

Learning Outcomes

- Measures angles of incidence and reflection, etc.
 - Constructs models using materials from surroundings and explains their working, e.g., *ektara*, electroscope, fire extinguisher, etc.
- 1. An incident ray makes an angle of 30° with a plane mirror. Then the angle of reflection is**
 - (a) 30°
 - (b) 60°
 - (c) 45°
 - (d) none of the

 - 2. A ray of light is incident on a plane mirror at an angle of incidence of 30° . The deviation produced by the mirror is-**
 - (a) 30°
 - (b) 60°
 - (c) 90°
 - (d) 120°

 - 3. To make a kaleidoscope we require**
 - (a) three plane mirrors
 - (b) four plane mirrors
 - (c) five plane mirrors
 - (d) six plane mirrors

Answers

Q1 (A)

Q2 (D)

Q3 (A)

Learning Objectives

- Illustrate with a line diagram how images invert when reflecting from a mirror in order to see the applications of the laws of reflection
- Describe various parts of human eye and identify their functions in order to explain how humans see object in presence of light

•

Learning Outcomes

- Draws labelled diagram / flow charts, e.g., structure of cell, eye, human reproductive organs; experimental set ups, etc.

1. If you stand in front of a plane mirror and scratch your left cheek, your image

- (a) scratches its left cheek.
- (b) scratches its right cheek.
- (c) scratches both cheeks one by one.
- (d) does not scratch at all.

2. The image formed by a plane mirror is

- (a) virtual, erect, behind the mirror and smaller than the object.
- (b) virtual, erect, behind the mirror and of the same size as the object.
- (c) virtual, inverted, behind the mirror and of the same size as the object.
- (d) real, erect, behind the mirror and of the same size as the object.

3. Front bulged part of the eyeball is called

- (a) cornea
- (b) choroid
- (c) pupil
- (d) retina

Answers

Q1 (B)

Q2 (B)

Q3 (A)

Learning Objectives

- Recommend different measures for protecting eyes when a problem is felt in order to establish the importance of eye care
- Describe the Braille system in order to explain how people with visual impairment manage to read and write

Learning Outcomes

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

1. Visually impaired people can read and write using

- (a) electronic writer
- (b) digital pens
- (c) braille system
- (d) hearing aids

2. The defect due to which a person is not able to see the distant objects clearly:

- (a) Myopia
- (b) Hypermetropia
- (c) Cornea
- (d) Cataract

3. Match the following items given in column A with that in column B

Column A	Column B
i. Pupil	A. Layer on which impression of images is formed
ii. Iris	B. Is a small opening in the cornea
iii. Retina	C. Sensitive for the dim light
iv. Rods	D. Controls the size of the pupil

Answers Q1 (C) Q2 (A) Q3 i (A) ii (D) iii (C) iv (A)

CHAPTER XVII
STARS AND THE SOLAR SYSTEM

Learning Objectives

- Differentiate between asteroids, comet and meteor in order to identify the celestial body.
- List commonly seen objects in the sky as celestial objects are

Learning Outcomes

- Differentiates materials and organisms, such as, natural and human made fibres; contact and non-contact forces; liquids as electrical conductors and insulators; plant and animal cells; viviparous and oviparous animals, on the basis of their properties, structure and functions.

QUESTIONS

- 1. The planet which is smallest and nearest of the sun is:**
 - (a) Earth
 - (b) Venus
 - (c) Mars
 - (d) Mercury

- 2. The only planet on which life exists:**
 - (a) Mercury
 - (b) Venus
 - (c) Earth
 - (d) Neptune

- 3. The brightest planet is:**
 - (a) Venus
 - (b) Jupiter
 - (c) Mercury
 - (d) Saturn

ANSWERS: Q1 (d) Q2(c) Q3 (a)

Learning Objectives

- List commonly seen objects in the sky as celestial objects are categorized the name of commonly known group of stars in order to explain that constellations are a group of stars with recognisable shape

Learning Outcomes

- Classifies materials and organisms based on properties/ characteristics, e.g., metals and non-metals; *kharif* and *rabi* crops; useful and harmful microorganisms; sexual and asexual reproduction; celestial objects; exhaustible and inexhaustible natural resources, etc.

QUESTIONS

1. _____ is the natural satellite of the earth.
 - (a) Uranus
 - (b) Jupiter
 - (c) Moon
 - (d) Neptune

2. The tail of a comet always points _____ the sun.
 - (a) Towards
 - (b) Away from
 - (c) Above
 - (d) Below

3. Asteroids orbit the sun in belt _____.
 - (a) Beyond Uranus
 - (b) Between Jupiter and Saturn
 - (c) Between Jupiter and Mars
 - (d) Between Earth and Mars

ANSWERS: Q1 (c) Q2 (b) Q3 (c)

Learning Objectives

- Explain with diagram the different phases of moon in order to explain that moon rotates around earth
- Categorize the name of commonly known group of stars in order to explain that constellations are a group of stars with recognisable shape
- Outline and illustrate the planets of the solar system in order to correctly identify them
- Identify the name of different celestial bodies in the solar system in order to explain the constituting bodies of a solar system

Learning Outcomes

- Draws labeled diagram / flow charts, e.g., structure of cell, eye, human reproductive organs; experimental set ups ,etc.

QUESTIONS

- 1. Comets are made up of _____.**
 - (a) Rocks
 - (b) Ice and dust
 - (c) Hydrogen gas
 - (d) Metals

- 2. The streak of light caused by a heavenly body burning completely while moving through the atmosphere is called _____.**
 - (a) A comet
 - (b) A meteor
 - (c) An asteroid
 - (d) A meteorite

- 3. Which of the following phenomena contributes significantly to the reddish appearance of the Sun at sunrise or sunset?**
 - (a) Dispersion of light
 - (b) Scattering of light
 - (c) Total internal reflection of light
 - (d) Reflection of light from the Earth

ANSWERS: Q1 (b) Q2 (b) Q3 (b)

Learning Objectives

- Describe artificial satellites in order to correctly classify them as man-made celestial bodies

Learning Outcomes

- Applies learning of scientific concepts in day-to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

QUESTIONS

1. **The Milky Way is a:** _____.
(a) Planet
(b) Galaxy
(c) Constellation
(d) Star
2. **The Polaris star belongs to the _____ constellation.**
(a) Ursa Major
(b) Ursa Minor
(c) Orion
(d) Scorpius
3. **The distance in universe is measured in terms of _____.**
(a) km
(b) Light years
(c) metres
(d) centimetres

ANSWERS: Q1 (b) Q2 (a) Q3 (b)

CHAPTER XVIII

POLLUTION OF AIR AND WATER

Learning Objectives

- Analyse the problem of air pollution in order to explain why it is a threat to human beings.
- Elaborate the formation and effects of acid rain in order to explain the reasons for discolouration of the marble of monuments (Taj Mahal)
- Explain the effect of greenhouse gases on the planet in order to explain potential reason for rising temperature of the planet.
- Describe water pollution in order to assess it as a threat to human beings.

Learning Outcomes

- Relates processes and phenomenon with causes, e.g., smog formation with the presence of pollutants in air; deterioration of monuments with acid rain, etc.

QUESTIONS

1. Which of the following human activity is not a cause of pollution?
 - (a) Industrial growth
 - (b) Urbanisation
 - (c) Use of pesticides
 - (d) Afforestation

2. Increasing percentage of Carbon dioxide in the environment leads to: _____.
 - (a) Deforestation
 - (b) Global warming
 - (c) Suffocation
 - (d) Acid rain

3. Pollutant Sulphur dioxide is released by: _____.
 - (a) Burning of fossil fuels
 - (b) Fertilisers
 - (c) Stone crushing
 - (d) Wood work

ANSWERS: Q1 (d) Q2 (b) Q3 (a)

Learning Objectives

- Elaborate the formation and effects of acid rain in order to explain the reasons for discolouration of the marble of monuments (Taj Mahal)

Learning Outcomes

- Writes word equation for chemical reactions, e.g., reactions of metals and non-metals with air, water and acids, etc.

QUESTIONS

1. **Ultraviolet radiations coming from the sun are stopped by an atmospheric layer known as: _____.**
 - (a) Ozone
 - (b) Oxygen
 - (c) Nitrogen
 - (d) Hydrogen
2. **Global warming leads to an increase in _____ of the atmosphere.**
 - (a) Temperature
 - (b) Humidity
 - (c) Pressure
 - (d) Air
3. **The clean fuel for domestic use is:_____.**
 - (a) LPG
 - (b) Wood
 - (c) Coal
 - (d) Kerosene

ANSWERS: Q1 (a) Q2 (a) Q3 (a)

Learning Objectives

- Enumerate steps that can be taken to clean water for drinking in order to explain how water can be made safe for drinking i.e. portable water
- Explain how reducing, reusing and recycling industrial waste helps in reducing the water pollutants in order to explore measures for dealing with water pollution

Learning Outcomes

- Applies learning of scientific concepts in day- to-day life, e.g., purifying water; segregating biodegradable and non-biodegradable wastes; increasing crop production; using appropriate metals and non-metals for various purposes; increasing / reducing friction; challenging myths and taboos regarding adolescence, etc.

QUESTIONS

- 1. Marine plants and animals are mostly affected by:_____.**
 - (a) Global warming
 - (b) Oil spills
 - (c) Air pollution
 - (d) Floods
- 2. Which is not the cause of water pollution?**
 - (a) Industrial sewage
 - (b) Domestic sewage
 - (c) Burning of fossil fuel
 - (d) Bathing in rivers
- 3. Unleaded petrol does not release _____.**
 - (a) Carbon dioxide
 - (b) Carbon monoxide
 - (c) Sulphur dioxide
 - (d) Toxic lead on burning

ANSWERS: Q1 (b)

Q2 (c)

Q3 (a)

Learning Objectives

- Identify commonly known air pollutants in order to examine their harmful effects
- Suggest alternate mechanism to lower carbon emission in order to suggest steps to curb the air pollution.
- Cite steps taken to prevent water pollution in major river(s) in order to explain measures to deal with water pollutants

Learning Outcomes

- Makes efforts to protect environment, e.g., using resources judiciously; making controlled use of fertilisers and pesticides; suggesting ways to cope with environmental hazards, etc.

QUESTIONS

- 1. Which of the following causes biological magnification?**
 - (a) DDT
 - (b) CFCs
 - (c) CNG
 - (d) LPG

- 2. Ozone hole is found right above the _____.**
 - (a) Africa
 - (b) Asia
 - (c) Antarctica
 - (d) Australia

- 3. The pollutants harming monuments come in the form of _____.**
 - (a) Gases
 - (b) Liquids
 - (c) Acid rain
 - (d) Solids

ANSWERS: Q1 (a) Q2 (c) Q3 (c)

Contributor

- i. Mr. Vishal Rana (ARP, Physics)**
Education Department
UT Chandigarh
- ii. Ms. Sushma Prajapati (ARP, Chemistry)**
Education Department
UT Chandigarh
- iii. Dr. Openderjeet Kaur (ARP, Biology)**
Education Department
UT Chandigarh

Reviewer

- i. Ms. Gifty (Assistant Professor)**
SCERT UT Chandigarh
- ii. Ms. Manu Sharma (PGT)**
SCERT UT Chandigarh

Co-ordinator

- i. Dr. Deepika Gupta**
Assistant Professor
SCERT UT Chandigarh

*“Live as if you were to die
tomorrow. Learn as if you were
to live forever”*

- Mahatma Gandhi

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राज्य शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

SECTOR-32 UT CHANDIGARH

