

Key to Navjeevan Term Book - II

Standard
7

Teacher's Copy

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English Balbharati

Unit - II

Topic 2.1 : From a Railway Carriage

English Workshop :

- Q.1.** witches - ditches; battle - cattle; plain - rain - again; eye - by; scrambles - brambles; gazes - daisies; road - load; river - ever.
- Q.2. (1)** Bridges and houses, hedges and ditches, horses, cattle and meadows are mentioned in the first stanza.
- (2)** Hills and plains, painted stations are mentioned in the second stanza.
- (3)** A child clambering and scrambling, gathering brambles all by himself, a tramp standing and gazing and daisies in the green are mentioned.
- Q.3. (1)** The train is moving at great speed. Those inside the train feel that the sights are flying. Actually the sights are stationary, the train is moving very fast.
- (2)** It makes me sad because these sights of nature are really beautiful sights and people in the train cannot take in the beauty because the train is moving very fast.
- Q.4.** (a) Here is a child. (b) Here is a tramp.
(c) And there is the green. (d) Here is a cart.
(e) And here is a mill. (f) And there is a river.
- Yes, we can tell which ones are closer and which are at a distance from the train.
- The word 'here' shows something which is nearby or closer.
- The word 'there' shows something which is faraway or at a distance.
- Q.5.** Her dress is shining like the sun.
He keeps his mind like an open book.
T.V. makes the brain as soft as cheese.
The sun is as hot as fire.

Q.6. Bus.

Here are boys playing.
There are beggars begging.
There are dogs fighting for some food.
There are lot of papers scattered on the road.
There is so much of wood.

Aeroplane.

High up in the sky we fly,
And some clouds in the sky.
There we see some mountains.
And water flowing down like a fountain.
What a beautiful sight for one's eyes.
A sight we cannot forget even if one tries.

Comprehension :

Extract - 1

- Q.1. (1)** They fly as thick as driving rain.
- (2)** Stations whistle by the poet.
- (3)** The poet sees the child clambering and scrambling and gathering brambles all by himself.
- (4)** He is standing and gazing.
- (5)** The charging train is compared to troops in a battle.
- Q.2.** The poet is in a train that is rushing past at a very high speed. It passes meadows and horses and cattle. It passes painted stations and flower bushes. There is a child clambering and scrambling to gather brambles. He sees a tramp standing and gazing at the passing train. The poet also sees a cart loaded with goods lumping along. There is a river that soon disappears. All these sights are seen just for a moment.
- Q.3. (1)** (a) Alliteration - sound of letter 'f' is repeated.
(b) Simile - The fast moving train is compared to troops.
(c) Simile - all the sights are compared to the driving rain.
- (2)** Witches - ditches; battle - cattle.

Topic 2.2 : The Souvenir

English Workshop :

- Q.1. (1)** (a) grossly excessive (b) actions taken early to avoid risk
(c) without official permission
(d) again and again (e) with great eagerness
- (2)** (a) orbit, bit (b) caution
(c) author (d) repeat (e) enthusiastic

- Q.2.** Boarding the space shuttle to reach the moon.
Slowly the earth looks smaller and smaller.
The shuttle starts orbiting the moon.
It completes one revolution every 32 minutes.
Dome shaped settlements on the moon visible.
Space shuttle lands.
Children taken to Neil Armstrong base via a tunnel.
Children welcomed by the receptionist and given important instructions.
First day on the moon - Sky watch.
Second day- Circus watching.
Third day - Visiting the Neil Armstrong historical monument and wearing space suits to go shopping.
Return to the Earth.

- Q.3. (1)** Right (2) Right (3) Wrong (4) Wrong
(5) Wrong (6) Right (7) Wrong

- Q.4. First Day :** On the first day of the trip, we were taken for a 'Sky Watch'. There is no atmosphere on the moon. We could see the stars shining or rather I should say dazzling brightly on the dark background of the moon sky. We saw the disc of the earth. The earth looked thirteen times bigger. We could not believe what we were observing. It was also seventy times brighter. We were all ecstatic. It was like 'WOW'.

Second Day : I was looking forward to my second day on the moon. The main attraction was the circus on the moon. We were made to sit in the tent and the circus was going on outside. We were surprised at this seating arrangement, but again it was wonderful to see the gymnast jumping twenty-seven metres high. After the circus we visited some settlements and spoke to the people staying there.

Third Day : We went to a place of historical importance. This was the place where Neil Armstrong had landed a hundred years earlier. It is the oldest place in the history of man on the moon. Neil Armstrong's first footprint is preserved. On the base, it is carved 'One small step for a man, one giant leap of mankind.' We all were simply amazed.

This was followed by us wearing space suits and roaming outside and experiencing the gravitational force of the moon. Then we bought ornaments for our parents and friends.

The day I gave the earrings to mom.

I was waiting to present the earrings to mom. I had bought them to show mother how grateful I was for this amazing trip. I was sad when mummy looked at the earrings and asked me how I expected her to wear such heavy earrings.

I was disappointed, but I suddenly realised that the earrings were heavy on earth, because I had purchased them in the field of the moon's gravity.

- Q.5.** The field of gravity on the moon will not allow big, huge buildings. Secondly, there are not many who have settled on the moon, hence only settlements are mentioned.
- Q.6. (1)** In the 21st century more or less.
(2) Sayali lives in India.
(3) The feeling would be one of surprise, one of awe, something unbelievable. I would not know what would

happen next. The feeling would be something, I would find very difficult to define or describe.

- (4) Since the gravitational force of the moon is $\frac{1}{6}$ that of the earth, in settlements, this force is made equivalent to that of the earth and artificially maintained, but outside the settlements the gravitational force of the moon is at work, hence the children were told to be very careful when they roamed around.

The second point was related to shopping on the moon. All were told to buy articles only from the shops inside the dome shaped settlements, and not from unauthorised shops outside.

- (5) There is no atmosphere on the moon, hence on the dark background of the moon sky, the stars shone dazzling bright. This was unlike the foggy atmosphere of the earth. The most attractive view was the disc of the earth. The earth looked thirteen times bigger than the moon in the moon's sky. It was also seventy times brighter.
- (6) It tells us that the earth looked as if it had its own light and it must have been day time on earth, for its light to shine so brightly.
- (7) Without atmosphere we will not get gases needed for living, breathing and growing trees and plants. People will have to wear oxygen masks. There will not be any vegetation and trees in such places. Everything around will be clear and bright, not foggy.
- (8) If the circus was held in a closed hall, the gymnast would not be able to jump twenty seven metres high. Jumping would be impossible in a tent. Hence, the spectators had to be seated in the tent while the jumping took place outside the tent.

- (9) She bought the earrings in the open market. Here, the gravitational pull of the moon was $\frac{1}{6}$ that of the earth, hence the earrings did not appear heavy. Sayali did not realise this at that time, since she was wearing her space suit. To her, the earrings did not feel heavy.
- (10) Sayali had ignored the instructions, which mentioned not to buy anything from the outside shops, but to do shopping only from the shops inside the dome shaped settlements.
- (11) Sayali had purchased the earrings in the field of the moon's gravity which is $\frac{1}{6}$ that of the earth's gravity. When she was purchasing the earrings, she felt the weight was fine but on the earth, the gravity is six times that on the moon. Hence, on the earth the earrings became heavy.

Comprehension :

Extract - 1

- Q.1. (1) You all must be interested in **carrying souvenirs back home** from the moon.
- (2) The gravitational force of the moon is **$\frac{1}{6}$ that of the earth.**
- (3) The children were escorted through **an airtight tunnel** to the settlement at **the Neil Armstrong base.**
- (4) You will have to be **extremely careful** when you roam around here.
- Q.2. (1)-(c), (2)-(a), (3)-(d), (4)-(b).
- Q.3. (1) (a) The children would be interested in carrying home souvenirs.
- (b) The shuttle made a slow, measured and safe landing on the moon.

(c) The children were escorted to the settlement at the Neil Armstrong base.

(d) A gravitational force equivalent to that of the earth was being artificially maintained at the settlements.

- (2) (a) doubtful (b) genuine
(c) exit (d) animal

Q.4. (1) (a) Souvenirs - common noun

(b) force - abstract noun

Moon, Earth - proper nouns.

- (2) (a) happy, pleasant. (b) slow, measured, safe.

Q.5. After welcoming the children, the receptionist gave them some instructions. She explained that the gravitational force of the moon is $\frac{1}{6}$ that of the earth. In the human settlements the gravitational force was artificially maintained, but outside, the gravitational force of the moon was at work, hence the children had to be very careful while roaming around. The receptionist then told the children to do their shopping only from the shops inside the dome shaped settlements and not to buy anything from outside.

Extract - 2

Q.1. (1) True

(2) True

(3) False - The teacher had assigned a task of writing an essay on how they spent their time on the moon.

(4) False- The gymnast jumped twenty-seven metres high.

Q.2. (1) Neil Armstrong.

(2) To a place of historical importance.

(3) High jumps and long jumps.

(4) Seventy times brighter.

Q.3. (1) (a) On the dark background of the moon sky, the stars **shone dazzling bright**.

(b) The second day's attraction was **the circus on the moon!**

(c) The **first footprint of Neil Armstrong** was preserved on the moon land.

(d) Children fell asleep feeling **happy, excited, and comfortable** at the same time.

- (2) (a) moon (b) first (c) happily

Q.4.	Noun	Verb	Adjective
(1)	attraction	attract	attractive
(2)	brightness	brighten	bright
(3)	beauty	beautify	beautiful
(4)	excitement	excite	excited, exciting

Q.5. On the third day, the teacher took the group to a place of historical importance. It was where Neil Armstrong had landed a hundred years ago. This had become a historical monument. It was the oldest place in the history of mankind on the moon. The first footprint of Neil Armstrong was preserved on the moonland. Beside the footprint was a grand statue of Neil Armstrong. At the base of the statue were the following words : "One small step for a man, one giant leap of mankind."

Topic 2.3 : Abdul Becomes a Courtier

English Workshop :

Q.1. (1) books, manuscripts, erudition, philosophy, astronomy, Arabic, Persian, Scholar.

(2) silk, velvet, brocade, tailor, jacket.

(3) treasures, knowledge, Astronomy, Philosophy, Arabic, Persian.

(4) patience, determination, aim, achieve, perseverance.

Q.2. (1) His learning of books, his intelligence, his relations with other people.

(2) The Emperor was right in saying that Abdul has great talent. Yes, it tallies with his actions. Abdul used his talent to help others. He used his brain power and fed the hens and chickens without any expense. Abdul covered the book with fabrics obtained from bags that were sent to the king with formal requests. Abdul used his brain power and his talent along with his intelligence to rise high in the world.

Q.3.

Abdul

Agra,

India.

26th July, 2017

The Emperor,

Agra.

Sub: Application for job.

Respected Sir,

I, Abdul, have heard so much of your kindness and generosity to everyone around you. I am in need of a job since I require money to buy books in which I am very interested.

You may give me whatever job you wish to, I will do my best and do the job to the best of my ability. I assure you, sir, that you will find no cause to be dissatisfied with me and my work.

Sir, I pray for hearing from you soon.

Your obedient and loyal,

Abdul

Q.4. Here is a short story about Abdul, who won great name and fame because he used his wits, brain power and perseverance to help others and himself. Abdul wished to read books. He asked his father to get him books, which his father could not do. He went to a merchant and asked him to give him a job and in return as a pay he asked if he could read the books in his store. He was then employed at the 'Murgikhana' and became a poultry keeper. He used his brain and gave the hens food and leftovers from the kitchen. The Emperor was very pleased with him and put Abdul in charge of the library. One year later when the Emperor visited the library, he saw that the books had beautiful covers made of discarded silk, velvet and brocade bags. This proved to all that Abdul had wits, brains, perseverance, patience and determination.

Q.5. (a) Tins can be decorated with pencil shavings and coloured paper, to be used as pencil and pen holders or knife and spoon holders.

(b) Leftover cloth pieces from the tailors' shops can be made into bedsheets or covers.

(c) Coloured leftover paper can be used to make paper lanterns.

Q.6. (1) I am very particular about my books. I see to it that they are always covered. I change the covers if there is some tear or ink mark on them. I never fold the pages, instead I use a book mark. I pile up my books on the book-shelf and do not let my books fall down or lie scattered everywhere. I do not write on my text books with either pen or pencil.

Books give us knowledge, we must take good care of them.

(2) 'A brighter tomorrow' means that in the future, things will change for the better and our lives will become more productive.

- (3) Abdul aspires to get more knowledge and learn from books. He plans to do it by buying books and studying them to attain success in the world.
- (4) Serve - deserve; clerk - work; care - rare - fair; store - more; learned - yearned; Persian - million; notice - office; prayer - rare; scholar - keeper; refuse - use.
- (5) The merchant uses these words 'a gem' to show Abdul that he thinks of him as someone very precious and not just anybody.
- (6) (a) You are indeed a gem. (b) quite rare
(c) sagacious (d) astute
- (7) Abdul must have asked the Emperor for a job in his library since he had learnt philosophy, astronomy, Arabic and Persian.
- (8) Abdul took scraps and shells and kitchen waste from the Royal kitchen. This was enough for the hens. They relished the taste. This was good for their health, hence they looked well-fed and healthy.
- (9) The Emperor realised that Abdul had brains, when he saw how his hens were faring so well. The Emperor put Abdul in charge of his library for all the pains he had taken.
Yes, the Emperor was right. He knew that Abdul loved to read. This was a heaven-sent chance for Abdul.
- (10) Formal requests were sent to the Emperor in bags made of best fabrics. Abdul noticed that after the requests were read, the bags were discarded. Abdul decided to collect these bags of silk, velvet, brocade etc. and told the Royal tailors to make jackets for the books in the library. The tailors did not charge any money and Abdul got beautiful jackets for the books.
- (11) This reflects the skill of maintaining good relations with other people.

Topic 2.4 : How Doth the Little Busy Bee

English Workshop :

- Q.1. (1) old English for does (2) blooming
(3) small space to store honey

Q.2.

How doth the little busy bee (original)	How doth the little crocodile (parody)
Choice of subject (an animal) Bee	Choice of subject (an animal) Crocodile
Number of lines and stanzas 8 lines, 2 stanzas	Number of lines and stanzas 8 lines, 2 stanzas
Same or similar constructions Different	Same or similar constructions Makes you laugh
Tone of the poem Loving, Goodness of bee is shown	Tone of the poem Mischievous, funny

- Q.3. (1) It is a hardworking insect that produces honey for man with hardwork and perseverance.
- (2) The crocodile is out to get his meal. It stands for cunningness and deceit.
- (3) The bee works hour after hour to produce honey and store it. This honey is later used by man.
- (4) The crocodile actually does not work. It just lies there pouring water on itself with its mouth open. This is done to attract fishes into its mouth.
- (5) Actually both are not gentle - The bee can sting and the crocodile can bite. However the bee is hardworking and useful whereas the crocodile is lazy and dangerous.

(6) The parody sounds funny because, the crocodile is basically a wild and dangerous creature. The poem shows the crocodile in a funny light; even his action of eating fishes is described in a playful manner.

Q.4. •little •shining tail •golden scale •cheerful
 •grin •claws •gently smiling •jaws

Q.5. I prefer the parody. It is funny and makes you laugh. You want to read further and further in order to find out what joke the poet is going to crack next.

Comprehension :

Extract - 1

Q.1. (1) shining hour (2) opening flower

(3) sweet food (4) busy bee

Q.2. (1) Honey (2) Skilfully

(3) Neatly (4) Sweet food

Q.3. (1) hour - flower; cell - well. (2) ab, cb.

Extract - 2

Q.1. (1) little crocodile, little fishes (2) shining tail

(3) golden scale (4) smiling jaws

Q.2. (1) Nile. (2) Little fishes.

(3) Gently. (4) Neatly

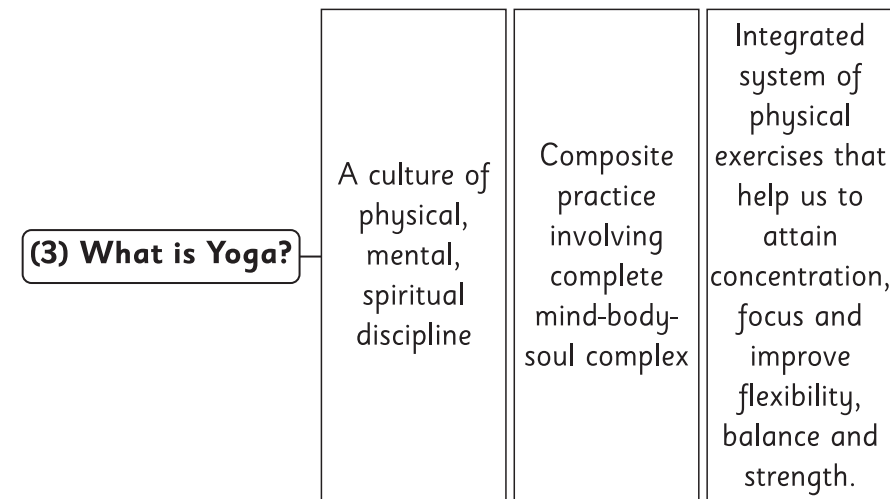
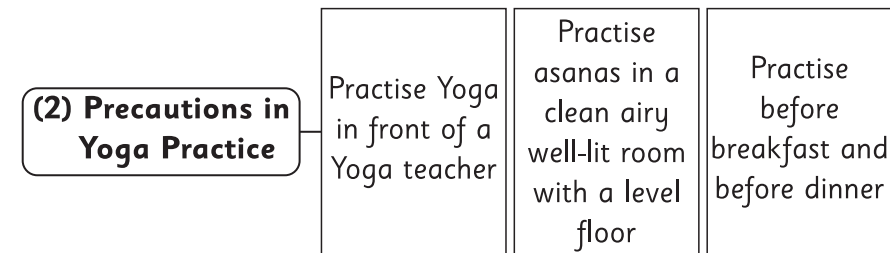
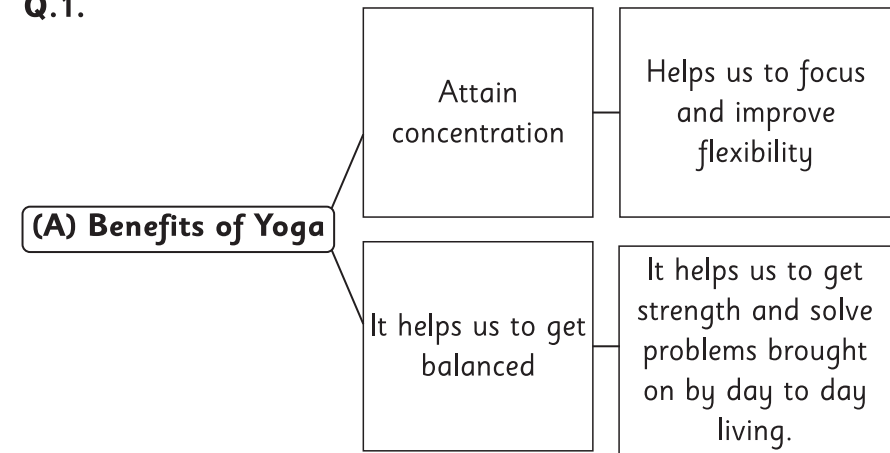
Q.3. (1) Crocodile - Nile; tail - scale; grin - in; claws - jaws

(2) ab, ab.

Topic 2.5 : Learn Yoga from Animals

English Workshop :

Q.1.



Q.2. BHUJANGASANA

- Ans.** (A) Beginner's pose or pose of a cobra
(B) Pose of a cobra
(C) It resembles the posture of a cobra with its head raised.
(D) Steps and Picture : [Refer Text Book Page No. 38]
(E) **Benefits** : It helps to tone the muscles of the back and strengthen the spine. It benefits the chest and shoulders.

SIMHASANA

- Ans.** (A) Name in English : Lion's pose
(B) Meaning in English : Lion's pose. It gets its name from the way you stick your tongue out and hold your fingers splayed out like a lion.
(C) General information : Favourite with young people. Assume the sitting position and facial expression of the lion. Needs very little effort.
(D) Steps and Picture : [Refer Text Book Page No. 39]
(E) **Benefits** : The lungs get emptied of impure air in the shortest time possible.

MARJARYASANA

- Ans.** (A) Name in English : Cat pose
(B) Meaning in English : Popular cat pose
(C) General information: Simple asana for beginners. Stretches the muscles of the abdomen and back.
(D) Steps and Picture : [Refer Text Book Page No. 39]
(E) **Benefits** : It gently stretches the muscles and gets rid of any bodyache.

GARUDASANA

- Ans.** (A) Name in English : Eagle pose
(B) Meaning in English : Pose of the Eagle
(C) General information : A balance is maintained exactly like

the eagle does, balancing on one leg. The palms together resemble the eagle's beak.

- (D) Steps and Picture : [Refer Text Book Page No. 40]
(E) **Benefits** : It enhances the body's ability to balance itself. It strengthens the leg muscles and improves the flexibility of the joints by loosening the joint muscles.

USTRASANA

- Ans.** (A) Name in English : Camel Pose
(B) Meaning in English : Pose of Camel
(C) General information : Adds flexibility to the body
(D) Steps and Picture : [Refer Text Book Page No. 41]
(E) **Benefits** : Strengthens the back. It opens the shoulders, chest and quadriceps. It helps to boost the mood and energy. It adds flexibility and strength and improves digestion.

Q.3. Chest, shoulders, palms, head, vertebra, spine, eyes, jaws, tongue, arms, fingers, palette, mouth, muscles, abdomen, back, knees, elbow, hips, joints, calf, toes.

Q.4. Physically, mentally, advisable, before, down, below, completely, smoothly, slowly, behind, immediately, directly, simultaneously, already.

- Q.5. (1)** Yoga was perfected in ancient India.
(2) Yoga involves the complete mind-body-soul complex that is a human being.
(3) Yoga helps to attain concentration and focus. It also improves our flexibility, balance and strength.
(4) Biomimicry is the science of solving human problems with solutions already present in the natural world.
(5) Yoga is a form of biomimicry, where in typical asanas or poses, we emulate mountains, trees, fish, cats and so many more animals.

Comprehension :

Extract - 1

Q.1. (1)-(c), (2)-(b), (3)-(d), (4)-(a)

Q.2. (1) (a) Some poses should be learnt from **an instructor**.
 (b) **Asanas** should be practised in clean, airy places.
 (c) Yoga helps us to feel **physically** vibrant and **mentally** sharp.
 (d) Yoga is a form of **biomimicry**.

(2) (1) emulate (2) vibrant

Q.3. (1) To emulate (2) Yoga classes
 (3) Biomimicry (4) June 21st

Q.4.	Noun	Verb	Adjective
(1)	Perfection	Perfected	Perfect
(2)	Simplicity	Simplify	Simple
(3)	Nature	Naturalise	Natural
(4)	Sharpness	Sharpen	Sharp

Q.5. If we are beginners, we must begin our practice before a Yoga teacher, or join a Yoga class to understand the dos and don'ts of Yoga. We must take care to see that we are practising the asanas in a clean, airy, well-lit room and we must use a Yoga mat.

The best time to practise Yoga is in the morning before breakfast and in the evening before dinner.

Extract - 2

Q.1. (1) **Bhujangasana** helps to tone the muscles of the back.
 (2) We must place our plans **on the sides** just below our **shoulders**.
 (3) We must curve **the spine wall**.
 (4) **Simhasana** is a favourite with young people.

Q.2. (1) False - The naval must keep touching the ground.
 (2) True.
 (3) True.
 (4) False - Breathe in deeply as we slowly raise our heads.

Q.3. (1) (a) navel (b) tone
 (2) (a) lowered (b) weaken (c) lightly (d) rough

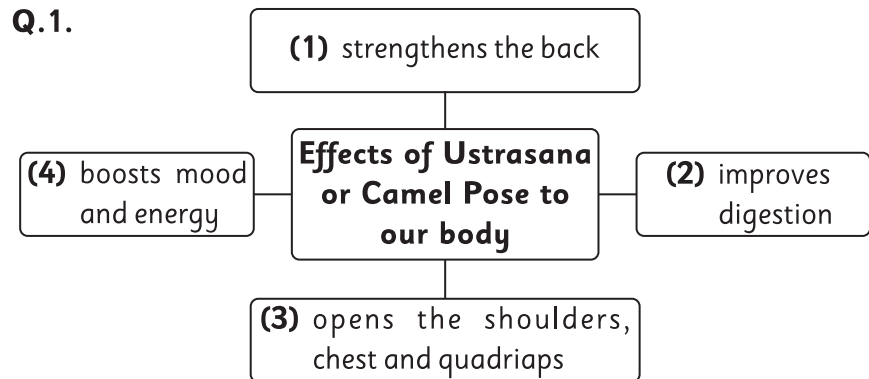
Q.4. (1) favourite - Demonstrative adjective
 (2) lie, relax
 (3) (a) breath (b) completion (c) relaxation (d) smooth

Q.5. 'Bhujangasana' is a pose which resembles the posture of a cobra with raised head.

In 'Simhasana' we assume the sitting position and facial expression of a lion.

Extract - 3

Q.1.



Q.2. (1)-(c), (2)-(a), (3)-(d), (4)-(b)
 Q.3. (1) (a) balance, eagle, enhances, flexibility
 (b) arms, ease, palms, place
 (2) (a) arms (b) loosening
 Q.4. (1) slowly - adverb, left - adjective
 (2) posture - common noun, flexibility - abstract noun

- Q.5.** (1) Kneel down and place our hands on the hips.
 (2) Our knees should be in line with the shoulders and the sole of our feet must be facing the ceiling.
 (3) When we inhale, draw the tail bone towards the pubis as if being pulled from the navel.
 (4) At the same time, we should arch our back and slide our palms over our feet till the arms are straight.
 (5) We should not strain or flex our neck but keep it in a neutral position.
 (6) Stay in this posture for a couple of breaths.
 (7) Breathe out and slowly come back to the first pose. Bring the hands back to your hips as you straighten up.

Topic 2.6 : Chasing the Sea Monster

English Workshop :

- Q.1.** Unearthly animal, unknown creature, huge glow worm, cetacean, whale lurking in the waters, blackish body, quivering violently, its tail was creating a considerable current.
- Q.2.** (a) All night long : The crew stayed on their feet.
 (b) Near midnight : The huge animal disappeared.
 (c) At 12.53 : A deafening hiss was heard.
 (d) Near two o'clock : The core of light reappeared five miles away.
 (e) Until daylight : The crew stayed on alert.
 (f) At six o'clock/day break : The animal's electric glow disappeared.
 (g) At seven o'clock : There was a dense mist. Nothing could be seen.
 (h) At eight o'clock : Mist disappeared. They saw the monster astern to port
 (i) At 10.50 in the evening : The electric light disappeared three miles from the frigate.

Q.3. Over twenty four hours.

Q.4.

	Words		Meaning
1.	yard	(a)	a pole slung across a ship's mast. A sail hangs from a yard.
2.	mast	(b)	tall, upright pole on a ship.
3.	bow	(c)	the forward part of the main body of a ship.
4.	deck	(d)	a floor, flat area built on a ship.
5.	forecastle	(e)	the forward part of a deck.
6.	starboard	(f)	the right-hand side of a ship as one faces forward.
7.	stern	(g)	the rearmost (back) part of a ship.
8.	afterdeck	(h)	an open deck near the back.
9.	fore	(i)	the part which is always at the front while the ship is sailing.

- Q.5. (1)** The story is written by Jules Verne
 The narrator's name is Professor Aronnax.
- (2)** 'Abraham Lincoln' is the name of the ship.
- (3)** This event is taking place near midnight.
- (4)** **(a)** the person who fires the cannon.
(b) the person who shoots or lets go of the harpoon.
- (5)** **(a)** a barbed spear - like missile used for catching whales and other sea creatures
(b) weapons.
- (6)** The Commander must have told the captain of the frigate to approach without making any sound and let go of the harpoon at a distance of two cable lengths from the monster.

Comprehension :

Extract - 1

- Q.1.** (1) Commander Farragut. (2) Abraham Lincoln.
(3) Whole night. (4) Near midnight.
- Q.2.** (2) We gasped more stunned than afraid.
(1) Let's wait for daylight and then we'll play a different role.
(4) Near midnight it disappeared.
(3) At 12:53, a deafening hiss could be heard.
- Q.3.** (1) (1)-(b), (2)-(d), (3)-(a), (4)-(c).
(2) meanwhile, fearsome
- Q.4.** (1) (a) similar (b) brightness (c) unafraid (d) awake
(2) (a) The animal mimicked the frigate, didn't it?
(b) A full circle was made around the frigate by the monster.
- Q.5.** The crew of the frigate wondered who the unearthly creature was. Its speed was double than that of the frigate. They were all stunned and stood mute and motionless. The monster went round the frigate, which was trying to flee instead of fight. Even the commander, Farragut, was astonished. He decided to wait for daylight before attacking the animal. No one slept, all were on alert. The monster's speed was alarming. Suddenly near midnight, the monster disappeared.

Extract - 2

- Q.1.** (1) About three-quarters of an hour.
(2) Commander Farragut.
(3) Forecastle cannon.
(4) \$ 500.00.
- Q.2.** (1) The animal was faster than the Abraham Lincoln.
(2) The animal got up a little speed, and kept its distance.

(3) The frigate was speeding so much that its masts trembled down to their blocks.

(4) Ned Land stayed at his post, harpoon in hand.

- Q.3.** (1) (a) True.
(b) False - The chase went on for three quarters of an hour.
(c) False - Ned Land stayed at his post, harpoon in hand.
(d) True.
- (2) (a) unconcerned (b) indirect
(c) further (d) earlier
- Q.4.** (1) cannoner (2) steal off
(3) mate (4) gathered speed

Q.5. It was an exciting chase no doubt. The author says that the excitement shook his very being. The animal was so smart, it let the frigate get a little closer to it and then picked up speed and kept its distance. It was obvious that the frigate would never catch up with the animal. The animal was playing tricks with the frigate.

The cannoner fired a cannon but it did not even touch the monster. Another man fired another cannon, it hit the target but bounced off its hard shell.

Extract - 3

- Q.1.** (1) 100 feet. (2) At 10:50 in the evening.
(3) Into the sea. (4) Commander Farragut.
- Q.2.** (1) True
(2) True
(3) False - The monster seemed motionless.
(4) False - The narrator was hurled into the sea.

- Q.3. (1)** The glow grew **stronger and dazzled the eyes**.
- (2)** Was it **asleep** perhaps, **weary** from its workday?
- (3)** A **profound silence** reigned over the deck.
- (4)** The weapon made a **ringing sound**.
- Q.4. (1)** The monster seemed motionless, didn't it?
- (2)** We also struggled on tirelessly.
- Q.5.** The frigate was waiting for the monster to show some signs of weariness, but it did not. The frigate too, along with its crew, went on tirelessly. At 10:50 in the evening the electric light reappeared. The monster did not move, it just rode with the waves. The frigate went towards it very quietly. As they approached, the glow grew stronger. Ned Land was ready with the harpoon and he launched it. It hit a hard surface and all hell broke loose. The lights went out, two enormous water spouts crashed onto the decks, toppling crewmen and breaking masts. There was a collision and the narrator was hurled into the sea.

Topic 2.7 : Great Scientists

English Workshop :

- Q.1. (1)** People know Faraday as a great scientist, but very few of us are aware of the problems and difficulties Faraday had to face in life. According to those who know nothing about him, life must have been very easy for Faraday, whereas actually Faraday went through many difficulties and problems.
- (2)** Faraday became indispensable to Davy and was promoted to the post of his lab assistant. This was his first step towards a scientific career. Even then (In spite of this), Davy had no hope for Faraday. He still felt that Faraday was not going to do anything in life.
- (3)** Faraday became a celebrity scientist overnight. This man had just created a revolution. Davy was the one who

presented him to the world. This was the best discovery that Davy gave the world.

- Q.2. (a)** Michael Faraday is regarded he just kept trying.
[Text Book Page No.49, 50.]
- Ans.** Faraday's early childhood and life as a young man.
- (b)** Destiny had a strange plan directed at Faraday.
[Text Book Page No.50, 51.]
- Ans.** Destiny's plan for Faraday.
- (c)** Faraday became a celebrity.... difficult times. [Text Book Page No. 51-52.]
- Ans.** Faraday: a legend.
- (d)** He then took the age old experiment discoveries. [Text Book Page No. 53.]
- Ans.** Fortune favours the brave.
- (1)** The passage is about famous, distinguished scientists and the hardwork and perseverance that made them famous.
- Q.3. (1)** Faraday was born in a poverty- stricken family in a dirty London suburb. He suffered from a speech defect. Everyone made fun of him. When he was twelve, his mother was forced to take him out of school. This ended his formal education.
- At the age of thirteen, he started working with a book-binder. Faraday was still poor at the age of twenty-one.
- (2) (a)** He could not think of anything else except reading. He tried to give special time for reading.
- (b)** He was so much in awe of electricity. His whole life, he thought of electricity and how to improve it.
- (3)** Faraday's friend knew that Faraday was very much interested in electricity and electrical lighting. The friend

knew how poor Faraday was, and that he would not be able to get the money for the ticket, hence he gave Faraday a free ticket for this lecture and demonstration.

- (4) The subject was 'the mysterious force of electric fluid.'
- (5) Faraday made comprehensive notes of Davy's lecture on the mysterious force of electric fluid, bound them into a book, intending to gift it to Davy some day. Now Faraday decided that he wanted to be a great scientist. Davy became his role model. Faraday even thought that it would be wonderful if Davy became his mentor.
- (6) mentor - guide.
- (7) A chemical explosion had taken place inside Davy's lab, which temporarily blinded him. Davy now needed an assistant to help him. He was reminded of Faraday and hired him as his secretary.
- (8) Davy was not fair in his treatment of Faraday. Davy never believed that Faraday could do anything in the field of science, going by his social status and education.
- (9) Faraday was relentless. He worked day and night and learnt as much as he could about Davy's experiments. This was the first step towards his scientific career.
- (10) When an electric current is applied to a wire, it causes that wire to behave like a magnet.
- (11) (a) Faraday solved the problem of the forces connected to the wire and went further and the result was the first induction motor which converted electric current into continuous mechanical motion.
(b) One would think, that as a teacher, Davy would be happy at his pupil's achievement, but in reality, he

was jealous. He gave Faraday an impossible task to keep him out of his way.

- (12) Fans, air-conditioning, sewing machines, photographs, power tools, cars and even trains and aeroplane engines.
- (13) If you moved a magnet, it could produce electrical current. Thus, motion could be converted into electricity. This is how the electrical generator was born. It is used today to generate all kinds of power, like dynamos and other device.
- (14) Faraday did not know much about advanced mathematics, so he just copied the iron filing patterns with his hand. He was unable to explain them in the form of mathematical equations. He made hundreds of such drawings but they were rejected.

Comprehension :

Extract - 1

- Q.1. (1) He suffered from a speech defect as a child.
 - (2) Faraday started working with a book-binder.
 - (3) His friend gave him a free ticket to a public lecture and demonstration by the famous chemist Humphry Davy.
 - (4) Faraday is regarded as one of the most distinguished scientists and inventors of modern times.
- Q.2. (1) He started reading the book of electricity and was **completely hooked**.
 - (2) Electricity became a **lifelong fascination** for Faraday.
 - (3) Michael Faraday was born into a **poverty - stricken family**.
 - (4) Other children **laughed at him**.

- Q.3. (1)** (1)-(c), (2)-(a), (3)-(d), (4)-(b).
(2) (a) Faraday **(b)** good **(c)** produced
- Q.4. (1) (a)** speak **(b)** demonstrate **(c)** invent
(2) (a) studious **(b)** poor **(c)** fascinating
(d) productive

Q.5. Michael Faraday was born in a poverty-stricken family in a dirty London suburb. He suffered from a speech defect as a child. He could not even pronounce his own name. Other children laughed at him and even his teachers did not help him. When he was twelve, his mother was forced to pull him out from school. This put an end to his formal education. At the age of thirteen, he started working for a book binder.

Extract - 2

- Q.1. (1)** True
(2) False- Faraday was spellbound by Davy's lecture.
(3) False - Faraday was not dejected.
(4) True
- Q.2. (1)** (1)-(c), (2)-(d), (3)-(a), (4)-(b)
(2) (a) remember **(b)** demoted
(c) dispensable **(d)** bad
- Q.3. (1)** Faraday became **indispensable** to Davy.
(2) The chemical explosion had **temporarily blinded** Davy
(3) Davy dismissed Faraday's **aspirations**.
(4) Davy became Faraday's **role model**.
- Q.4. (1)** Destiny had a strange plan in store for him, hadn't it?
(2) An assistant was now needed by him.
(3) spellbound, bookbinding

Q.5. There was a chemical explosion that occurred inside Davy's lab and this made Davy temporarily blind. Davy now needed Faraday to become his assistant. Davy made Faraday his secretary. Faraday worked day and night and learnt as much as he could about Davy's experiments. Soon, Faraday became indispensable to Davy and was promoted as his assistant. This was the first step towards his scientific career.

मराठी सुलभभारती

५. दादास पत्र

स्वाध्याय

- प्र.१. (अ) विज्ञान केंद्रातर्फे शाळेत पक्ष्यांसंबंधीची चित्रफीत विद्यार्थ्यांना दाखवली ती पाहून आणि तेव्हा ताई-दादांनी सांगितलेली माहिती ऐकून विद्यार्थ्यांनी अभयारण्यात सहलीला जाण्याचा हट्ट धरला.
- (आ) अभयारण्यातून फिरताना सरांनी विद्यार्थ्यांना सांगितले की माळढोक पक्षी शेतकऱ्याचा मित्र आहे, कारण शेतातील किड्यांवर तो गुजराण करतो. हा पक्षी वर्षातून एकदाच अंडी घालत असल्याने त्यांची संख्या कमी आहे. शिवाय इतर प्राण्यांनी या पक्ष्यांची अंडी तुडवली, तर संख्या आणखीच कमी होते.

कृतिपत्रिका - १

उतारा क्र. १

- प्र.१. (अ) (१) (i) माळढोक अभयारण्य
(ii) (अ) शेतकऱ्याचा (आ) एकदाच
- (२) (i) माळढोक
(ii) शाळेत पक्ष्यांसंबंधीची चित्रफीत कशातर्फे दाखवली ?
- (३) (i) (अ) सहलीच्या दिवशी आम्ही पहाटेच निघालो.
(ब) हा पक्षी वर्षातून एकदाच अंडी घालतो.
(ii) (अ) पक्षी (ब) जंगल
- (४) वाढत चाललेल्या तापमानामुळे, वृक्षतोडीमुळे आणि शहरीकरणामुळे पक्ष्यांची संख्या घटत चालली आहे. ही संख्या वाढावी म्हणून मी गच्चीमध्ये, खिडकीत, बाल्कनीत पक्ष्यांसाठी खाद्य आणि त्यांना पिण्याच्या पाण्याची सोय करेन. कारण

उन्हाळ्यामध्ये पक्ष्यांना पाणी मिळत नाही आणि पाण्यावाचून त्यांना आपले प्राण गमवावे लागतात. फुले व फळे देणारी झाडे लावेन ज्यामुळे पक्ष्यांना अन्न मिळेल. लोकांना सांगेन की प्रत्येकाने किमान एक झाड लावा कारण पक्ष्यांचे आश्रयस्थान असलेली झाडे नष्ट होत आहेत.

कृतिपत्रिका - २

उतारा क्र. २

प्र.१. (अ) (१) (i)

पक्ष्यांची प्रमुख भूमिका

प्रदूषण टाळण्यात

बियांचे वहन करण्यात

- (ii) (अ) चंडोल (ब) माळटिटवी (क) माळढोक
- (२) (i) असत्य
(ii) पक्ष्यांचे फोटो काढण्यापूर्वी वनखात्याची पूर्वपरवानगी घ्यावी लागते.
- (३) (i) इकडे मी, आई, बाबा मजेत आहोत.
(ii) पूर्व, पर, परवानगी, नवा
- (४) पक्षी हा संतुलित पर्यावरणाचा अविभाज्य घटक आहे कारण पर्यावरण संतुलित राखण्यास पक्षी मदत करत असतात. शेतातील पिकांचा नाश करणारे कीटक हे पक्ष्यांचे अन्न आहे. कावळे, निळकंठ यांसारखे पक्षी कीटक व त्यांची अंडी खाऊन कीटकांची संख्या नियंत्रित करण्यास मदत करतात आणि किडींपासून पिकांचे रक्षण होण्यास मदत होते. कोकिळा, मैना, कबुतरे हे पक्षी फळे खातात आणि बिया बऱ्याच ठिकाणी टाकतात. ज्याठिकाणी या बिया पडतात तेथे नवीन झाडांची निर्मिती होते. तसेच पक्षी परागीभवनाचे काम करतात. शेतीची नासाडी करणारे आणि अनेक आजार पसरवणारे उंदीर-घुशी यांना खाण्याचे काम शिकारी पक्षी करतात. उदा. गरुड, घुबड तसेच मोठ्या मोठ्या मेलेल्या प्राण्यांना खाऊन निसर्ग स्वच्छ

ठेवण्याचे काम गरुड, गिधाड हे पक्षी करत असतात. म्हणून पर्यावरणामध्ये पक्ष्यांचे महत्त्व अनन्यसाधारण आहे.

व्याकरण

- प्र.१. (१) खग (२) वाट, रस्ता (३) जननी, माता
(४) पिता (५) ग्राम (६) भरपूर
- प्र.२. (१) पक्षिणी (२) शिक्षिका (३) बहीण
(४) बाबा (५) शेतकरीण (६) ताई / वहिनी
- प्र.३. (१) जंगले (२) पत्रे (३) किडे
(४) चोची (५) आठवणी (६) पक्षी

- (१) विद्यार्थ्यांनी रोज दोन-तीन तास वाचन करावे.
- (२) माझे वडील कोर्ट-कचेरीच्या कामास दापोलीस येत.
- (३) गौरी-गणपतीला नवीन कपडे करतात.

माहिती मिळवूया

एकतर्फी माहितीची / संवादाची साधने	दुतर्फी माहितीची / संवादाची साधने
फॅक्स, रेडिओ, वर्तमानपत्र, भाषण, ई-मेल, जाहिरात, मोबाईल संदेश, पत्र	आंतरजाल चर्चा, मुलाखत, मोबाईल, संभाषण

शब्दकोडे सोडवूया

- | | | |
|----------|-------|--------|
| ★ थोडासा | अनेक | मोजके |
| जरासा | काही | वर |
| हळू | आज | खाली |
| जिकडे | तिकडे | सावकाश |

आम्ही सूचनाफलक वाचतो.

- (१) ही सूचना २३ सप्टेंबर २०१९ या तारखेला देण्यात आली आहे.
- (२) पाणीपुरवठा २४ सप्टेंबर २०१९ रोजी बंद करण्यात येणार आहे.
- (३) पाणीपुरवठा करणाऱ्या पाईप लाईनच्या दुरुस्तीचे काम तातडीने सुरू करण्यात येणार आहे म्हणून पाणीपुरवठा बंद ठेवण्यात येणार आहे.
- (४) उपलब्ध पाण्याचा वापर अधिक काटकसरीने व जपून करावा ही सूचना पाण्याच्या वापराबाबत नागरिकांना देण्यात आली आहे.

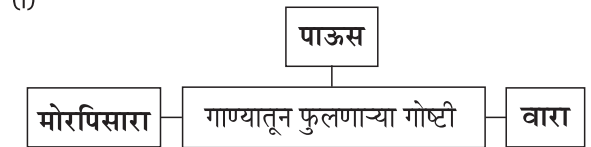
६. टप् टप् पडती

स्वाध्याय

- प्र.१. (अ) प्राजक्ताची फुले टप् टप् अंगावर पडू लागल्यावर त्या तालावर कवितेतील मुलांचे गाणे जुळून येते.
- (आ) भरभर वारा आल्यामुळे गवत खुशीने डोलते.
- (इ) मुलांच्या गाण्यातून पाऊस, वारा व मोरपिसारा फुलतो.
- (ई) जे गाणे गाणार नाहीत त्यांना खुळे म्हटले आहे.
- प्र.२. (अ) कुरणावरती, झाडाखाली ऊनसावली विणते जाळी
- (आ) हसते धरती, फांदीवरती हा झोपाळा झुले!
- (इ) पाऊस, वारा, मोरपिसारा या गाण्यातून फुले!

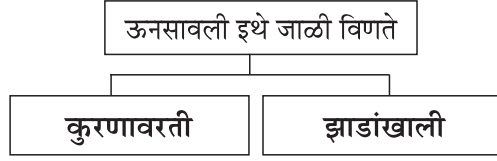
कृतिपत्रिका

- प्र.१. (अ) (१) (i)



- (ii) फांदीवर

(२) (i)



(ii) गाणे अमुचे झुळझुळ वारा, गाणे अमुचे लुकलुक तारा.

(३) वारा ज्याप्रमाणे झुळझुळ वाहतो, त्याची मंद झुळूक येते. वारा, पाऊस आनंदाने फुलतो, पावसाचे सौंदर्य जसे फुलते. पाऊस आल्यावर मोर आनंदाने नाचतो आणि मोराचा पिसारा जसा फुलतो त्याप्रमाणे कवीच्या मनातील विचार, कल्पना फुलल्या आहेत. त्याला नवनवीन कल्पना सुचल्या आहेत. म्हणजेच कविच्या मनातील गाणे फुलले आहे.

(४) गुलाबाला 'फुलांचा राजा' म्हणतात. गुलाब अनेक रंगांचे असतात. गुलाबी, पिवळे, सफेद अशा अनेक रंगांचे गुलाब आपल्याला पाहायला मिळतात. 'काश्मिरी गुलाब' सर्वात जास्त प्रसिद्ध आहे. गुलाबाचे फूल सुगंधी असते. म्हणूनच गुलाबाच्या पाकळ्यांचा उपयोग करून सुगंधी असे अत्तर बनवितात. बऱ्याच कार्यक्रमांमध्ये गुलाबाच्या फुलांचा उपयोग करून सजावट करतात. गुलाबाचे फूल स्त्रिया आपल्या केसात माळतात त्यामुळे स्त्रियांच्या केसांची शोभा वाढते. पुष्पगुच्छ बनविण्यासाठी गुलाबाच्या फुलांचा उपयोग करतात. अनेक लोक गुलाबाच्या फुलांची शेती करून आपली उपजीविका करतात. काही लोक फक्त गुलाबाची फुले विकण्याचा व्यवसाय करतात. गुलाबाच्या फुलांपासून सरबत व गुलकंद बनवतात. गुलाबाचे फूल सुंदर असून ते औषधीसुद्धा आहे. गुलाबापासून बनवलेले गुलाबपाणी डोळ्यात टाकल्यास आराम मिळतो. खरोखरच काटेरी रोपावर फुलणारे हे फूल म्हणजे निसर्गाचा एक चमत्कारच आहे.

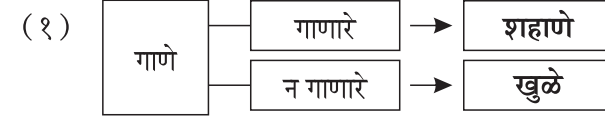
(आ) प्र.१. मंगेश पाडगांवकर

प्र.२. फुलांसारखे सर्व फुला रे सुरात मिसळुनि सूर, चला रे

गाणे गाती तेच शहाणे, बाकी सारे खुळे!

प्र.३. निसर्गातील प्रत्येक गोष्टीचा आनंद घ्या. फुलांप्रमाणे सर्वांनी आनंदी रहा, प्रसन्न रहा. एकमेकांसोबत रहा आणि जीवनाचा आनंद लुटा.'

अतिरिक्त कृती



(२) कवितेत गाणे गाणाऱ्यांना शहाणे म्हटले आहे.

(३) (i) (अ) फुले - डुले (ब) वारा - तारा

(ii) (अ) लुकलुक (ब) झुळझुळ

खेळूया शब्दांशी

प्र.४. (अ) भिर् भिर्, झुळझुळ

(आ) हसरी - धरती झुळझुळ - वारा

लुकलुक - तारा फांदी - झोपाळा

(इ) (१) कुरणावरती : वर, तीर, कुणावर, रती

(२) झाडाखाली : खाली, झाली, खाडा, झाडा

(३) ऊनसावली : ऊन, सावली, साव, लीन, साली, नऊ, वसा, वन

(ई) उदा. बरे × वाईट शुभ × अशुभ

आनंद × दुःख यश × अपयश

नफा × तोटा चढ × उतार

लहान × मोठे आत × बाहेर

सूचना : Term Book मध्ये प्र क्र.४ Type झाला नाही.

प्र.५. (१) फूल - पुष्प (२) गाणे - गीत (३) सावली - छाया

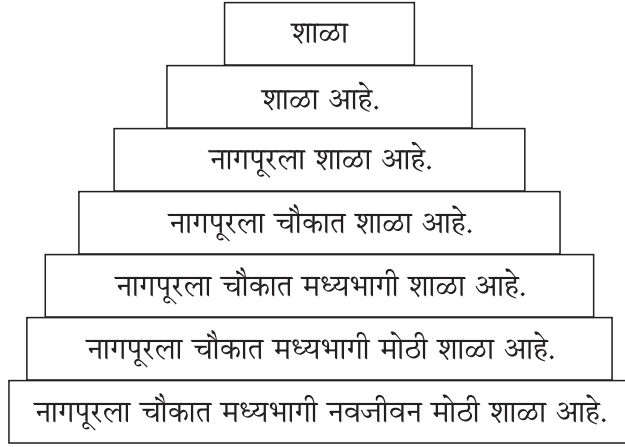
(४) वारा - पवन (५) गवत - कुरण (६) झाड - वृक्ष

प्र.६. (१) फूल - फुले (२) वारा - वारे (३) पिसारा - पिसारे

(४) तारा - तारे (५) फांदी - फांद्या (६) गवत - गवत

खेळ खेळूया

★



७. आजारी पडण्याचा प्रयोग

स्वाध्याय

प्र.१. (अ) पाठातील मुलाच्या घरातील आजारी माणसे संत्री, मोसंबी, सफरचंद, खडीसाखर, बेदाणा, पेढे, गोड औषधे, शिरा हे पदार्थ 'औषध' म्हणून घेत असत. हा मुलगा कधीही आजारी पडत नसे म्हणून या पदार्थांना हात लावायची त्याला सक्त मनाई असे. तेव्हा ही औषधे आपणही बरोबरीने घ्यावीत व त्यांच्या दुःखात सहभागी व्हावे असे वाटू लागले.

(आ) घरातील सर्व मंडळी स्वतःच इतक्या वेळा आजारी पडत होती पण मुलाच्या वाटणीला कोणतेच आजारपण येत नव्हते, तेव्हा मुलाने डॉक्टरांकडून औषध आणायचेच, असे ठरवले.

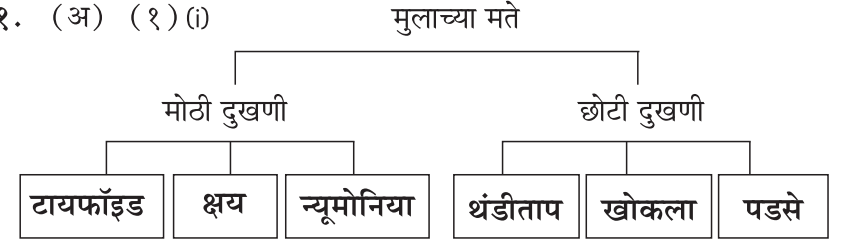
(इ) डॉक्टरांनी मुलाला तपासले. इकडे, तिकडे, पालथे वळायला सांगितले. गळ्यातली नळी छातीवर लावली, जीभ बघितली, तेव्हा मुलाला धन्य धन्य झाल्यासारखे वाटले.

(ई) "तुझी तब्येत ठणठणीत आहे, तेव्हा औषध काही नाही. पळ घरी जा." असे डॉक्टरांचे बोलणे ऐकून मुलाची निराशा झाली.

कृतिपत्रिका - १

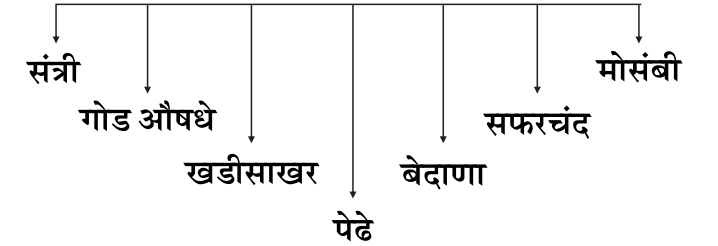
उतारा क्र. १

प्र.१. (अ) (१) (i)



(ii) आपण आजारी पडत नाही याचे

(२) (i) मुलाच्या घरातील आजारी व्यक्तींची औषधे



(ii) (अ) आई - खोकला

(ब) बाबा - पडसे

(क) दादा - अंगदुखी

(ड) ताई - हातदुखी

(३) (i) (अ) समुद्र नदीपेक्षा मोठा असतो. (नदी)

(ब) गावात बाजार भरतो. (गाव)

(ii) (अ) सुंदर

(ब) खूप

(४) घरातील एखादी व्यक्ती आजारी पडल्यास मी त्यांच्या सेवेसाठी सदैव हजर असेन. त्यांना औषधे, खाणे-पिणे वेळच्या वेळी देईन. त्यांना वर्तमानपत्र किंवा आवडीची पुस्तके वाचून दाखवेन. त्यांच्याशी गप्पा मारेन. त्यांचे मनोरंजन होईल याकडे लक्ष देईन.

अतिरिक्त कृती

- (१) (१) आई (२) बाबा (३) दादा (४) ताई
(२) शिराही

कृतिपत्रिका - २

उतारा क्र. २

- प्र.१. (अ) (१) (i) (अ) मुलगा
(ब) डॉक्टरांनी जेव्हा मुलाच्या पोटावर एकदम टिचकी मारली.
(ii) (अ) छातीवर
(ब) नाखुशीने
(२) (i) “तुम्हांला ऑपरेशन करता येतं का हो डॉक्टर ?”
(ii) मुलगा पळत पळत घरी जाऊन सगळ्यांना ऑपरेशन दाखवणार होता.
(३) (i) (अ) डॉक्टर - डॉक्टरीण (ब) मुलगी - मुलगा
(ii) (१) - मस्तक, (२) - शरीर,
(३) - हस्त, (४) - शरम
(४)

आपण आजारी असताना काय करू शकत नाही ?	आपण आजारी नसताना काय करू शकतो ?
खेळायला जाऊ शकत नाही.	जेवढे हवे तेवढे खेळायला मिळते.
बाहेर फिरायला जाता येत नाही.	बाहेर मित्रांबरोबर फिरायला जाऊ शकतो.
आपल्याला हवे असलेले पदार्थ खाता येत नाहीत.	आपल्या आवडीचे पदार्थ खाता येतात.

चर्चा करा. सांगा.

- (१) चोरावर मोर : वरचढ होणे
वाक्य : नवीन आलेला संजय सर्व कलाकारांमध्ये चोरावर मोर ठरला.
(२) छत्तीसचा आकडा : वैर, विरोध
वाक्य : साप आणि मुंगूस यांचा नेहमी छत्तीसचा आकडा असतो.
(३) जमदग्नीचा अवतार : अतिशय रागीट मनुष्य
वाक्य : आमचे काका म्हणजे जमदग्नीचा अवतार.
(४) इतिश्री : शेवट
वाक्य : पसायदानाने कार्यक्रमाची इतिश्री झाली.
(५) लंकेची पार्वती : अंगावर दागिने नसलेली स्त्री.
वाक्य : सतत पडणाऱ्या दुष्काळामुळे शेतकऱ्याची पत्नी लंकेची पार्वती झाली.
(६) कळीचा नारद : भांडणे लावणारा
वाक्य : विजय वर्गात नेहमी कळीच्या नारदाची भूमिका करतो.
(७) घागरगडचा सुभेदार : पाणक्या (जमिनीतील पाण्याचा साठा शोधणारा)
वाक्य : सदूभाऊ संपूर्ण जिल्ह्यात घागरगडचा सुभेदार म्हणून ओळखले जातात.
(८) उंटावरचा शहाणा : मूर्खपणाचा सल्ला देणारा
वाक्य : पावसाळ्यात घराचे छप्पर गळू लागले म्हणून एका उंटावरच्या शहाण्याने नवीन घर बांधण्याचा सल्ला दिला.
(९) गळ्यातला ताईत : अतिशय प्रिय
वाक्य : शाळेत सर्व स्पर्धांमध्ये प्रथम क्रमांक पटकविणारा गौरांग शिक्षकांच्या गळ्यातला ताईत झाला आहे.

खेळूया शब्दांशी

- (अ) (अ) डॉक्टर : वैद्य (आ) ऑपरेशन : शस्त्रक्रिया
(इ) मेडिसीन : औषध (ई) पेशंट : रुग्ण

- (आ) (१) टवटवीत फूल (२) चमचमीत जेवण (३) ठणठणीत आरोग्य
(४) बटबटीत डोळे (५) मिळमिळीत भाजी (६) गुळगुळीत दगड
- (इ) (१) हॉस्पिटलमध्ये (इस्पितळात) **औषधांचा** भरपूर साठा होता.
(२) सरकारी डॉक्टरांच्या **औषधांवर** आजीचा खूप विश्वास.
(३) बाबांनी **औषधांच्या** नवीन बाटल्या आणल्या.
(४) हळद आणि मध हे खोकल्यावर रामबाण **औषध**.
(५) डॉक्टरांचे कपाट **औषधांनी** भरलेले होते.
(६) **औषधांना** आजकाल खूप मागणी असते.
(७) जुन्या **औषधांतून** प्राण्यांना विषबाधा झाली.
(८) काकूला आयुर्वेदिक **औषधांपासून** चांगला आराम पडला.
- (ई) **सूचना** : Term Book मध्ये **औषधाचा** असे Type झाले आहे. तो शब्द **औषधांपासून** असा आहे.
- (१) सुलेमानचाचा रोज सकाळी फिरायला जातात, त्यामुळे त्यांची **तब्येत ठणठणीत असते**.
(२) ध्वनिक्षेपकाच्या आवाजामुळे घरात आजोबांना काही **सुचेनासे झाले**.
(३) जॉन आज शाळेत नवीन कंपास घेऊन आला होता. वर्गातील सर्व मुलांना दाखवत तो खूप **फुशारकी मारत** होता.
(४) तो रस्ता खासगी असल्यामुळे आपले वाहन तेथून नेण्याला **सक्त मनाई आहे**.
- ★ (अ) आमच्या शाळेसमोर वडाचे झाड आहे.
(आ) मुलांनी फुगेवाल्याभोवती गर्दी केली.
(इ) आमचा कुत्रा मला नेहमी मित्राप्रमाणे भासतो.
(ई) देशाला देण्यासाठी तुमच्याकडे दहा मिनिटे वेळ आहे का ?

प्र.१. (१) वर (२) बाहेर (३) पेक्षा

विचार करा. सांगा.

- (१) शहराच्या सांडपाण्यामुळे, रासायनिक खतांचा वापर केलेल्या शेत जमिनीतून झिरपणाच्या पाण्यातील किंवा कारखान्याच्या सांडपाण्यातील नायट्रोजन व फॉस्फरस ही द्रव्ये पाण्यात मिसळल्याने आणि माणसांच्या वाईट सवयींमुळे नदीचे पाणी प्रदूषित होते.
(२) जलपर्णी उगवल्याने पाणी प्रदूषित होते.
(३) नदीचे पाणी प्रदूषित होऊ नये म्हणून पुढील उपाय करता येतील. (i) प्रक्रिया करूनच नदीत सांडपाणी सोडले पाहिजे. (ii) नदीत निर्माल्य, कचरा टाकू नये. (iii) माणसाने आपल्या वाईट सवयी सोडून दिल्या पाहिजेत **उदा.** नदीकाठी कपडे-गुरे धुणे, शौचास बसणे, नदीत आंगोळ करणे. (iv) नदीतील गाळ उपसला पाहिजे.
(४) नदीत सोडल्या जाणाऱ्या सांडपाण्यातील नायट्रोजन व फॉस्फरस या द्रव्यांवर प्रक्रिया केली पाहिजे. नायट्रोजन व फॉस्फरस ही द्रव्ये असलेले पाणी नदीत सोडू नये.

आम्ही जाहिरात वाचतो.

- (१) ही जाहिरात पुस्तक प्रदर्शनासंदर्भात आहे.
(२) १५ ते २० ऑक्टोबर २०१९
(३) पुस्तक प्रदर्शनाची वैशिष्ट्ये - (i) छोट्यांसाठी व मोठ्यांसाठी स्वतंत्र दालन (ii) नामवंत साहित्यिकांची पुस्तके (iii) विविध विषयांवरील पुस्तके (iv) मुलांसाठी आवडत्या गोष्टींची, प्रयोगांची, कोड्यांची आणि कृतींची पुस्तके (v) सायंकाळी ७ ते ८ या वेळेत नामवंत साहित्यिक आपल्या भेटिला व प्रत्यक्ष वार्तालाप करण्याची संधी.
(४) शारदा विद्यालयाचे सभागृह येथे प्रदर्शन भरणार आहे.
(५) शंभर रुपयांच्या खरेदीवर वीस रुपयांची सवलत मिळणार आहे.
(६) आम्ही पुस्तक प्रदर्शनात गोष्टींची, प्रयोगांची, कोड्यांची, कृतींची पुस्तके खरेदी करू.

ओळखा पाहू!

(१) खुर्ची (२) टेबल (३) कंगवा (४) सुई (५) ब्रश

General Science

Topic 6 : Measurement of Physical Quantities

- Q.1. (A)**
- (1) To express the **magnitude** of a physical quantity, a value and a unit are used.
 - (2) A quantity that can be completely expressed by its magnitude alone, is called a **scalar quantity**.
 - (3) The quantity that is expressed completely only when magnitude and direction both are given is called a **vector quantity**.
 - (4) The amount of matter contained in a substance is called its **mass**.
 - (5) Mass is the qualitative measure of the **inertia** of an object.
 - (6) The **gravitational force** that acts on an object is called the weight of the object.
 - (7) **Standardized** measures are required for measuring things.
 - (8) The unit of time in M.K.S. and C.G.S. system is **second**.
 - (9) Centimetre is the unit of distance in **C.G.S.** system.
 - (10) **Speed** is the ratio of the quantities 'distance' and 'time'.
- (B)**
- (1) **Time** is a scalar quantity.
 - (2) **Weight** is a vector quantity.
 - (3) Unit of displacement in M.K.S. systems in **m**.
 - (4) 1 cubic foot is **28.317** litres.
- (C)**
- (1) False (2) True (3) False (4) False
 (5) True (6) False (7) True (8) False
 (9) True (10) False
- (D)** (1) Kilometre (2) Area (3) Speed (4) Weight
- (E)** (1)-(c), (2)-(e), (3)-(a), (4)-(b), (5)-(d).

- Q.2. (A)**
- (1) **Mass** : The amount of matter present in a substance is called its mass.
- (2) **Weight** : The gravitational force that acts on the mass of an object is called its weight.

OR

- The gravitational force by which the earth attracts an object towards its centre is called the weight of the object.
- (3) **Scalar quantity** : A quantity that can be completely expressed by its magnitude alone is called a scalar quantity.
- (4) **Vector quantity** : The quantity that is expressed completely only when its magnitude and direction both are given is called a vector quantity.
- (5) **Physical quantities** : Quantities such as mass, weight, distance, speed, temperature, volume, which are measured are called physical quantities.

(B) (1)

	Mass		Weight
(i)	Mass is the amount of matter contained in a substance.	(i)	Weight of an object is the gravitational force acting on the object.
(ii)	It does not change from place to place anywhere on the earth.	(ii)	It is different at different places on the earth.
(iii)	Mass is a scalar quantity.	(iii)	Weight is a vector quantity.
(iv)	Unit of mass in M.K.S. system is Kg and in C.G.S. system is gm.	(iv)	Unit of weight in M.K.S. system is kg.m/s^2 and in C.G.S. system is gm.cm/s^2
(v)	Mass is measured using a beam balance or equiarm balance.	(v)	Weight is measured using a spring balance.

(2)

	Scalar quantity		Vector quantity
(i)	A quantity that can be completely expressed by its magnitude alone is called a scalar quantity.	(i)	A quantity that is expressed completely only when magnitude and direction both are given is called a vector quantity.
(ii)	Length, mass, temperature are scalar quantities.	(ii)	Displacement, velocity, weight are vector quantities.

- Q.3. (A) (1)** (i) Measurements made by using the parts of the body will differ from person to person, due to the difference in the size of body parts.
- (ii) Different results will be obtained when the same thing is measured by different people.
- (iii) Since measurements made by using parts of body will neither be accurate nor uniform, it is not proper to measure quantities by using body parts as units.
- (2)** (i) Many a times when we buy different commodities, we may not get the correct quantity for which we have paid and we are at a loss.
- (ii) In order to ensure that we get the correct quantity of the commodity and are not cheated during the transaction, it is necessary to get the weights and measures standardized at regular intervals.
- (3)** (i) Quantities which are independent of any quantity or are not related to other quantities are called fundamental quantities.
- (ii) Speed is a ratio of two quantities, i.e. distance and time.

(iii) Since speed is related to other quantities, it is not a fundamental quantity.

(B) (1) A physical quantity which can be completely described by its magnitude alone is called a scalar quantity.

For example, when we say that the mass of a body is 100 grams, the length of a tunnel is 2 kilometres, only magnitude i.e., their value 100 or 2 and the units grams and kilometres give us the complete idea of mass of the body and length of the tunnel respectively.

(2) The quantity that is expressed completely only when magnitude and direction both are given is called a vector quantity.

For example, suppose an object covers a distance of 20 km. To know where exactly the object is, i.e., its displacement, its direction should be mentioned. If the direction is north, then the displacement of the object will be 20 kilometres towards the north direction. Similarly, to describe velocity of an aeroplane its magnitude and direction both must be mentioned. If an aeroplane is flying at a velocity of 500 km/hr towards Mumbai, then the speed 500 km/hr i.e., its magnitude and its direction is towards Mumbai, which also has to be mentioned.

Q.4. (1) Instruments used for measuring distances are scale, the metre rod and the measuring tape.

(2) Volume of liquids is measured using measuring cans or jars and measuring cylinders.

(3) The weight of an object is the gravitational force acting on that object. Gravitational force of different planets is different, therefore gravitational force exerted by different planets on the same object will be different and hence the weight of the same object is different on different planets.

- (4) There are two possible sources of errors in measurement - not using the appropriate device and not using the device properly.
- (5) Atomic clocks are the most accurate time and frequency standards known and are used as primary standard for international time distribution services to control the wave frequency of television broadcasts and in global navigation satellite systems such as GPS. In India, it is kept in National Physical Laboratory, New Delhi.
- (6) The distance travelled by light in $1/299,792,458$ of a second is considered as a metre.

- Q.5. (A) (1)**
- (i) Weight of a body is the gravitational force exerted by the earth on the body.
 - (ii) The shape of the earth is not perfectly spherical. It is slightly flattened at the poles and bulges at the equator.
 - (iii) So, the radius of earth at the poles is less than that at the equator.
 - (iv) Gravitational force depends upon the earth's radius and it is inversely proportional to the radius of the earth.
 - (v) Since the radius of earth is minimum at poles and maximum at equator, the gravitational force at poles will be maximum and minimum at the equator.
 - (vi) Hence, weight of an object is maximum at poles and minimum at equator.
- (2)**
- (i) Weight of an object is the gravitational force acting on the object by the earth.
 - (ii) Gravitational force is inversely proportional to the distance from the centre of the earth.
 - (iii) At higher altitudes, the distance from the centre of earth is more than that at the sea-

level. Hence, the gravitational force at higher altitude is less than that at the sea-level.

- (iv) Therefore, the weight of an object at a high altitude is less than its weight at the sea-level.

- (B)** Wrong methods of measurement are shown in figures 1, 2 and 3. In fig.1, a 'hand-span' is used for measurement. The measurement would differ from person to person, as the size of span of a hand is different for different persons and the measurement will not be accurate.

In fig. 2, there is no scale marked on the glasses, so we will not know the exact volume of liquid transferred.

In fig. 3, the measurement is not taken from the initial or zero marking of the scale, so the person may make a wrong measurement.

- (C) (1)** Accuracy in measurement of a thing depends upon its purpose and value.
- (1)** The mass of things like cloves, cardamoms, gold and silver which are costly and are used in small quantities is measured with great care and accuracy.
 - (2)** To measure such things, small units and very sensitive instruments like a sensitive electronic balance are used. If they are not measured accurately, it will result in great loss.
 - (3)** During chemical analysis or preparation of medicines, when proportions of constituents have to be determined as accurately as possible, sensitive devices are required like standard measuring flask or measuring cylinders or sensitive balance.
 - (4)** While drawing a geometrical figure, drawing a map or while making machine parts that must fit into one another, a difference of even a single millimetre

cannot be tolerated, as even a small error will hinder the functioning in case of machines. Similarly while drawing geometrical figures and maps, we will not get the exact figures.

- (5) During prestigious sports events, difference of a time interval of even a fraction of a second is important when deciding the winner of a neck and neck race. In such cases, the measurement of time should be very accurate, which requires a sensitive timer which can give the accurate time.
- (2) (1) Not using the appropriate device.
(2) Not using the device properly.
Things to be observed while buying from grocery shops or at vegetable markets, so that you don't get cheated.
- (1) Whether the balance carries the stamp of standardization by the department of weights and measures.
(2) Whether the balance is stable and whether the pointer of the balance is upright or not.
(3) Whether the weight is made up of a metal and the balance is held properly.
(4) Whether the underside of the pan of the balance has been tampered or not.

Topic 7 : Motion, Force and Work

- Q.1. (A) *(1) If a body traverses a distance in direct proportion to the time, the speed of the body is **constant**.
*(2) If a body is moving with a constant velocity its acceleration is **zero**.
*(3) **Speed** is a scalar quantity.
*(4) **Velocity** is the distance traversed by a body in a particular direction in unit time.

- (5) Acceleration is the rate of change of **velocity** with respect to time.
(6) Rate of change in velocity is called **acceleration**.
(7) A **stationary** body can be considered to have constant speed.
- (B) (1) A change in the shape or motion of an object occurs if **force** acts on it.
(2) When a body returns to the starting point, then its displacement will be **zero**.
(3) Velocity is a **vector** quantity.
(4) The shortest distance between the initial and final point of movement of an object is called **displacement** of the object.
(5) Magnitude of velocity is **speed**.
(6) The velocity of an object at a particular moment of time along a path in which it moves is called **instantaneous** velocity.
(7) Velocity has both **magnitude** and **direction**.
(8) The velocity of a moving object decreases due to **frictional** force.
(9) Force is measured by the **acceleration** that it produces.
- (C) (1) The C.G.S. unit of energy is **Erg**.
(2) Force = **mass x acceleration**
(3) acceleration = change in velocity/time.
(4) If no force of friction is acting on a moving body, it will keep on moving with a **constant velocity**.
(5) If a body of mass 1000 gm moves with an acceleration of 2 m/s^2 , then the force acting on the body is **2 N**.

(D) (1) False (2) True (3) True (4) False

(E) (1) Displacement (2) Erg (3) speed

(F) (1)

Group A	Group B	Group C
Work	Joule	erg
Force	Newton	dyne
Displacement	Metre	cm

Q.2. (A) (1) Work : Work is defined as the product of force and displacement.

(2) **Distance :** The length of the path actually traversed by a moving body, irrespective of the direction, is called distance.

(3) **Displacement :** The minimum distance traversed by a moving body in one direction from the original point to reach the final point, is called displacement.

(4) **Velocity :** Velocity is the distance traversed by a body in a specific direction in unit time.

(5) **Acceleration :** The rate of change of velocity is called acceleration.

(B) (1)

	Distance		Displacement
(i)	Distance is the length of the path actually traversed by a moving body.	(i)	Displacement is the minimum distance traversed by a moving body from the original point to the final point.
(ii)	Distance is a scalar quantity.	(ii)	Displacement is a vector quantity.

(2)

	Speed		Velocity
(i)	Speed is the distance covered by a body in unit time.	(i)	Velocity is the distance traversed by a body in specific direction in unit time.
(ii)	Speed is a scalar quantity.	(ii)	Velocity is a vector quantity.

(3)

	Velocity		Acceleration
(i)	Velocity is displacement of a body in unit time.	(i)	Acceleration is the change in velocity per unit time.
(ii)	The formula for velocity is given as $\text{Velocity} = \frac{\text{Displacement}}{\text{Time}}$	(ii)	The formula for acceleration is given as $\text{Acceleration} = \frac{\text{Change in velocity}}{\text{Time}}$
(iii)	Unit of velocity in M.K.S. system is m/s and in C.G.S. system is cm/s.	(iii)	Unit of acceleration in M.K.S. system is m/s ² and in C.G.S. system is cm/s ² .

Q.3. (1) (i) According to Newton's first law of motion, if no force is acting on a body, the body will continue to move with a constant velocity and in the same direction.

(ii) When talcum powder is applied on a carrom board while playing, the friction between the carrom board and the coin reduces.

(iii) As force of friction acting on the moving coin reduces, it continues to move for a longer time if talcum powder is applied on the carrom board.

(2) (i) Displacement is the minimum distance traversed by a moving body from the original point to the final point of movement.

(ii) When a body comes back to its original position after covering certain distance, the displacement between the original point to its final point of movement is zero.

(iii) Hence, displacement of an object can be zero even if its distance is not zero

(3) (i) Vector quantities are quantities which can be described only if both magnitude and direction are mentioned.

(ii) To move anything, we should know how much force is required i.e., the magnitude of the force.

(iii) Moreover, to move the object to a specific position, we should also know in which direction force has to be applied.

(iv) Thus, to describe force completely, both magnitude as well as direction are required.

(v) Hence, force is a vector quantity.

Q.4. (A) **(1)** Motion is the continuous change in the position of an object with respect to the observer.

(2) Force acting on an object causes a change in its motion, as it can change the speed, direction or can even bring the object to rest.

(3) Speed is the distance covered by a body in unit time.

(4) Formula for calculating speed is :

$$\text{Speed} = \frac{\text{Distance traversed}}{\text{Total time}}$$

(5) When a body is moving along a straight line, velocity of the body can change. The velocity of the body at a particular moment of time is called instantaneous velocity.

(6) Yes, force is also a vector quantity as it requires both magnitude and direction to be described.

(B) **(1)** **Force** : A football placed on a ground will not move until and unless it is kicked i.e. a force is applied to the ball. The moving football after some time will come to rest due to force of friction between the ground and the ball. The direction of the moving ball can be changed if it is hit from a different direction. When its direction changes, the velocity of the ball also changes. When the velocity changes, the body is said to have acceleration. The interaction that brings about the acceleration is called force. Force is a physical quantity which changes or tends to change the state of rest or uniform motion of an object in straight line.

(2) **Work** : By sitting and completing the homework for a long time, we may become tired and feel that we have done a lot of work. In this case no work is said to be done, as there is no displacement. But while playing football, work is done as there is displacement seen in the football due to the force applied. So work is said to be done only if the object to which force is applied is displaced. Work done depends on both force and displacement. Hence, work is a product of force and displacement.

(3) **Displacement** : When we have to reach a particular destination, there can be different routes to reach that place. The length of the route will be either short or long. In this case, the shortest distance to reach the destination has to be considered as displacement. Now if we come back to the original place from where we started, then the displacement will become zero.

So, displacement is the minimum distance traversed by a moving body in one direction from the original point to reach the final point.

(4) **Velocity** : If a car is moving with a speed of 80 km/hr, after certain time, it will be difficult for us to know where

exactly the car is. But if it is mentioned that the car is headed towards Pune, we can know the location of the car. If speed is mentioned with direction, we can find the velocity.

So, velocity is the distance traversed by a body in a specific direction in unit time.

- (5) **Acceleration** : While riding a bicycle with certain velocity, you start pedalling the bicycle faster to attain a maximum velocity, if the road is clear. But if there is traffic, then you have to slow down the bicycle or may have to stop the bicycle. Here the velocity of the bicycle does not remain same. As the velocity goes on changing, we say that acceleration takes place.

So acceleration is the change in velocity per unit time.

- (6) **Distance** : Suppose your school is at a distance of 2 km. from your home. The total length of the path you have travelled from your home to school and then back home will be $2 \text{ km} + 2 \text{ km} = 4 \text{ km}$. So the distance covered by you will be 4 km.

Hence, distance is the length of the route actually traversed by a moving body irrespective of the direction.

- (C) The total distance travelled by the bird is the length of the complete circular path that it takes. Whereas its displacement is zero as the bird comes back to its initial position from where it took its flight.
- (D) Work is done in the (iii) and (iv) activities as there is displacement taking place in both the activities due to the force applied. Work is said to be done only if there is displacement due to the force applied.

- Q.5. (A) (1)** The actual distance traversed by Sachin and Sameer = $AB + BC + CD + DE$
 $= 3 \text{ km} + 4 \text{ km} + 5 \text{ km} + 3 \text{ km}$
 $= 15 \text{ km}$

$$\begin{aligned} \text{Displacement from A to E} &= AB + BD + DE \\ &= 3 \text{ km} + 3 \text{ km} + 3 \text{ km} \\ &= 9 \text{ km} \end{aligned}$$

$$\text{Total time taken} = 1 \text{ hr.}$$

$$\text{Speed} = \frac{\text{Total distance}}{\text{Total time}} = \frac{15 \text{ km}}{1 \text{ hr}} = 15 \text{ km/hr.}$$

$$\text{Velocity from A to E} = \frac{\text{Total displacement}}{\text{Total time}} = \frac{9 \text{ km}}{1 \text{ hr}} = 9 \text{ km/hr.}$$

- ∴ The total distance traversed by Sachin and Sameer = 15 km.
 Displacement = 9 km, speed = 15 km/hr and velocity = 9 km/hr.
 Yes, the velocity is average velocity.

(2) Distance travelled = $OA + AB$
 $= 4 \text{ km} + 3 \text{ km}$
 $= 7 \text{ km}$

$$\text{Distance travelled by the boy} = 7 \text{ km}$$

$$\begin{aligned} \text{Displacement of the boy} &= OB \\ &= 5 \text{ km} \end{aligned}$$

$$\therefore \text{Displacement of the boy} = 5 \text{ km}$$

- (3) (i) The distance covered by body $AB + BC + CD + DA$.
 (ii) Displacement of the body is zero as the body returns to the starting point.

(iii) Average speed = $\frac{\text{Total displacement}}{\text{Total time}}$

$$\therefore \text{Average speed} = \frac{AB + BC + CD + DA}{t_1 + t_2 + t_3 + t_4}$$

- (iv) Average velocity of the body is zero as the body returns to the starting point and displacement is also zero.

- (4) Speed of the ball at B (Initial velocity) = 2 cm/s
 Speed of the ball at C (Final velocity) = 4 cm/s
 Time taken = 2 seconds

$$\text{Acceleration} = \frac{\text{Change in velocity}}{\text{Time taken for change}}$$

$$\begin{aligned}\text{Acceleration} &= \frac{\text{Final velocity} - \text{Initial velocity}}{\text{Time taken}} \\ &= \frac{4 \text{ cm/sec} - \text{cm/sec}}{2 \text{ sec}} \\ &= 1 \text{ cm/s}^2\end{aligned}$$

∴ The acceleration of the ball as it goes from B to C is 1 cm/s^2 .

(B) (1) $1 \text{ km} = 1000 \text{ m}$, $1 \text{ hr} = 60 \times 60 = 3600 \text{ sec}$

$$72 \text{ km/hr} = \frac{72 \times 1000}{3600} \text{ m/s} = 20 \text{ m/s}$$

(2) (i) Total distance travelled = $120 \text{ m} + 120 \text{ m} = 240 \text{ m}$

(ii) Displacement = 0 (as the body returns to its initial position)

$$\text{(iii) Average speed} = \frac{\text{Total distance travelled}}{\text{Total time taken}}$$

(iii) Average velocity = 0
(since the displacement is zero)

$$= \frac{240}{10} \text{ m/s} = 24 \text{ m/s}$$

(3) Given : Mass (m) = 25 kg
Acceleration (a) = 1.2 m/s^2
Force (F) = ?
Force = mass × acceleration
 $F = ma$
 $= 25 \text{ kg} \times 1.2 \text{ m/s}^2$
 $= 30 \text{ kg.m/s}^2$
 $= 30 \text{ Newton.}$

∴ **Ans.** Force applied on the object is 30 Newton.

(4) Given : Force (F) = 1000 N
Displacement (s) = 10 m
Work done (W) = ?
Work = Force × Displacement
 $W = F \times s$
 $= 10000 \text{ N} \times 10 \text{ m}$
 $= 10000 \text{ N.m}$
 $= 10000 \text{ Joule}$

∴ **Ans.** The work done to stop the moving car is 10000 Joule.

(5) Given : Mass of cart (m) = 20 kg
Force (F) = 2 N
Displacement of cart (s) = 50 m
Work done (W) = ?
Work = Force × Displacement
 $W = F \times s$
 $= 2 \text{ N} \times 50 \text{ m}$
 $= 100 \text{ N.m}$
 $= 100 \text{ Joule}$

∴ **Ans.** Work done by the force was 100 Joule.

Q.6 (A) (i) Acceleration is the change in velocity per unit time.

(ii) The formula of acceleration is

$$\text{Acceleration} = \frac{\text{Change in velocity}}{\text{Time}}$$

(iii) The unit of velocity in M.K.S. system is m/s whereas that of time is second.

(iv) So, the unit of acceleration will be

$$\frac{\text{m}}{\text{s}} : \text{s} \quad \frac{\text{m}}{\text{s}} \times \frac{1}{\text{s}} \quad \frac{\text{m}}{\text{s}^2}$$

(v) Therefore, unit of acceleration is m/s^2 .

- (B) (a) (i) Formula for speed is
- $$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$
- (ii) Unit of distance in M.K.S. is m whereas that of time is sec.
- (iii) \therefore Unit of speed in M.K.S. system will be m/sec.
- (b) (i) Formula for velocity is
- $$\text{Velocity} = \frac{\text{Displacement}}{\text{Time}}$$
- (ii) Unit of displacement in M.K.S. system is m and that of time is sec.
- (iii) \therefore Unit of velocity in M.K.S. is m/sec.
- (C) (i) The force due to the weight is applied on the wooden block.
- (ii) Force can be increased by increasing the weight.
- (iii) On applying more force, the displacement of the wooden block will increase.
- (iv) When there is displacement in the wooden block due to the applied force, work is said to be done.

Topic 8 : Static Electricity

- Q.1. (A) *(1) There is **always repulsion** between like charges.
- *(2) **Displacement of negative charge** is responsible for generation of electric charge in an object.
- (3) A lightning conductor is made of a **copper** strip.
- *(4) **Steel** does not get electrically charged easily by rubbing.
- *(5) There is **always attraction** when opposite electric charges come near each other.
- *(6) A **charged object** can be detected with an electroscope.

- (7) All substances are made up of very tiny particles called **atom**.
- (B) (1) Electric charge is an **intrinsic** property of atoms.
- (2) An atom is electrically **neutral**.
- (3) When glass rod is rubbed against silk, **positive** charge is developed on glass rod.
- (4) Like electric charges show **repulsion**.
- (5) **Negative** charges in an atom are moving.
- (6) Amber is called **electron** in the Greek language.
- (7) **Thomas Browne** named the property of amber to attract things as electricity.
- (8) **Unlike** electric charges attract each other.
- (9) The ozone gas protects us from the harmful **ultra violet** rays coming from sun.
- (10) The number of positive and negative charges are equal on an **uncharged or neutral** object.
- (C) (1)-(c), (2)-(a), (3)-(d), (4)-(b).
- (D) (1) copper rod (2) ebonite rod (3) silk cloth
- (E) (1) Electroscope (2) Lightning conductor
- (3) Atoms.
- (4) Protons (positive charged particles), electrons (negative charged particles), neutrons (neutral particles)

- Q.2. (1) **Repulsion** : When two similar charged objects are brought near, they move away from each other. This is called repulsion.
- (2) **Attraction** : When two oppositely charged objects are brought near, they get pulled towards each other. This is called attraction.
- (3) **Frictional electricity** : The electric charge generated by friction is called frictional electricity.

- Q.3. (A)**
- (1) When the positive charge and the negative charge in the object are not balanced i.e. they are not equal in number, then the object is said to be charged.
 - (2) If the objects carry similar charges (like charges), they will repel and if the objects carry opposite charges (unlike charges), then they will show attraction.
 - (3) No, all objects do not get charged by rubbing.
Most of the insulators, which are bad conductors, can be charged by rubbing. E.g., glass rod, ebonite rod, plastic scale.
 - (4) A charged object can attract an uncharged object. Since the balloon is charged, it attracts the uncharged wall when it is brought near the wall. So the charged balloon sticks to the wall.
 - (5) Lightning strike can set trees on fire and shatter buildings. It can kill people and animals.
 - (6) Tall buildings are fitted with lightning conductor to prevent the possible damages caused by lightning.
 - (7) The lightning conductor is a device used for protection from a lightning strike. Its upper end is pointed so that the charge gets concentrated at a particular place when lightning strikes and can be easily and quickly carried towards the ground. This prevents any damage to the property.
 - (8) Coal is porous and absorbs the salt water. It keeps the surrounding area conductive. This helps to spread the electric charge during lightning strike quickly into the ground and prevents damage. So coal and salt are added to the pit in the ground where the lightning conductor is fitted.

- (9) Yes, we can use leaves of other metals like aluminium instead of gold in the electroscope. The metal should be such that it can be beaten into extremely thin leaves, so that it can detect even a very small charge.

- (B)**
- (1) A plastic comb or ruler rubbed on dry hair develops charge. Due to the charge developed on a plastic comb or ruler, they attract pieces of paper.
 - (2) When we pass near a polyester curtain again and again, opposite charges are developed on our body and the polyester curtain due to rubbing. So the curtain gets attracted towards us.
 - (3) When we rub a blanket with our hands, the blanket develops negative charge. When this charged blanket is taken near a metal object, the negative charge from the blanket flows to the metal. That is why a spark is seen in the dark when a charged blanket is brought near a metal object.

Q.4. (A) (1)

	Charging by contact		Charging by induction
(i)	The process of charging a body by actually touching a charged body is called charging by contact.	(i)	The process of charging a body by keeping it near (without touching) a charged body is called charging by induction.
(ii)	In this, charge moves from charged body to the uncharged body.	(ii)	In this, no charge flows from the charged body to the uncharged body.
(iii)	In charging by contact, some charge is lost by charged body.	(iii)	In charging by induction, no charge is lost by the charged body.

(iv)	Charge developed on the uncharged body by contact remains even when the charged body is removed.	(iv)	Charge developed on the uncharged body by induction is lost as soon as the charged body is removed.
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- (B) (1)**
- (i) All substances are made up of particles and these particles are made up of very tiny atoms.
 - (ii) An atom contains stationary positively charged and moving negatively charged particles.
 - (iii) These two charges are equal in number, so they are balanced in an atom.
 - (iv) As the charges are balanced in an atom, no net charge is there on the atom.
 - (v) Hence, an atom is electrically neutral.
- (2)**
- (i) Charge cannot be developed on metals as they are good conductors.
 - (ii) If the objects are good conductors of electricity, the charges will spread over their entire body and attraction will not be seen, when they are brought near uncharged objects.
 - (iii) Since copper is a metal and a good conductor, charge cannot be developed on a copper rod.
- (3)**
- (i) If an electrically charged object attracts another object, then the other object may be either uncharged or oppositely charged, as unlike charges attract each other.
 - (ii) Whereas if an electrically charged object shows repulsion, then surely the other object will be having charge similar to the electrically charged object, as like charges repel each other.
 - (iii) Since repulsion is seen between like charges, it is a sure test of electric charge.

Q.5. (A) (1) When thermocol balls or mustard seeds in a bottle are shaken vigorously, the seeds try to move away from each other, and stick to the bottle.

Reason : When thermocol balls or mustard seeds in a bottle are shaken, they develop like charges, whereas the bottle develops opposite charge. Hence, thermocol balls or mustard seeds try to move away from each other, but stick to the bottle. This is because like charges repel each other and unlike charges attract each other.

(2) When a spent tubelight kept in dark is rubbed vigorously with a thin polythene bag, sparks are seen.

Reason : As the tubelight is rubbed vigorously, it develops static electricity and gets charged. Tubelight and polythene bag develop opposite charges. As they get charged and attract each other, sparks are seen in the dark.

(3) When an uncharged aluminium ball is brought near a negatively charged balloon, it gets attracted to the balloon and comes in contact with it. Then after some time, the aluminium ball and balloon repel each other.

Reason : When an uncharged aluminium ball is brought near a negatively charged balloon, an opposite charge is developed and both get attracted to each other. On touching, both become similarly charged and repel each other as like charges repel each other.

- (B) (1)**
- (i) All substances are made up of very tiny particles called atoms.
 - (ii) These atoms contain stationary positive charged and moving negative charged particles.

- (iii) These oppositely charged particles are equal in number, so atom as a whole is neutral.
 - (iv) But due to certain reasons like rubbing, the balance of electrically neutral atoms gets disturbed.
 - (v) When certain objects are rubbed against each other, the negatively charged particles on one object are transferred to the other object.
 - (vi) The objects to which the charges are transferred become negatively charged due to an excess of negative charged particles.
 - (vii) Similarly, the object from which the negatively charged particles get transferred become positively charged due to deficiency of negatively charged particles.
 - (viii) Therefore when two substances are rubbed, one becomes positively charged and the other, negatively charged.
- (2)** The following steps should be taken for protection from lightning :
- (i) As far as possible one should try to remain indoors during lightning.
 - (ii) When you are inside your house, avoid using corded landline phones.
 - (iii) Do not use appliances that are plugged to the wall like television, air conditioner, computer.
 - (iv) Avoid standing on wet surfaces.
 - (v) Do not stand near windows or in a balcony having metallic railings.
 - (vi) If you are outside your house, do not stand under tall trees, isolated trees, on open ground, near an electric pole or a telephone pole.
 - (vii) If you are on a two-wheeler, a bicycle, a tractor or a boat, get off immediately and go to a safe place.

- (3)**
 - (i) A lightning conductor is a device used for protection from a lightning strike.
 - (ii) It consists of a long copper strip with one end forked, which is placed at the highest part of the building and the other part is connected to a plate of cast iron.
 - (iii) A pit is dug in the ground, coal and salt are filled into the pit and the iron plate is placed upright in the pit.
 - (iv) There is also a provision for pouring water into it.
 - (v) All the above provisions help to spread the electric charge quickly into the ground and prevent damage.
- (4)**
 - (i) During rainy seasons, there are chances of lightning.
 - (ii) In open fields, lightning can prove to be dangerous for a person, if it strikes.
 - (iii) Iron staff stuck in the ground by the farmers while working in fields in rainy conditions acts as a lightning conductor.
 - (iv) If lightning strikes in the field, the electric charge will pass through the iron rod to the ground quickly and thus can prevent any injury to the farmer.
 - (v) Therefore, farmers stick an iron staff into the ground while working in the field in rainy conditions.
- (5)**
 - (i) Lightning occurs only when the negative charge developed on the bottom of the cloud is much larger than the charge on the ground.
 - (ii) This charge starts flowing towards the ground in very fast stages and heat, light and sound energy are produced along with the electric current.
 - (iii) This condition does not occur everyday during the rainy season, and hence lightning is not seen everyday in the rainy season.

- (6)** The characteristics of a static electric charge are :
- (i) Electrically charged objects attract uncharged objects.
 - (ii) Like electric charges repel each other.
 - (iii) Unlike electric charges attract each other.
- (7)** Damage caused by lightning :
- (i) Lightning, if it strikes a person, can cause permanent injuries, severe burns and can also be fatal.
 - (ii) It can destroy buildings, monuments, trees and can cause fire and damage property.
 - (iii) Telephones, computers, television and other electric devices can be damaged by lightning.
 - (iv) To create awareness, people should be told about the various damages caused by lightning and the precautions to be taken through various media like television, newspapers, etc.
- (8)** I will take the following measures to prevent the damages caused by lightning :
- (i) On hearing a thunder, I will avoid standing near a tall tree, electric pole, high-rise building or any metallic structure.
 - (ii) I will rush to a safe place such as low-rise house or a building.
 - (iii) If I am travelling by a bus or a car, I will stay inside and will shut the windows of the vehicle.
 - (iv) If I am inside the house, I will unplug the electronic devices like television set, computer etc. and will not use the corded phone.
 - (v) I will avoid contact with running water.
 - (vi) I will not stand near windows or in balcony having metallic railings.

- (vii) I will also see to it that the building/house where I stay is fitted with a lightning conductor.
- (9)**
- (i) When air and clouds rub against each other, clouds get charged and when a large amount of charge is developed in the clouds, it starts flowing towards the ground, which is seen as lightning.
 - (ii) During heavy rain, there is generally lightning or thunder.
 - (iii) When we go out with an umbrella during heavy rain, if there is lightning or thunderstorm, an umbrella can increase the chances of being hit by lightning.
 - (iv) The electric discharge can pass through the metallic rod of the umbrella and can give a severe shock to the person carrying it.
 - (v) So, it is not safe to go out with an umbrella when there is heavy rain, lightning or thunder.
- (10)**
- (i) When there is lightning in the sky, the negative charge that is developed on the bottom of the clouds in large amount starts flowing towards the ground in stages.
 - (ii) This happens very fast and heat, light and sound energy are produced along with the electric charge.
 - (iii) During lightning strike, when an electrically charged cloud comes over a tall building or a tree, it generates opposite charge on the roof of the building or on the top of the tree by induction.
 - (iv) If the charge built up is large, it leads to an electric discharge in the form of light streak towards the building.
 - (v) This can shatter buildings or set a tree on fire.

Topic 9 : Heat

- Q.1. (A)** ***(1)** Maximum heat is absorbed by a **black** coloured object.
- ***(2)** **Radiation** of heat does not require a medium.
- ***(3)** Conduction of heat takes place through a **good conductor** substance.
- ***(4)** The shining surface in a thermos flask decreases the outgoing heat by **reflection**.
- ***(5)** Cooking utensils are made from metals due to their property of **conduction**.
- ***(6)** The earth receives heat from the sun by **radiation**.
- (7)** **White** colour absorbs minimum heat radiations.
- (B)** **(1)** Temperature of a substance is measured by a **thermometer**.
- (2)** Mode of transfer of heat from the hot part of an object to the cold part is called **conduction** of heat.
- (3)** Heat is conducted quickly through **copper** than through iron.
- (4)** The density of water **decreases** due to heating.
- (C)** (1)-(d), (2)-(e), (3)-(b), (4)-(a), (5)-(f).
- (D)** **(1)** Reflection **(2)** Glass **(3)** Mercury
(4) Lead
- (E)** **(1)** Thermometer **(2)** Black **(3)** Thermos flask
(4) Thermoware **(5)** Radiation **(6)** Infrared camera

- Q.2. (A)** **(1) Conduction** : The mode of transfer of heat from the hot part of an object to the cold part is called conduction of heat.
- (2) Temperature** : The degree of hotness or coldness of a substance is called temperature.

- (3) Convection** : The mode of transfer of heat by means of convection currents is called convection of heat.

OR

- Mode of transfer of heat in which the particles of the medium absorb heat at the hot place and they themselves move to transfer heat to the cold place is called convection.
- (4) Radiation** : Mode of transfer of heat in which no material medium is required is called radiation.
- (5) Good conductor** : A substance which allows heat to flow easily through it is called a good conductor.
- (6) Bad conductor** : A substance which does not allow heat to flow easily through it is called a bad conductor.

(B) (1)

	Conduction		Convection
(i)	Mode of transfer of heat from the hot part of an object to the cold part of the object is called conduction of heat.	(i)	Mode of transfer of heat by means of convection currents set because of movement of particles is called convection of heat.
(ii)	It generally takes place through solids.	(ii)	It takes place through liquids and gases.

(2)

	Convection		Radiation
(i)	In convection, medium is necessary.	(i)	In radiation, no medium is necessary.
(ii)	Convection currents set due to the movement of particles.	(ii)	Particles are not involved in transfer of heat.
(iii)	It takes place through liquids and gases.	(iii)	It takes place through vacuum.

- Q.3. (A)**
- (1) Heat is a form of energy.
 - (2) Solar heat reaches the earth by radiation.
 - (3) The flow of heat from a hot body to a cold body is called transfer of heat.
 - (4) Once the water heated to boiling is taken off the flame, the supply of heat to the boiling water stops. So the temperature of the water starts decreasing i.e. the heat in the water heated to boiling slowly decreases. This heat goes to the surroundings which are at a lower temperature, as transfer of heat takes place from hot body to cold body.
 - (5) The modes of heat transfer are conduction, convection and radiation.
 - (6) The ability of a substance to absorb heat radiation depends on its colour and also its intrinsic properties.
 - (7) During fever, a patient's body temperature goes up. When a cold compress is placed on his forehead, heat is transferred from his body to the cold compress. So fever get lowered by putting a cold compress on the forehead of a patient.
 - (8) The houses in Rajasthan are painted white because the climate of Rajasthan is very hot. White colour reflects maximum heat radiation, so it does not become very hot inside the house.
 - (9) The penguins of Antarctica have black outer coat because black colour absorbs maximum heat radiations, which keeps them warm and protects them from the severe cold climate of the region.
- (B)**
- (1) (i) Glass is a poor conductor of heat and its inner and outer walls expand unequally when they are heated.
(ii) So, when boiling water is poured into an ordinary glass bottle, the inner walls of the glass expand

rapidly as compared to the outer walls due to unequal distribution of heat and the glass bottle cracks.

- (iii) But borosil glass bottles are made in such a way that they can withstand high temperature.
- (iv) So, they expand very little when boiling water is poured into them and thus do not crack.

(2) The telephone wires which sag in summer become straight in winter.

- Ans.**
- (i) Telephone wires are made up of metal.
 - (ii) During summer, they absorb heat from the surroundings and expand, so they sag in summer.
 - (iii) In winter when the temperature of the surroundings goes down, the wires contract.
 - (iv) Hence, due to contraction, the wires which sag in summer become straight in winter.

- (3)**
- (i) Atmosphere contains water vapour.
 - (ii) Its capacity to hold water vapour depends upon the temperature of the surroundings.
 - (iii) During winter the temperature of the surroundings goes down.
 - (iv) So, the water vapour in the atmosphere condenses to form water droplets which settle on the cold surface of the grass.
 - (v) Hence, dew drops form on the grass, in winter.

- (4)**
- (i) Iron is a good conductor of heat and wood is a bad conductor of heat.
 - (ii) When iron pillar is touched in winter, iron being a good conductor of heat conducts away heat from our hand and therefore it appears to be cold.
 - (iii) But wood being bad conductor of heat does not conduct heat away from our hand and therefore the wooden pole appears not to be as cold.

- (5) (i) Glass or China clay are bad conductors of heat whereas steel or copper are good conductors of heat.
(ii) Therefore, glass tumbler or China cup full of hot tea does not transfer the heat to our hand whereas steel or copper cup transfers the heat from the hot tea and hence we can hold a glass tumbler or China cup full of hot tea easily in our hand, but not a steel or copper cup with hot tea.

- Q.4. (A) (1)** (i) Spoons are generally made up of metals and metals are good conductors of heat.
(ii) While stirring hot substances, the heat is slowly transferred from the hot end of the spoon to the cold end.
(iii) This can burn the hand of the person holding it.
(iv) So, in order to prevent getting burned, the halwai wraps up cloth around the end of his slotted spoon while stirring the boiling milk in his large kadhai.
- (2)** (i) The moment hot milk is poured into the steel glass, it becomes very hot as steel is a good conductor of heat.
(ii) This can burn the hand of the person holding it.
(iii) Handkerchief is a bad conductor of heat, it prevents the transfer of heat to our hands and thus protects us from burning our hand.
(iv) Hence we hold a steel glass in a handkerchief while drinking hot milk from it.
Other examples : The handles of cooking utensils are made up of wood or ebonite, we use cloth or a tong to remove hot vessel from the stove etc.

- (3)** (i) White coloured clothes reflect most of the heat that falls on them and we feel more comfortable wearing them in summer.
(ii) Whereas dark or black coloured clothes absorb more heat, so we feel comfortable with dark or black coloured clothes in winter.
- (4)** (i) Woollen clothes have fine pores filled with air.
(ii) Wool and air both are bad conductors of heat.
(iii) In order to prevent the transfer of heat from our body to the surroundings and to keep our body warm, we wear woollen clothes in winter.
- (5)** (i) When a railway track is laid, a small gap is always left between two sections of a railway line, so as to give some space for them to expand during summer.
(ii) The rails of railway tracks are made up of steel and they expand due to the considerable rise in the atmospheric temperature during summer.
(iii) If no gaps are left, the lines may bend and cause derailment of trains.
(iv) Similarly in case of cement concrete bridges, a gap is left as it may crack due to contraction in winter or expansion in summer.
- (6)** (i) Mercury is used in a thermometer for the following reasons.
(a) It is a shining, silvery white liquid which can be seen easily. It does not stick to the walls of the thermometer.
(b) It has uniform contraction and expansion.

- (c) Its freezing point is -39°C and boiling point is 357°C . So it can be used to measure a fairly wide range of temperature.
- (ii) Alcohol is used due to following reasons.
 - (a) Alcohol freezes at -117°C , so it is used for measuring very low temperatures.
 - (b) Expansion and contraction of alcohol are also regular.
 - (c) It is less hazardous than mercury.
- (7)** (i) Thermoware are containers used for keeping food hot.
- (ii) These containers are made up of two boxes fitted one inside the other.
- (iii) The outer box is made up of plastic, a bad conductor and the inner box is made up of a shiny metal.
- (iv) There is air between the two boxes, which is a bad conductor too.
- (v) Therefore, heat is neither transferred by conduction nor by convection.
- (vi) Heat is reflected by the shiny inner surface and heat loss due to radiation is also prevented.
- (vii) The lid of the container is made up of plastic, which prevents any transfer of heat.
- (viii) So the food placed in a thermoware container remains hot for a long time.
- (8)** Properties of heat are :
 - (i) Heat is a form of energy.
 - (ii) Heat can be transferred from a hot body to a cold body.
 - (iii) It can change the state of matter.
- (9)** (i) The mode of heat transfer that causes sea breezes and land breezes in convection.

- (ii) During the day, the air over the land gets heated up faster than that over the sea.
- (iii) So the air over the land becomes lighter and rises up.
- (iv) Hence, the cold air from above the sea moves towards the land. This sets up the convection current which forms sea breeze.
- (v) During the night, land cools more quickly than the sea water.
- (vi) Therefore, the air above the sea being warmer rises up and the cold air from land moves towards the sea.
- (vii) So the convection currents of cool air from land towards the sea form the land breeze.
- (10)** (i) Heaters are fitted near the floor so that the warm air near the heater rises up as it is lighter and the cold air from above the room comes down to take its place.
- (ii) Thus convection currents are set up, which warm up the entire room.
- (iii) Similarly air conditioners are fitted near the ceiling of a room, so that the cooled air from the air conditioner being heavier moves down, while the hot air from below rises up.
- (iv) Thus a convection current is set up and the whole room is cooled quickly.

- Q.5. (1)** When a metal ball which can just pass through a metal ring is heated, it does not pass through it after heating. But when cooled, it passes through the metal ring again.
- Reason :** Metals expand on heating, so the ball does not pass through the metal ring. But when it is cooled, it contracts and hence it again passes through the ring.

- (2) The pins nearest to the flame fall first and then the pins fall one by one till the last one.

Reason : Transfer of heat takes place from the flame to the rod, then from the hot end to the cold end of the iron rod by conduction.

Q.6. Radiation of heat takes place from many objects in nature such as trees, mountains, stones and roads. A camera has been developed which uses these radiations to make our surroundings visible at night. It is called an infrared camera. Using the camera, it is possible to keep a watch on the movements of the enemy during the night.

Q.7. Steel spoon, glass vessel, iron griddle (tava), glass, water and wax.

Topic 10 : Disaster Management

- Q.1. (A)**
- (1) The condition that arises due to long term and severe scarcity of foodgrains and water is called **famine**.
 - (2) A majority of the famines occurred in **drought** prone and affected regions.
 - (3) The world's mortality rate due to **lightning** is low.
 - (4) The temperature generated by lightning is higher than that of the **sun**.
 - (5) **Islands** are created due to the eruption of volcanoes in the sea.
 - (6) A wave generated by an earthquake or volcano occurring on the ocean floor is called a **tsunami**.
 - (7) An **earthquake** is a sudden violent shaking or movement of part of the earth's surface caused by the abrupt displacement of rock masses.
 - (8) During lightning due to high rise in temperature, the air under **high pressure** expands suddenly.

- (9) When the balance between rainfall and population is disturbed, **water** shortage starts increasing.

(10) 13th October is the International Day for **Disaster Reduction**.

- (B)**
- (1) Drought can cause **all of these**.
 - (2) Flood means **an overflow of water that submerges land**.
 - (3) What is not required for the severe storms to develop? **Rainfall**.
 - (4) Tsunami can occur **anytime in day or night**.
 - (5) Disaster management includes **all of these**.
 - (6) What is drought? **Shortage of water for an excessive period of time**.
 - (7) Which of the following is a man-made disaster? **Road accident**.
 - (8) Earthquake under the sea is called **tsunami**.
- (C)**
- (1) Railway accident (2) Drought (3) Locusts
(4) Volcano (5) Flood
- (D)**
- (1) False - Because storms are natural disasters and can occur due to changes in the weather.
 - (2) True - Because lightning may sometimes strike the water and since water conducts electricity, nearby lightning may harm or injure the person in water, it can also be fatal
 - (3) False - It is not possible to prevent the eruption of a volcano as it is a natural event or natural disaster, it takes place when the interior of the earth is very hot.
 - (4) False - Heavy rains result in flood. Famine is the condition created by some human activities besides some natural events.

(E) (1)-(d), (2)-(c), (3)-(b), (4)-(a).

- Q.2. (A) (1) Disaster :** A disaster is a sudden, calamitous event, which causes great damage to life and property on an overwhelming scale. Normal living is affected, and immediate assistance and relief measures are needed.
- (2) Disaster management :** It is an applied science which seeks by the systematic observation and analysis of a disaster to improve measures relating to prevention, mitigation, preparedness, emergency response and recovery.
- (3) Famine :** The condition that arises due to long term and severe scarcity of foodgrains and water is called famine.

(B) (1)

	Earthquake		Volcano
(i)	Earthquakes are caused by interaction of tectonic plates.	(i)	Volcanoes are caused by movement of magma.
(ii)	Earthquakes are vibrations or tremors that shake the earth.	(ii)	Volcanoes are fissures or vents in the earth which allow molten lava and gases to escape out on to the earth's surface.
(iii)	Earthquakes can cause damage by triggering tsunamis and landslides.	(iii)	Volcanoes can cause damage by ash flow, release of gases, mud flows, lava flows etc.

(2)

	Storm		Thunderstorm
(i)	Storm can occur without any lightning or thunder.	(i)	Thunderstorm will occur with lightning and thundering.

(ii)	Storms may be associated with cumulonimbus clouds and are accompanied by sudden changes in temperature and humidity levels.	(ii)	Thunderstorm is a storm consisting of thundering and lightning produced by cumulonimbus usually accompanied with rain and sometimes with hail, sleet, freezing rain or snow.
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- (C) (1)** Landslides are caused by disturbance in the natural stability of a slope. Landslide may occur at the foot hill, when masses of rock, earth or debris move down a slope. This can happen after heavy rains. Mud slides, also known as debris flows or mud flows are a common type of fast moving landslide. Mudslides develop when water rapidly collects in the ground and results in surge of water soaked rock, earth debris. When we wait at the foot-hill while it is raining heavily, mudslides may sweep down a slope or we may be trapped in mudslides and this can be dangerous. Sometimes it can be fatal. Hence we shouldn't wait at the foot-hill while it is raining heavily.
- (2)** Sometimes in cities the rains may not be very heavy, but the drainage system is choked with plastic bags due to which water-logging takes place. The water does not find any escape route, the levels start rising and the area gets submerged. Hence the use of non-biodegradable waste like plastic bags contributes to flood in cities.
- (3)** As volcanoes erupt, they build up layers of lava that may eventually break the water's surface. When the top of the volcanoes appears above the water, an island is formed. While the volcano is still beneath the ocean surface, it is called sea movement. Thus, due to eruption of volcanoes, some islands are formed.
- (4)** Swimming during thunderstorm may increase the chance of getting struck by lightning when lightning strikes the

water, and since water may conduct electricity, a nearby lightning strike could kill or injure the person swimming in pool. Hence, it is dangerous to swim in a pool during thunderstorm.

- Q.3. (A) (1)**
- (i) The best way to avoid being struck by lightning is to stay away from storms.
 - (ii) Always check the weather forecast before heading outdoors.
 - (iii) If you notice that it may rain, be sure to arrive home as soon as possible or cancel the event.
 - (iv) Even if there are no predictions of a storm, keep an eye on the clouds, as the forecast is not always accurate.
 - (v) Avoid open areas and tall objects.
 - (vi) Stay away from objects that may conduct electricity.
 - (vi) Take shelter in a car or nearby places.
- (2)** Sometimes the water coming down from rain clouds does not reach the land in the form of rain. Instead due to very high temperature near the land, it vapourizes and goes back into the same cloud. As a result, the amount of vapour in those clouds becomes very high. Due to rapid condensation, it rains suddenly over a specific and small region at a rate of 100 mm per hour or more. This is known as cloud burst.
- (3)**
- (i) Planned usage of water and reuse of water.
 - (ii) Proper planning of water conservation and harvesting at the local level.
 - (iii) Large scale plantation of trees and prevention of deforestation.
 - (iv) Making appropriate changes in plans taking into account the weather forecasts.

(v) Compose a variety of slogans and use them during 'Environment Awareness' rallies or programmes.

- (4)**
- (i) The chemical substances such as lava, vapour, hot mud, sulphur, etc., get collected on the surface of the earth and thereby mountains and hills are created.
 - (ii) The atmosphere gets polluted due to ash and gases due to volcanic eruption.
 - (iii) Often it rains as a result of volcanic eruption.
 - (iv) Temperature rises due to hot gases.
 - (v) Forests and settlements get buried under the hot mud.

(B) (1) (a) Storm : A violent disturbance of the atmosphere with strong winds usually accompanied by rain, thunder, lightning or snow is called storm.

Remedial measures :

- (i) Regularly cut down trees or branches that are likely to fall and cause damage.
- (ii) If we are outside take shelter in a safer place.
- (iii) Do not use plugged in electrical appliances.
- (iv) Listen to the radio or check for regular updates on weather conditions.
- (v) Fix the drainage system in your yard to prevent stagnation and flooding of water.
- (vi) Establishing construction regulations which will help build more resistant structures. Specially in zones at risk because of the exposure to violent winds, etc.
- (vii) Establishing well trained and equipped rescue and management teams for rescue management teams for rescue, assistance and preventive measures which are needed to respond to the different types of

storms. trained in the preventive, assistance and rescue measures needed to respond to the different type of storms, during storm.

- (viii) Protect yourself from lightning by keeping away from metal objects, switching off the electricity supply, T.V., telephone, etc.
- (ix) Keep calm and do not panic, do not spread rumours, check to see if there are people nearby who are wounded or in difficulty and assist them.
- (x) Collaborate, with the rescue and assistance service and help vital priority repairs and rehabilitation work if required.

(b) Lightning strike : Lightning is a sudden electrostatic discharge that occurs during a thunderstorm. This discharge occurs between electrically charged regions of a cloud, between two clouds or between a cloud and the ground. The charged regions in the atmosphere temporarily equalize themselves through this discharge referred to as a strike or lightning strike.

Remedial measures :

- (i) Avoid electronic equipment of all types. Lightning can travel through electrical systems like radios, televisions and other electronic gadgets.
- (ii) Do not try to walk or swim in a flowing water, ponds, etc.
- (iii) Lightning may cause fire. Prepare the appropriate fire-fighting equipments.
- (iv) Stay away from windows and metal doors.
- (v) Stay away from concrete floors or walls. Lightning can travel through metal wires or bars in the concrete walls or floorings.

- (vi) Avoid water during thunderstorm. Lightning can travel through plumbing.
- (vii) Do not use plug in electrical appliances. Do not use a mobile or telephone.
- (viii) Wear rubber boots, as they are made of rubber material which is a bad conductor of electricity.
- (ix) Install a lightning rod or lightning conductor to safeguard your property and family.

(c) Famine : The condition that arises due to long term and severe scarcity of foodgrains and water is called famine.

Remedial measures :

- (i) Planned usage of water and reuse of water.
- (ii) Proper planning of water conservation and harvesting at the local level.
- (iii) Large scale plantation of trees and prevention of deforestation.
- (iv) Making appropriate changes in plans, taking into account the weather forecast.
- (v) Implementing many schemes such as water storage scheme, water harvesting schemes to overcome famine.
- (vi) Using modern science like genetic engineering in order to stop pest attacks and kill insects and destroy animal diseases, and fixing low yields are some solutions to beat famine.
- (vii) Farmers should make use of developed machinery and should be trained to cultivate their lands on scientific basis.
- (viii) Connecting farmers to markets directly, this reduces poverty and gives farmers the income necessary to purchase their food.

- (ix) Ordinary people can help to end famine simply by spreading awareness and contacting their friends, families and legislators. Such awareness can put pressure on legislators to implement programs that combat famine.
 - (x) Individuals and groups in stressful situations will attempt to cope by rationing consumption, finding alternative means to supplement income, etc.
- (d) Cloudburst :** This phenomena occurs due to a sudden down pour of rain over a limited area. The water coming down from rain clouds does not reach the land in the form of rain, instead due to very high temperature near the land, it vapourizes and goes back into the same clouds. As a result the amount of vapour in those clouds become very high. Due to rapid condensation, it rains suddenly over a specific and small region at a rate of 100 mm per hour or more. This is known as a cloudburst.

Remedial measures :

- (i) Introduce better flood warning systems in advance, warning and preplanning can significantly reduce the impact of flooding.
- (ii) Modify homes and businesses to withstand floods. Waterproofing homes and businesses and moving electric sockets higher up the walls to increase resilience.
- (iii) Construct buildings above flood levels. Conventional defenses have to be supplemented with more innovative methods of constructing buildings to lower the risk of future disasters.
- (iv) Tackle climate changes. Climate change has contributed to a rise in extreme weather events. Governments from 195 countries pledged to “pursue

efforts” to limit the increase in the global average temperature to 1.5°C.

- (v) Increase spending on flood defenses. Spending on flood defenses should be increased by the Government.
- (vi) Protect wetlands and plant trees strategically. The creation of more wetlands which can act as sponges, soaking up moisture and wooded areas can slow down waters when rivers overflow.
- (vii) Restore rivers to their natural course. Remeandering straightened rivers by introducing their bends once more, increases their length and can delay the flood flow and reduce the impact of the flooding down stream.
- (viii) Introduce water storage areas.
- (ix) Improve soil conditions. Well drained soil can absorb huge quantities of rainwater, preventing it from running into rivers.
- (x) Put up more flood barriers. The environment agency uses a range of temporary or “demountable” defenses in at risk areas. These can be removed completely when waters recedes.

Q.4. (1) Tsunami is a Japanese word which means ‘harbour wave’. The phenomenon is usually associated with an earthquakes, or volcanic eruptions in oceans causes a sudden movement of the water column moving upwards. As a result a peculiar wave is formed, such a wave generated by an earthquake or volcano occurring on the ocean floor is called a tsunami.

If an earthquake or volcanic eruption occurs at the bottom of the ocean the energy released pushes the water upwards in the form of water columns. As a result of this,

a peculiar type of waves are formed. These waves are not very high near the source, but they start spreading very fast to long distances. The velocity of the waves is 800 to 900 km per hour. When they reach the coastal area, their velocity is reduced, but their height is found to have increased to about 30 metres.

Effects of Tsunami :

- (i) Buildings and other constructions are destroyed.
- (ii) There is a large scale loss of life and finance.
- (iii) Boats and ships near the coast get damaged.
- (iv) Trees get uprooted, landslides take place on a large scale.
- (v) Changes takes place in the original land near the coast giving rise to a swamps.
- (vi) Traffic obstructions arise.
- (vii) The business industry related to the sea are adversely affected and normal day-to-day life is disrupted.
- (viii) Large scale damage is caused to harbours and ports and industries related to it.

- (2)** An earthquake is a sudden, violent shaking or movement of a part of the earth's surface caused by the abrupt displacement of rock masses, usually within 10 - 20 miles deep below the earth's surface.

A severe earthquake can destroy roads and buildings and cause the sea to rise in huge waves.

If an earthquake and volcanic eruption occur at the bottom of the ocean or sea, the energy released pushes the water upwards. As a result of this a peculiar type of wave is generated this gives rise to a tsunami.

(3) Measures taken to deal with calamities like floods :

- (i) Construction of small dams in mountainous region. A dam is a barrier that stops or restricts the flow of water or underground streams and thus prevent, flooding.
- (ii) Construction of percolation tanks.
- (iii) Making river beds flat.
- (iv) Cultivation of new forests.
- (v) Connecting rivers.
- (vi) In cities, use of non-biodegradable items should be minimised and garbage disposal should be well managed.
- (vii) Improve flood warning mechanism.
- (viii) Government of Maharashtra introduced Disaster Management training programme in 100 schools and every district to deal with calamities such as floods.
- (ix) Disaster Management programme in Maharashtra lays down uses of ICT (Information Communication Technology), digitisation of the disaster management and the use of GIS (Geographic Information System) in hazard risk mapping.
- (x) Preinformation of floods is generally given by the Government well in advance. People should be mentally prepared to move immediately if necessary.

Measures taken to deal with calamities like landslides :

- (i) Vegetation cover protects land from landslides, and soil erosion.
- (ii) Afforestation - trees should be planted on slopes to prevent soil erosion.

- (iii) Groundwater can be drained from soil using trenches filled with gravel and perforated pipes or pumped water wells.
- (iv) Landslide mitigation refers to construction and other man-made activities on slopes with a goal of lessening the effect of landslides.
- (v) During constructing buildings on a slope, designs that suit the natural slope should be adopted. Vegetation and large trees should not be removed.
- (vi) Provisions should be made at community level to prevent people from excavating, removing materials from the soil or cutting down trees.

(4) With reference to disaster management things to be checked in house :

- (i) Location :** Check the location of your electrical switchboard, gas connection, water supply, solar inverter and any other relevant sources.
- (ii) Potable water :** Check for drinking water, keep atleast 3 gallons each per person at home.
- (iii) Food :** Check your food supply and store non-perishable foods like canned food, biscuits etc which do not require refrigeration.
- (iv) Medication :** Have some extra medication on hand for times when disaster strikes and you cannot leave your home to refill your prescription.
- (v) First aid kit :** It should have latex gloves, gauze pads, a thermometer, bandages, band-aids, antiseptic ointment, hand sanitizers and instant cold packs, etc.
- (vi) Tools and supplies :** This include items such as candles, matches, scissors, tweezers, a sewing kit, a flash light, extra batteries, a small fire extinguisher,

a knife etc. Be sure to also have a map of the area in case you need to look for a shelter.

- (vii) Hygiene products :** Toilet paper, soap etc.
- (viii) Cleaning products :** Eg., rain gear, work boots or durable sneakers and thermal underwear, soap, disinfectant, garbage bags etc.
- (ix) Clothing.**
- (x) Important documents and items :** Includes cash, driver license, passport, security card, bank account numbers, and a list of important and emergency phone numbers.
- (xi) Miscellaneous items :** Baskets, sleeping bags, paper cups, paper plates and plastic utensils.

History : Part 1

Unit - I

Topic 5 : The Foundation of the Swaraj

- Q.1. (A)** (1) Shivneri (2) Deccan (3) Nizamshahi
(4) fort (5) Maval (6) Rajgad
(7) Nizamshahi (8) Pratapgad (9) Bengaluru
(10) Javali (11) Konkan (12) Swaraj
(13) Bajiprabhu Deshpande (14) Shaistakhan
- (B)** (1) Murumbdev (2) Afzalkhan
(3) The forts of Torana, Murumbdev, Kondhana
(4) (i) Yesaji Kank (ii) Baji Pasalkar
(5) Rajgad (6) Kalyan and Bhivandi
(7) Chandrarao More
(8) Chhatrapati Shivaji Maharaj
- (C)** (1) Adilshah of Bijapur (2) Founding of Swaraj
(3) Khelna
(4) Badi Sahiba (the administrator of Adilshah)
(5) Shahajiraje
- (D)** (1)-(c), (2)-(e), (3)-(b), (4)-(a), (5)-(d).
- (C)** (1) Bengaluru (2) Jadhavas of Phaltan
(3) Sindhudurg (4) Baji Ghorpade
(5) Afzalkhan
- Q.2. (1)** The Mughals launched a campaign to conquer the Nizamshahi kingdom.
- (2)** Chhatrapati Shivaji Maharaj created a feeling of trust and affection in the minds of the people.
- (3)** Yesaji Kank, Baji Pasalkar, Bapuji Mudgal, Narhekar, Deshpande brothers, Kavji Kondhalkar, Jiva Mahala, Tanaji Malusare, Bajiprabhu Deshpande, etc., were the

- associates and companions who joined Chhatrapati Shivaji Maharaj in his work of the founding of Swaraj.
- (4)** Chhatrapati Shivaji Maharaj captured the forts of Murumbdev, Torana, Kondhana and Purandar.
- (5)** Mores of Javali, Ghorpades of Mudhol, the Sawants of Sawantwadi and some other Sardars were in Adilshahi.
- (6)** Some of the Sardars opposed the cause of the founding of Swaraj. So it was necessary to bring them under controls.
- (7)** Chandrarao More opposed the cause of the founding of Swaraj.
- Q.3. (1)** Siddi showed no signs of relenting, so Chhatrapati Shivaji Maharaj opened talks with Siddi. This led to slackness in the siege around Panhalgad. Chhatrapati Shivaji Maharaj took advantage of the situation and escaped from Panhalgad.
- (2)** Chhatrapati Shivaji Maharaj paid compensation to the soldiers who were wounded in the battle. He rewarded those who had fought well. Those soldiers and officers of Afzalkhan's army who fell into the hands of Chhatrapati Shivaji Maharaj's army were given a good treatment.
- Q.4. (1)** After capturing Kalyan and Bhiwandi on the Konkan coast, Chhatrapati Shivaji Maharaj came into contact with the Siddi, Portuguese and British powers on the Western coast. Chhatrapati Shivaji Maharaj realised that in order to fight these powers, it was necessary to have a strong naval force. So he concentrated on building a navy.
- (2)** When the conflict with Adilshahi was continued, Mughal army invaded the Swaraj. Chhatrapati Shivaji Maharaj realised that it was not wise to fight two enemies at one and the same time. Therefore Chhatrapati Shivaji Maharaj entered into a treaty with the Adilshahi.

- (3) The Mughals had launched a campaign to conquer the Nizamshahi kingdom. The Adilshahi of Bijapur allied with the Mughals in the campaign. Shahajiraje tried to save the Nizamshahi by offering a strong resistance to the two enemies. But he could not withstand both the mighty powers. So Nizamshahi was defeated and came to an end in 1636 C.E.
- (4) The Maval terrain was full of hills and valleys and was not easily accessible. Chhatrapati Shivaji Maharaj made use of these geographical features of Maval very skilfully for the purpose of the foundation of the Swaraj.
- (5) In those days forts were of special significance. It was possible to control the surrounding area if one had forts. Therefore Chhatrapati Shivaji Maharaj decided to acquire the forts that were within his own Jagir.
- (6) Shahaji Maharaj himself aspired to establish Swaraj by ousting the powers of foreign people. He wished to enable Shivaji to become a king. So he had arranged for providing excellent education to Shivaji. That is why he is termed as a Swaraj visionary.

- Q.5. (1) Shahajiraje :** He was the father of Chhatrapati Shivaji Maharaj. He was a pre-eminent Sardar in the Deccan. He was valiant, courageous, intelligent and a great political expert. He loved his subjects. Adilshah of Bijapur had given the region comprising Pune, Supe, Indapur and Chakan Pargana to Shahajiraje as a Jagir. Shahajiraje himself aspired to establish Swaraj, so he made an arrangement of excellent education for Shivaji to enable him to become a king.
- (2) **The efforts Veermata Jijabai took for Chhatrapati Shivaji Maharaj's education :** Jijabai constantly guided Chhatrapati Shivaji Maharaj in the mission of establishing Swaraj. She instilled in him values like

modesty, truthfulness, oratory, vigilance, courage and fearlessness. She saw to it that he knew the usage of weapons. She inspired in Chhatrapati Shivaji Maharaj the “will to win” and the dream of Swaraj.

Topic 6 : Conflict with the Mughals

- Q.1. (A)** (1) Swaraj (2) Chhatrapati Shivaji Maharaj
 (3) Chakan (4) Shaistakhan
 (5) Bengal (6) Chhatrapati Shivaji Maharaj
 (7) Pune (8) Gagabhatta
 (9) South (10) Vyankoji
 (11) Jinji
- (B)** (1) Jaisingh (2) Treaty of Purandar
 (3) Chhatrapati Shivaji Maharaj
 (4) Ahmadnagar and Junnar
 (5) Sabhasad (6) Qutubshah
- (C)** (1) Mathura (2) Twice (3) Tanjavur
 (4) Chhatrapati Shivaji Maharaj
 (5) Firangoji Narsala
- (D)** (1)-(c), (2)-(a), (3)-(d), (4)-(b).
- (E)** (6) Shaistakhan's invasion (2) Raid on Lal Mahal
 (5) Treaty of Purandar (3) Escape from Agra
 (4) Coronation
 (1) Southern campaign of Chhatrapati Shivaji Maharaj
- (F)** (1) Sindhudurg (2) Siddi Ibrahim
- (G)** (1) Rajya-vyavahara-kosha (2) Moropant Pingale
 (3) Daudkhan (4) Surat
- Q.2. (1)** Shaistakhan lost his finger in the raid of Lal Mahal in 1663 C.E. by Chhatrapati Shivaji Maharaj.

- (2) Chhatrapati Shivaji Maharaj devised a plan of attack on the rich city of Surat.
- (3) Chhatrapati Shivaji Maharaj was accompanied by Prince Sambhaji and a few of his trusted people.
- (4) The famous library 'Saraswati Mahal' is at Tanjavur.
- (5) Surat was a rich city, a large trade centre and a big port under the Mughal control. So Maharaj attacked the city of Surat.
- (6) Jaisingh proposed to Maharaj that he should visit Agra and meet the Emperor Aurangzeb.
- (7) As a symbol of sovereignty, Rajyabhisheka shaka i.e. the Coronation Era was started.
- (8) A gold coin called 'Hon' and copper coin called 'Shivrai' with the legend 'Shri Raja Shivachhatrapati' inscribed on them.
- (9) After the coronation, all the royal correspondence carried the words 'Kshatriyakulaavantansa Shri Raja Shivachhatrapati'.
- (10) Maharaj obtained a huge amount of wealth from Surat.
- (11) The campaign of Surat was a stunning blow to Emperor Aurangzeb's prestige.

- Q.3. (1)** Shaistakhan ravaged the territory of the Swaraj by sending small units of his army to the neighbouring areas. He encamped at Chakan and captured the fort of Chakan. He set up his camp in Lal Mahal, for two years. His forces looted the people. This had an adverse effect on the people's morale.
- (2)** Sinhagad, Purandar, Lohagad, Mahuli, Karnala and Rohida were the forts Shivaji Maharaj recaptured after he came back from Agra.

- (3) Jaisingh, suggested starting a naval campaign against Chhatrapati Shivaji Maharaj to the Portuguese of Goa and Vasai, the Dutch of Vengurla, the British of Surat and the Siddis of Janjira.
- (4) The terms of the Treaty of Purandar were as follows.
 - (1) Maharaj had to give his twenty-three forts to the Mughals.
 - (2) The adjoining territories yielding an annual revenue of four lakh hons.
 - (3) Maharaj also assured the Mughals help against Adilshahi.

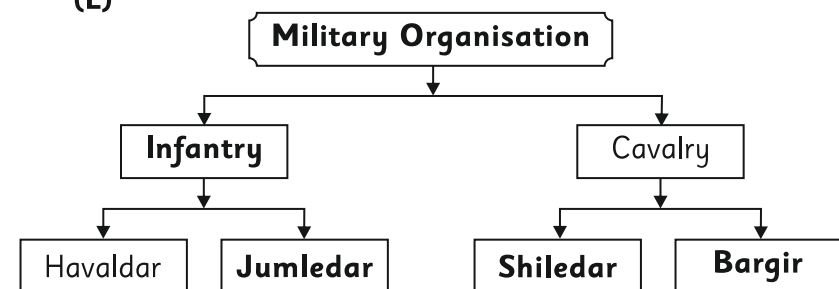
- Q.4. (1)** Jaisingh ravaged the territory of the Swaraj. Jaisingh and Dilerkhan laid siege to Purandar Fort. Murarbaji fought with the greatest of courage. He died a hero's death. Considering the seriousness of the situation, Maharaj entered into the Treaty of Purandar.
- (2)** Shaistakhan had ravaged large territories of the Swaraj for three years. So it was necessary to make up the losses. So Chhatrapati Shivaji Maharaj took an aggressive stand against the Mughals.
- (3)** Shaistakhan had lost his fingers during the raid on Lal Mahal. Because of this, he suffered great humiliation so he shifted his camp to Aurangabad.
- (4)** Jaisingh and Aurangzeb felt the need to keep away Chhatrapati Shivaji Maharaj from the Deccan politics at least for sometime. Jaisingh proposed to Chhatrapati Shivaji Maharaj that he should visit Agra and meet the Emperor. He guaranteed the safety of Chhatrapati Shivaji Maharaj. That is why Chhatrapati Shivaji Maharaj set out for Agra.

- Q.5. (1) The Coronation of Chhatrapati Shivaji Maharaj :** After a relentless struggle for over thirty years Maharaj decided to coronate himself. He realised that it was necessary to recognise the Swaraj as a sovereign independent state. For this a formal coronation was necessary. Chhatrapati Shivaji Maharaj coronated himself by a learned Pandit at Raigad on 6th June 1674.
- (2) Escape from Agra :** Aurangzeb did not treat Chhatrapati Shivaji Maharaj with honour. So Chhatrapati Shivaji Maharaj gave vent to his rage. Then Aurangzeb put him under house arrest. So Maharaj devised a plan. He adroitly escaped from Agra along with Prince Sambhaji and his associates. After few days, he reached Maharashtra and then at Rajgad safely. He had left Sambhaji Raje at Mathura, later Sambhaji was brought safely to Rajgad.
- (3) Chhatrapati Shivaji Maharaj's campaign of the South :** In October 1677, Chhatrapati Shivaji Maharaj undertook a campaign of the South. He entered into a treaty of friendship with Qutubshah of Golconda. Later he won Bengaluru, Hoskote in Karnataka. He won the forts of Jinji and Vellore in today's Tamilnadu. He also won some territories of Adilshah in the South. Maharaj annexed the fort of Jinji to his Swaraj.
- (4) Chhatrapati Shivaji Maharaj's preparation for the coronation :** An extremely valuable and grand throne was made for the coronation of Chhatrapati Shivaji Maharaj. There were eight bejewelled pillars on eight sides of the throne. This throne was made of thirty-two 'mann' of precious gold. Without measuring and counting, plenty of money, clothes, elephants and horses were donated to the great scholars who had come to attend the coronation ceremony from different regions.

Topic 7 : The Administration of the Swaraj

- Q.1. (A)** (1) Dakshin Digvijay (2) eight (3) Agriculture
 (4) Artists (5) 300 (6) Agriculture
 (7) Konkan (8) salt
 (9) Sindhudurga (10) 400 (11) Sarnobat
 (12) industries (13) Shiledars
 (14) intelligence (15) forts (16) Bahirji Naik
- (B)** (1) Ajnyapatra (2) Infantry and Cavalry
 (3) The bargir (4) Sarnobat
 (5) The Conquest of the South
 (6) A village (7) Hawaldar and Jumledar
 (8) Sindhudurg (9) Intelligence department
 (10) Ashtapradhan Mandal
 (11) Karkhanis
- (C)** (I) (1) Govandi (2) Gulvan (3) Raigad
 (II) (1) Patil (2) Deshpande (3) Bargir
- (D)** (I) (1)-(d), (2)-(c), (3)-(a), (4)-(b).
 (II) (1)-(c), (2)-(a), (3)-(d), (4)-(b).

(E)



- Q.2. (1)** The job of the Pradhan was to run the administration and make arrangements for the conquered territories.

- (2) Maharaj entrusted the responsibility of organising the land revenue system to Annaji Datto.
 - (3) Maharaj warned the revenue officers that they should not collect more revenue than the amount which was fixed.
 - (4) The job of the intelligence department was to obtain information about the movements of the enemies and submit it to Maharaj.
 - (5) There was a Killedar, a Sabnis and a Karkhanis on every fort.
 - (6) The names of the battle ships in the navy of Chhatrapati Shivaji Maharaj were the gurab, galbat and pal.
 - (7) The battle ships were built in the creek of Kalyan - Bhivandi, Vijaydurga and Malvan.
 - (8) The Portuguese of Goa, the Siddis of Janjira and the British factors of Surat and Rajapur were the enemies of the Swaraj at the west coast of India.
 - (9) The hill forts built by Chhatrapati Shivaji Maharaj were Pratapgad, Pavangad and Rajgad.
 - (10) Chhatrapati Shivaji Maharaj appointed a council of eight ministers with eight departments for the administration of Swaraj. It was called Ashtapradhan Mandal.
 - (11) The peasants were provided with bullocks, ploughs and good seeds for sowing.
 - (12) The main objective of Chhatrapati Shivaji Maharaj was to make his subjects independent.
- Q.3. (1)** Maharaj knew the importance of agriculture. He paid more attention to the welfare of farmers. He warned the officers that they should not collect more revenue than the amount that was fixed. If the crop was lost due to excessive rains or drought or if an enemy army had devastated, the area of the village, remissions were

- granted. The peasants were provided with bullocks, ploughs and good seeds for agriculture.
- (2) The main objective of Maharaj was to make his subjects independent. They must enjoy their freedom. It was necessary to have a disciplined administration. He had to take comprehensive care of the people's welfare and protect the conquered territories. For these things he appointed Ashtapradhan Mandal, navy, military officers to take care of his subjects. He did not want to dominate his people. He was a good administrator.

- Q.4. (1)** At that time the traders imported salt from the Portuguese territory and sold it in Swaraj. That affected the local trade in the Konkan areas. With the intention of increasing the prices of imported salt, Maharaj raised heavy taxes on that. As a result, the prices of imported salt increased and the prices of local salt decreased. This way Maharaj protected the industry.
- (2) Artisans in the village produced goods and fulfilled the needs of the local people. Farmers gave a definite share from their produce to artisans. This share was called 'Baluta'.
 - (3) If the crop was lost due to excessive rains or drought or if an enemy army had devastated the area of the village, remissions were granted in land revenue.
 - (4) The kingdom prospers only with increase in trade. Trade prospers adding to the wealth. The merchants bring novel goods as certain necessities into a kingdom and the goods become available in plenty.
 - (5) Forts were of great importance in the Medieval Age because (1) the possession of a fort made it possible to keep an eye on the surrounding areas.(2) In case of foreign invasion it was possible to protect the people

taking shelter in the fort. (3) It was possible to stock the fort with foodgrains, war materials, ammunition and military garrison.

- Q.5. (1)** It was necessary to protect the Swaraj from its enemies. For this, it was necessary to get precise and timely information about the movements of the enemy. The intelligence department of Swaraj used to obtain information about the movement of the enemies and submit them to Maharaj.
- (2)** The forts were of great importance because possession of a fort made it possible to keep an eye on the surrounding areas. In case of foreign invasion it was possible to protect the people taking shelter in the fort. It was possible to stock the fort with foodgrains, war materials, ammunition and military garrison.
- (3)** Chhatrapati Shivaji Maharaj set up a navy because it was necessary to control the activities of the enemies like the Portuguese of Goa, the Siddis of Janjira and British of Surat and Rajapur and protect the West Coast. He realised that one who has a navy, controls the sea. Therefore Maharaj raised a navy.
- (4)** Chhatrapati Shivaji Maharaj established the Council of Eight Ministers to ensure the smooth management of the affairs of the Swaraj to ensure people's welfare. For this he set up an efficient administration of Ashtapradhan Mandal (Council of Eight Ministers).

Civics

Topic 2 : Preamble to the Constitution

- Q.1. (A)** (1) Constitution (2) law (3) Preamble
(4) British (5) secular (6) religion
(7) people (8) fixed (9) republic
(10) public (11) dignity (12) election
(13) citizens
- (B)** (1)-(c), (2)-(d), (3)-(a), (4)-(b).
- (C)** (1) False (2) True (3) False (4) True (5) False
(6) True (7) True (8) False (9) True
- (D)** (1) Fraternity (2) Democracy (3) Preamble
(4) Secular (5) Justice (6) Laws
- Q.2. (1)** The Government elected by the people makes laws on behalf of the people.
- (2)** The positions like the President, the Prime Minister, the Governor, the Chief Minister, the Mayor, the Sarpanch, etc., are public positions.
- (3)** In a monarchy, the public positions are occupied by the members of a single family following the principle of heredity.
- (4)** The values of justice, liberty and equality have been guaranteed by the Preamble to Indian citizens.
- (5)** The three types of justice are social justice, economic justice and political justice.
- (6)** All citizens completing 18 years of age have the right to vote in elections.
- (7)** Equality of status and of opportunity is guaranteed by the Preamble.

- Q.3. (1)** The Preamble states secularism as one of our goals. In a Secular State, all religions are considered as equal. No religion is considered to be the State religion. Citizens are free to follow their own religion. State cannot discriminate amongst citizens on the basis of religion.
- (2)** We have adopted universal adult franchise to enable equal participation in the running of the country. According to this, all citizens completing 18 years of age have the right to vote in elections.
- (3)** The right of economic justice ensures the eradication of poverty; and the right to a source of livelihood, so as to look after oneself and one's family without any discrimination.
- (4)** When every individual respects another and honours their freedom and rights, the dignity of the individual will get established.
- (5)** The Preamble begins with the words "We the people of India" and ends with the words "Give to ourselves this Constitution".
- (6)** The word 'sovereign' means that a state is not under the control of a foreign power. The word 'sovereignty' means the ultimate authority to govern yourself. In a democracy, sovereignty rests with the people.
- (7)** Justice implies removal of injustice and ensures that everybody has the opportunity for progress. Justice promotes public good.

Q.4.

F	A	Y	G	A	R	O	K	J	I
R	G	Z	E	L	F	R	M	L	L
A	E	G	P	S	H	M	Y	N	D
T	F	P	R	E	A	M	B	L	E
E	E	A	Z	C	H	I	J	I	M
R	D	O	P	U	J	A	B	K	O
N	I	M	E	L	K	P	S	Q	C
I	H	N	Z	A	R	C	O	T	R
T	C	G	F	R	G	H	G	K	A
Y	B	N	Q	H	I	E	F	J	C
Y	A	A	P	S	L	S	I	F	Y

- Q.5. (1) Socialist State :** A socialist state is such a state where the gap between the rich and the poor is minimum. All have a right over the wealth of the country. It is ensured that wealth is not concentrated in the hands of a few people.
- (2) Equality :** Equality means that all have equal human status and there will be no discrimination based on caste, creed, race, sex, place of birth etc. The Preamble has given great importance to equality of status and of opportunity.
- (3) Sovereign State :** Our country became independent on 15th August, 1947 India became a sovereign State. The word 'sovereign' means that a state is not under the control of a foreign power. In a democracy, power remains in the hands of the people. The representatives govern the State on behalf of the people.

(4) Equality of opportunity : The Preamble has given great importance to equality of opportunity. According to this, all citizens get the opportunities for development without any discrimination.

Q.6. (1) Freedom of thought and expression enable the citizen to express their own views and ideas freely. A give and take of ideas enhances the spirit of co-operation and unity amongst us. So the freedom of thought and expression is a most fundamental freedom for an individual.

(2) Fraternity implies a 'we-feeling' towards one another. It creates a feeling of empathy. People become more understanding towards each other's problems and needs. So the promotion of fraternity has been included in the Preamble as a goal.

Q.7. (1) Freedom means behaving in a responsible way and not as per our whims and fancies. If we are celebrating the festivals publicly, we need to follow some rules e.g. keeping the area clean and free from sound and air pollution. We should be aware of public cleanliness, health and the environment. We should not behave in an unrestrained manner.

(2)

	KEYWORDS	MEANINGS
(1)	PREAMBLE	An introduction or Preface of the Indian Constitution.
(2)	SOVERGIN	Independent. Not controlled by any other country
(3)	SOCIALIST STATE	(1) The State where the gap between rich and poor is minimum. (2) People who believe in social equality (social belief).

(4)	SECULAR	All religions are considered equal. Not concerned with any religion.
(5)	DEMOCRATIC	Sovereign power in the hands of people. Supporting equal rights for all people. Based on a system of democracy.
(6)	REPUBLIC	The country that has an elected government and an elected leader.
(7)	JUSTICE	The fair treatment of people.
(8)	LIBERTY	The freedom to go where you want, do what you want.
(9)	EQUALITY	The situation in which everyone has the same rights and advantages amongst the people of different races.
(10)	FRATERNITY	The feeling of friendship and support between people in the same group.

Topic 3 : Features to the Constitution

Q.1. (A) **(1)** Federal **(2)** Parliamentary **(3)** Lok Sabha
(4) Judiciary **(5)** President **(6)** Single
(7) unique **(8)** democratic **(9)** 29-7
(10) Parliament **(11)** Concurrent **(12)** two

(B)

	Union List		State List		Concurrent List
(1)	Defence	(1)	Agriculture	(1)	Employment
(2)	Foreign relations	(2)	Law and Order	(2)	Environment
(3)	Currency	(3)	Local government	(3)	Education

(4)	War and Peace	(4)	Health	(4)	Personal law
(5)	International trade	(5)	Prison Administration	(5)	Economic and Social planning

- (C) (1) Union Government (2) Election Commission
 (3) Concurrent List (4) State Government
 (5) Union Territories (6) Parliament (Legislature)

- (D) (1) True (2) False (3) True
 (4) False (5) True

- (E) (1) defence (2) Kerala (3) Subject List
 (4) Daman and Diu

- (F) (1)-(c), (2)-(d), (3)-(a).

- Q.2. (1)** The Government at the centre is called Union Government or the Federal Government.
- (2)** Lok Sabha and Rajya Sabha have the power to amend the Constitution.
- (3)** The Council of Ministers is answerable to the Lok Sabha.
- (4)** The Indian Constitution has granted a single citizenship to all Indians.
- (5)** The Union Government and the State Government are entitled to make a law on the subject of the Concurrent list.
- (6)** There are twenty-nine States and seven Union Territories in India.

* Teacher's Note : Please let the students know that our country currently has 28 States and 8 Union Territories.

Q.3. (1) Ruling a large territory from a single capital city is not only difficult, but may also lead to the neglect of some far-flung areas. People residing there cannot participate in the affairs of the Government. Therefore, Governments function at two levels in a federation.

(2) Union Government makes laws on the Union List and the State Government makes laws on the State list. If a subject comes up that is not included in any of the lists, the Union Government is entitled to make laws on it. These powers are termed as Residuary Powers.

(3) The disputes that cannot be resolved mutually are referred to the Judiciary. The court hears both the contesting parties, looks into the injustice if any, and gives its judgement. This has to be done impartially. Therefore, the Constitution has created an Independent Judiciary for India

(4) The Government at the centre carries out tasks like defence of the entire country, foreign policy, establishing peace, etc.

(5) The system of running the administration of a country co-operatively by the governments at two levels, making laws about different subjects, is called federalism.

(6) The merits and the demerits of an Independent Judiciary are as follows :

Merits :

- (i) Judges are competent to make judicial reviews by their knowledge and experience.

- (ii) In judiciary system the court is independent, hence making sure that it is not influenced or biased while imparting justice.
- (iii) The Court protects fundamental rights of the people and minorities.

Demerits :

- (i) Judiciary system may violate the separation of powers.
 - (ii) Judicial Review delays the operation and implementation of important issues.
 - (iii) Judges may overlook the challenges of the changing times and may refuse to move forward.
 - (iv) Judges may become conservative.
- (7)** Electronic Voting Machine takes care of the chores of casting and counting votes. It can also involve transmission of ballots and votes via telephones, private computers, network and internet. It includes a control unit and a balloting unit connected by a 5 cm cable.

Advantages of EVM machines are as follows :

- (i) Hackers cannot hack the EVM machines.
- (ii) It can't tamper the count number.
- (iii) Physically challenged people can operate it easily.
- (iv) EVM saves time.
- (v) It is economical, paperless and cost-effective.

- Q.4. (1)** The Council of Ministers that runs the administration emerges from the Lok Sabha. So that it is answerable to the Lok Sabha for all its decisions.
- (2)** Since India has adopted a democratic form of Government, people have to elect their representatives periodically. The elections have to be conducted in a free and fair atmosphere. Only then will the citizens be able to elect a candidate of their choice without any fear or pressure.

Geography

Unit - II

Topic 4 : Air Pressure

- Q.1.** (1) air pressure (2) increasing altitude
(3) temperature (4) pressure belts
(5) equator, poles
(6) Tropic of Cancer, Tropic of Capricorn (7) heavier
(8) curvature (9) 0° (10) isobars
- Q.2.** (1) The altitude of the region, temperature of the air and amount of water vapour in the air, are some factors that influence air pressure.
(2) When temperature rises, the air gets heated, it expands and becomes lighter in the vicinity of the earth's surface and moves upwards towards the sky.
(3) If the temperature drops the air gets cooled, it contracts and becomes heavier. This heavy air moves in the downward direction and the air pressure increases.
(4) Uneven distribution of temperature influences the distribution of air pressure. It leads to the formation of low and high pressure belts, horizontally between the equator and the poles.
(5) The effects of air pressure are (a) origin of winds, (b) generation of storms, (c) convectional type of rain.
(6) The duration and intensity of sunrays varies during the periods of the year in both the hemispheres. This makes the temperature zones and pressure belts to vary. The change is 5° - 7° towards the north and 5° - 7° towards the south. This is called the oscillation of pressure belts.
(7) The difference is that temperature zones are continuous and are spread from the equator to the poles, from Torrid to Frigid. Pressure belts on the other hand are not

continuous and areas of high and low pressure are found in different regions from the equator to the poles.

- (8) Due to earth's curvature, the area between two parallels gets reduced as we move towards the poles. Air in this region is thrown out because of their reduced friction and also because of the earth's rotational motion. This leads to the development of the subpolar low pressure belts between 55° and 65° parallels in both the hemispheres.

	Pressure Belts		Temperature Zone
(a)	Pressure belts are narrower.	(a)	Temperature zones are larger.
(b)	Pressure belt has limited extent upto 10° parallels.	(b)	Temperature zones extends from 23° 30' to 66° 30'.

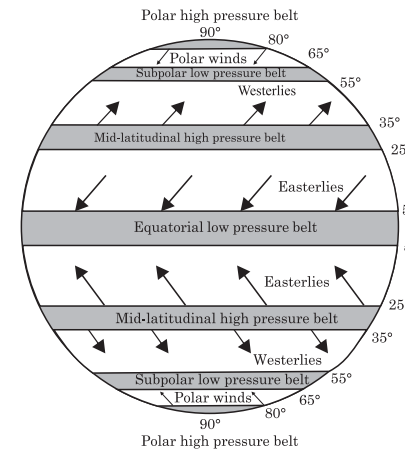
- Q.3.** (1) The proportion of dust, water vapour, heavy gases is high in the air near the earth's surface. This proportion decreases with increasing altitude. As we move higher and higher from the surface of the earth, the air becomes thinner and thinner. As a result the air pressure decreases with increasing altitude.
(2) Temperature and air pressure are closely related. Wherever the temperature is high, the air pressure is low. As the temperature rises, the air gets heated, expands and becomes lighter. This air rises up and pressure decreases. Pressure depends on the rise and fall of temperature, hence it oscillates.
(3) The heat received from the sun is uneven in different regions. Hence the distribution of the temperature is uneven from the equator to the poles. As a result, the temperature zones are created.
(4) The sun's rays are perpendicular between the Tropic of Cancer and Tropic of Capricorn. The temperature is high here. Air gets heated and expands, becomes lighter and moves towards the sky. This goes on continuously, hence

a low pressure belt is formed between 5° N and 5° S parallels.

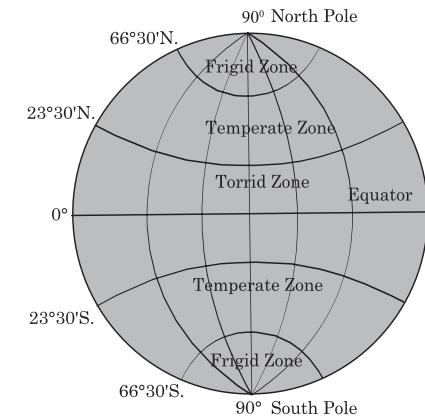
- Q.4. (1)** (a) When the heated air becomes lighter, it starts rising and reaches higher altitudes and then moves towards the Polar regions.
- (b) Due to low temperature at the higher altitudes the air cools down and becomes heavier. This heavier air descends in both the hemispheres between 25° to 35° parallels.
- (c) This leads to the formation of high pressure belts in both the hemispheres.
- (d) This air is dry and these regions do not get rain, hence hot deserts of the world are found in these regions.
- (2)** (a) The pressure belts can be divided horizontally on the earth's surface.
- (b) We have the Equatorial low pressure belt from 5° N to 5° S of the equator. Since it is very hot here, the pressure is low.
- (c) From 25° to 35° N and 25° to 35° S of the equator we have the Mid-Latitudinal high pressure belts.
- (d) From 55° N to 65° N and 55° S to 65° S we have the Sub Polar low pressure belts.
- (e) At the North Pole and at the South Pole we have the Polar high pressure belts from 80° and 90° N and S.
- (3)** (a) The sun's rays can be perpendicular between the Tropic of Cancer and Tropic of Capricorn.
- (b) The temperature is very high in this region.
- (c) The air expands, becomes lighter and moves towards the sky. Low pressure belt gets formed between 5° N and 5° S.

Q.5. (1) thinner **(2)** millibars **(3)** uneven **(4)** Equatorial low

Q.6. (a) Pressure belts



(b) Temperature zones



- Q.7.** The heated air becomes lighter, starts ascending and after reaching higher altitudes, moves towards the polar region. Due to low temperatures at the higher altitudes, the air cools down and becomes heavier. This heavier air descends down in both the hemispheres in the region between 25° to 35° parallels. This leads to the formation of high pressure belts in the parallels of latitudes in both the hemispheres. This air is dry, hence the region does not get rainfall. Consequently, most of the hot deserts on the earth are formed in these regions.

Intext Question

Can you tell ?

- (1)** (1) Equatorial low pressure belt its found in the Tropics.
- (2)** (a) Polar high pressure belt (b) Frigid zone
- (3)** The temperature is very high in the Tropics. The sun's rays are perpendicular between the Tropic of Cancer and Tropic of Capricorn.
- (4)** Between Mid-latitudinal high pressure belt and Sub-Polar low pressure belt winds in the temperate zone are associated.

- (5) (a) Equatorial low pressure belt 5° N to 5° S.
(b) Sub polar low pressure belts 55°–65° N and 55°–65° S.
- (2) (1) In the Northern hemisphere isobars are far from each other. In Southern hemisphere isobars are very close to each other.
- (2) (a) Mid-latitude high pressure belts are between 25° – 35° North and South of the equator.
(b) Equatorial low pressure belt is between 5° North and 5° South of the equator.
(c) Sub Polar low pressure belts are between 55° – 65° North and South of the equator.
(d) Polar high pressure belts are between 80° – 90° North and South of the equator.
- (3) The distance between successive isobars over oceans is close to each other whereas the distance between successive isobars over land is more and they are further away from each other.
- (4) In the Northern hemisphere isobars are hardly parallel to each other. They go round in circular shapes and there is lots of distance between them.
- In the Southern hemisphere isobars are more parallel to each other and nearer to each other.
- (5) Since the isobar lines are forming a circular path, it shows that the pressure is the same throughout Asia.
- (6) These lines show high pressure.
- (7) They show that there is low pressure in these areas.

Topic 5 : Winds

- Q.1. (A) (1) earth's surface (2) velocity (3) Knots
(4) rotation (5) Southern

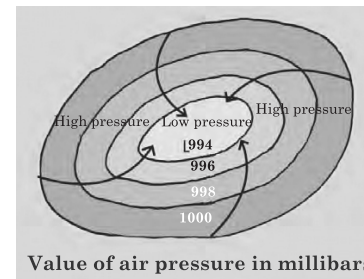
- (6) Roaring forties (7) Mountains (8) sunset
(9) stable, opaque (10) Indian sub-continent

- (B) (1)-(d), (2)-(a), (3)-(b), (4)-(c), (5)-(e).

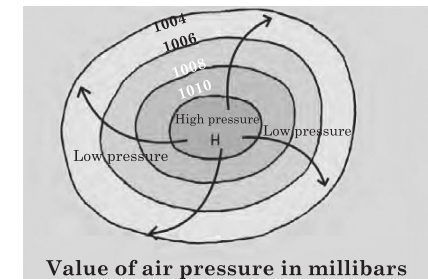
- Q.2. (1) becomes thinner
(2) blow towards regions of low air pressure
(3) turn to the east
(4) north-east to south-west.
(5) blow in the areas around 40° S parallel
- Q.3. (1) South west monsoon winds (2) Polar winds
(3) Mountain breeze

- Q.4. ● 990, 994, 996, 1000

- 1030, 1020, 1010, 1000



Cyclone

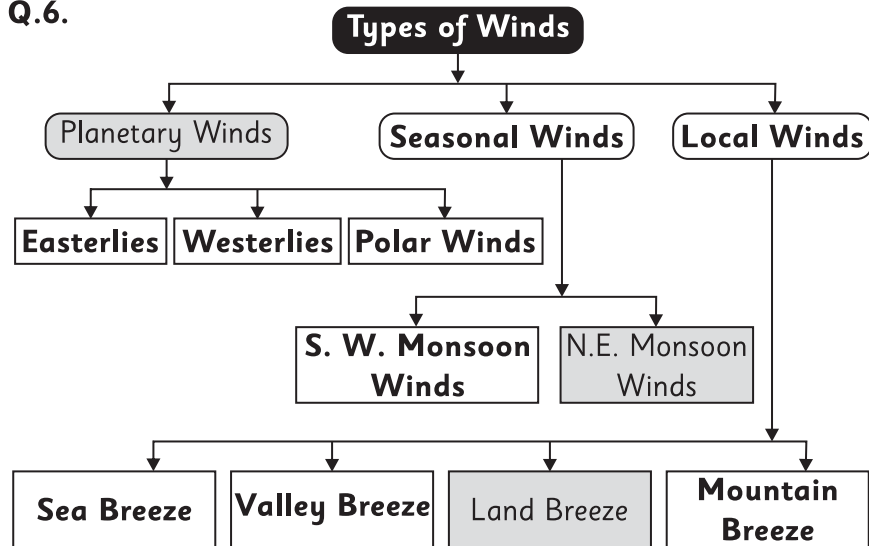


Anticyclone

- Q.5 (1) The region between 5° N and 5° S around the equator is a region of low pressure. Winds in both the hemispheres blow towards the equator and lose their velocity as they near the equator and get deflected to the east or west due to the rotation of the earth, hence this area is a calm area. It is also called as the equatorial calm zone or the Doldrums.
- (2) The southern hemisphere is mostly occupied by oceans. In this hemisphere the obstacle caused by the relief of the land surface is almost absent. As there is no obstacle, winds blow with greater velocities in the southern hemisphere as compared to the northern hemisphere.

- (3) From September to December, because of the low pressure area developing near the equator, winds blow from the Indian sub-continent towards the equator. These are called north - east monsoon winds. They are dry winds.

Q.6.



- Q.7. (1) In both the hemispheres it is very cold in Polar areas, the temperature is very low. It is around 0°C in these areas, hence the pressure is high. The lower the temperature, the higher is the pressure.
- (2) The direction of the winds is influenced by the rotation of the earth. In the northern hemisphere, winds get deflected towards the right of their original direction, whereas in the southern hemisphere, they get deflected towards the left of their original direction. The rotation from west to east causes the change in the original direction of the winds.
- (3) Cyclonic conditions are created when a low pressure area is surrounded by high pressure areas. In these conditions, winds start blowing towards the low pressure area from

the surrounding high pressure areas. Due to the rotation of the earth the cyclonic winds in the northern hemisphere move in an anticlockwise direction, whereas they move in a clockwise direction in the southern hemisphere.

- (4) Cyclones are formed when a low pressure area is surrounded by high pressure areas. Winds start blowing from the surrounding high pressure areas to the low pressure area in the centre.

Effects : The sky becomes cloudy, winds blow with very high velocity and it rains heavily.

Intext Question

Give It A Try

Pressure Belts	Northern Hemisphere	Southern Hemisphere
Mid Latitudes	Winds get deflected towards the right of their original direction	Winds get deflected towards the left of their original direction
Poles	North to South	South to North

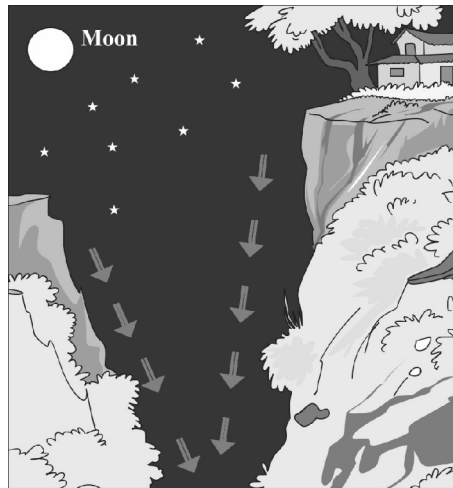
Can you tell ?

- (1) The Easterlies.
- (2) Southward direction.
- (3) The Westerlies.
- (4) Polar winds blow from high pressure areas at the North Pole and South Pole to the sub-polar low pressure areas, hence in the north they blow south wards and in the south, they blow north wards.
- (5) The Easterlies, the Westerlies and the Polar winds.
- (6) In both the hemispheres the Easterlies blow from the mid-latitude high pressure belt to the equatorial low pressure belt.

Try this

- (A) (1) The valley zone remains cool due to more numbers of tree.
 (2) Air pressure is more than mountain top in the valley.
 (3) Winds blow from the valleys in the upward direction.
 (4) The hot and light air from the valley is pushed upwards and the cool air rushes down into the valley.
 (5) Valley breeze blows during daytime.

(B)



Mountain breeze

Can you tell ?

- (1) Land gets heated faster than water and the air pressure on land decreases. Sea water gets heated slowly, hence the air is less heated and air pressure remains high. Winds here blow from sea to land.
 (2) At night cool land breeze blows from the land towards the sea.
 (3) The figure 5.3 a shows day time. We have cool sea breeze blowing to the land. On land, the pressure is low because the air is heated up. The warm air moves towards the sea and the air becomes cooler. Over the sea the pressure is high. The sea breeze blows from the high pressure belt above the sea to low pressure belt on the land.

(4)

	Sea breeze		Land breeze
(a)	In 5.3 a, we have high temperature on the land and low temperature on the sea.	(a)	In 5.3 b we have warm air cooling and coming in the downward direction, while warm air over the sea goes upward.
(b)	Air pressure is low on land and high on water.	(b)	Air pressure is high on land and low on water.
(c)	Wind blow from high pressure areas on the sea to low pressure areas on land.	(c)	Wind blow from high pressure belts over the land to low pressure belts on water.

- (5) Land breezes are shown in 5.3 (b) These breezes blow from the land towards the sea at night. Sea breezes are shown in 5.3 (a). These breezes blow from high pressure over the water to low pressure over the land 5.3 (a).
 (6) Land and sea breezes are experienced on the Western coast of India and the Eastern coast of India.
 (7) Yes, I experience sea and land breezes as I stay on the west coast of India.
 (Note : Student can write their own answer as per the place where they live, answer varies.

Topic 6 : Natural Regions

- Q.1. (A) (1) 65°,90° (2) rainfall, snowfall (3) very cold
 (4) 25 (5) 200
 (B) (1)-(c), (2)-(a), (3)-(d), (4)-(b).

- Q.2. (1)** False - They are industrious and enthusiastic people.
(2) False - The prairie region is called the wheat granary of the world.
(3) True
(4) True
(5) False - Crocodile, anaconda and hippopotamus are found in equatorial regions. Lions and tigers are found in monsoon region.

Q.3. (1) In this region the rainfall is from 250 to 2500 mm. Rainfall is highly variable and its distribution is quite uneven. These areas get rain in specific seasons from the S.W. Monsoon winds, hence people are engaged in agriculture.

(2) The annual rainfall here is between 2500 and 3000 mm. There is high heat and rainfall throughout the year. The land too is swampy in general. Hence tall hard - wooded trees like mahogany, ebony, etc., grow here.

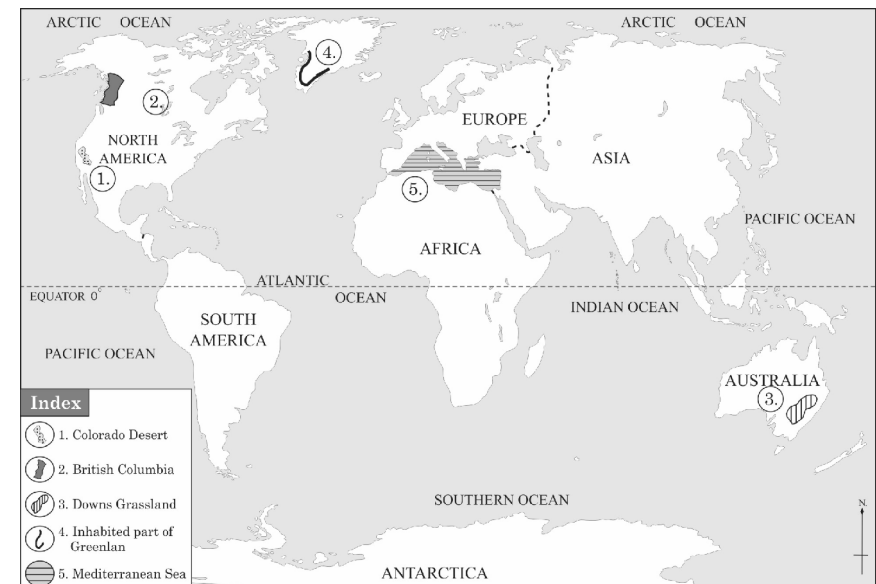
(3) In these regions, the temperature is very low. It is approximately -20° to -30° C. The mean annual rainfall is 25 - 300 mm. This is the reason why there is very short lived vegetal life in the Tundra region.

Q.4. (1) The latitudinal extent is approximately between 55° and 65° N parallels, from Alaska to the Atlantic coast.

(2) Giraffe, elephant, zebra are some herbivorous animals. For self protection, nature has gifted the animals here with speedy legs. Skins of the animals have colourful spots or stripes bands to help them merge with the natural surroundings.

- (3)** (a) The monsoon regions are situated between 10° and 30° N and S parallels.
 (b) The areas are : Indian subcontinent, West Indies, N. Australia, E. Africa, etc.
 (c) Rainfall is 250 to 2500 mm. The S. West Monsoon winds give rain to these areas.
 (d) Vegetation depends on the distribution of rainfall, hence there are semi-evergreen and deciduous forests. Trees such as banyan, peepal, teak, sal, etc., grow here.
 (e) There are wild animals like tigers, lions, wolves, peacocks, etc., and domesticated animals such as cattle, goats, horses, etc.
 (f) People are involved mostly in agriculture.

- Q.5. (1)** Colorado Desert **(2)** British Columbia
(3) Downs Grassland **(4)** Inhabited part of Greenland
(5) Mediterranean Sea



- (1) Monsoon region, mountainous region.
- (2) Africa.
- (3) Asian continent.
- (4) The Southern hemisphere has less land and more water.
- (5) Taiga region.
- (6) Island near the Arctic circle.
- (7) Prime Meridian passes west European type climate region, mountainous region, Mediterranean region and grasslands in the Torrid zone. (Savanna) through continental dry climate and hot desert regions.

Think about it !

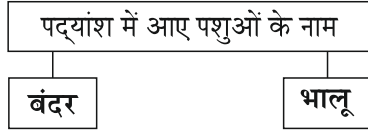
- (1) On the western side mean summer temperature is high, it is between 30° to 45° C. There is tremendous heat in the western side, hence deserts are mostly located here.
- (2) Since it is very hot and there is no rain, crops cannot be cultivated in the desert areas. People must have some occupation. Animal rearing is the best thing that can be done in desert areas.
- (3) People move from one area to another in search of water. When the water in their area gets dried up or exhausted they move to another place in search of water. Hence they live a nomadic life.
- (4) Carnivorous animals like to move about freely. Since grasslands are very large, we find both carnivorous as well as herbivorous animals here. Carnivorous animals also find plenty of food in the grasslands since carnivorous animals live on the flesh of herbivorous animals.
- (5) Because of hot and humid climate animals like lions are not found in equatorial forest.

- ★○ (1) Tundra region
- (2) In Sudan Type grasslands
- (3) Mediterranean region
- (4) Equatorial region
- (5) Desert area
- (6) Monsoon regions, grasslands
- (7) Mediterranean region

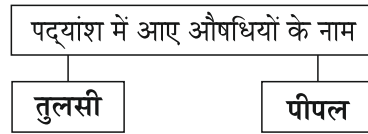
हिंदी सुलभभारती

5. बंदर का धंधा

प्र.1. (1) (i)



(ii)



- (2) (i) (1) खाँसी और जुकाम। (2) टूटा - फूटा आला।
(ii) (1) खाँसी जब छू-मंतर हो जाए तो बंदर ने क्या देने के लिए कहा?
(2) बंदर ने पेड़ के नीचे कुरसी के साथ क्या ला डाला?

(3) एक दिन एक बंदर के हाथ मरीजों के हृदय की धड़कन मापने वाला यंत्र लगा जो टूटा-फूटा था। फिर भी बंदर एक मेज और कुरसी पेड़ के नीचे डालकर बैठ गया। अब उसके पास मरीज भी आने लगे। एक भालू खाँसी और जुकाम की शिकायत लेकर उसके पास आया। तब बंदर ने उसे तुलसी के पत्ते और पीपल की जड़ थमा दी। इनको पानी में उबालकर सुबह-शाम लेने को कहा और खाँसी ठीक होने पर फीस देने की बात कही।

प्र.2. (1) (अ) लोमड़ी (ब) वैद्यकीय (क) घी-कुँवार (ड) कुंदन

(2) (i) (1) असत्य (2) सत्य

(ii) (1) मैं ही दीखूँ सबसे सुंदर ऐसी बूटी लाओ

(2) अच्छी-अच्छी जड़ी-बूटियाँ जंगल से वह लाता।

(3) लोमड़ी को सुंदर दिखना था, इसलिए वह बंदर के पास जड़ीबूटी माँगने आई। बंदर ने उसे घी कुँवार दोनों समय चेहरे पर लगाने की सलाह दी। ऐसा करने से लोमड़ी का चेहरा कुंदन की तरह चमकने लगेगा। बंदर ने उससे अपनी फीस भी देने को कहा। इस तरह बंदर का यह वैद्यकीय

व्यवसाय खूब चलने लगा और वह मौज मनाने लगा। जंगल से वह अच्छी-अच्छी जड़ी-बूटियाँ लाने लगा।

प्र.3. (1) नरेंद्र गोयल (2) हास्य कविता

(3) बंदर बोला-घी-कुँवार तुम दोनों समय लगाओ, चमकेगा कुंदन सा चेहरा फीस मुझे दे जाओ।

(4) कवि ने पारंपरिक उपचार पद्धति और जड़ी बूटियों से होनेवाला लाभ बताया है। मनुष्य को सुंदर दिखने का शौक तो होता ही है लेकिन यहाँ पर लोमड़ी को भी सुंदर-चिकना बनना है यह कल्पनाही बहुत मजेदार और हँसानेवाली है। बंदर भी उसे घी-कुँवार दोनों समय चेहरे पर लगाने की सलाह देता है और सलाह की फीस भी माँगता है। इसलिए मुझे यह पंक्तियाँ पसंद हैं।

प्र.4. बीमारियों के इलाज में जड़ी-बूटियों का इस्तेमाल पुराने जमाने से चलता आया है। जड़ी-बूटियों में पोषक तत्त्व और औषधीय गुण दोनों होते हैं। आज के आधुनिक रहन-सहन और आपाधापी ने मनुष्य को अंदर से खोखला बना दिया है। मौसम में आनेवाले उतार-चढ़ाव से वह बीमार पड़ जाता है। मनुष्य ने अपनी बुद्धि के दम पर जीवाणु-विषाणुओं को देखने के यंत्र बना लिए परंतु नई उपचार पद्धति के दुष्परिणामों ने उसे फिर एक बार सोचने पर विवश कर दिया है। प्राचीन उपचार पद्धति के दुष्परिणाम नहीं होते बल्कि प्रकृति द्वारा वनौषधियाँ वरदान बनकर हमारी मदद करती हैं। ये घास-पात जैसी दिखती हैं पर अपने विशेष गुणों के कारण रोग निवारण, आरोग्यवर्धन एवं परिशोधन के काम आती हैं। ये औषधियाँ हानिरहित, निरापद होने के कारण सबसे सुरक्षित उपचार पद्धति हैं। आज इसीलिए लोगों ने जड़ी-बूटियों में दोबारा दिलचस्पी लेना शुरू किया है।

व्याकरण

(अ) (1) टूटा-फूटा (2) कुरसी-मेज (3) सुबह-शाम

(4) चिकना-सुंदर (5) अच्छी-अच्छी

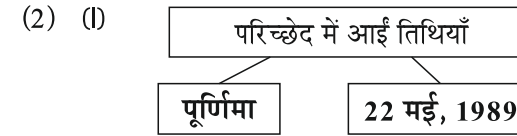
- (आ) (1) नृत्य (2) शुल्क
 (इ) (1) कुरसियाँ (2) जड़ें (3) पत्ता (4) भालू
 (ई) (1) वानर (2) सवेरा (3) ज्वर (4) वन, कानन

6. 'पृथ्वी' से 'अग्नि' तक

- प्र.1. (1) (ब) वैज्ञानिकों ने मिसाइल को 1 मई 1989 को प्रक्षेपण के तैयार कर लिया।
 (ड) कंप्यूटर पर एक "होल्ड" का संकेत दिखाई पड़ा।
 (अ) प्रक्षेपण एक बार स्थगित करना पड़ा।
 (क) डॉ. ए. पी. जे. कलाम ने डी. आर. डी. एल् के सदस्यों को संबोधित किया।
- (2) (i) तकनीकी खराबियों के कारण 'अग्नि' का प्रक्षेपण फिर एक बार स्थगित करना पड़ा।
 (ii) महीने के खत्म होने से पहले सदस्य वापस मिलेंगे क्योंकि डॉ. कलाम जी के वक्तव्य ने वैज्ञानिकों में 'अग्नि' के कामयाब प्रक्षेपण के प्रति विश्वास जगा दिया था।
- (3) (I) (1) आसान (2) जीत
 (ii) (1) कामयाबी (2) आह्वान
- (4) सच है बड़े अवसर आते हैं तो अपने साथ कुछ चुनौतियाँ लेकर आते हैं लेकिन उन चुनौतियों का सामना करते हुए निरंतर प्रयास करते रहना चाहिए। कोशिश करने से चुनौती को अवसर में बदलने में समय नहीं लगेगा और लक्ष्य की प्राप्ति होगी। किसी कार्य में सफलता आसानी से नहीं मिलती। उसमें कामयाब होने के लिए चुनौतियों का सामना करना ही पड़ता है। बड़े अवसर और चुनौतियाँ साथ साथ ही चलती हैं। कड़ी मेहनत और हिम्मत से चुनौतियों का स्वागत करना चाहिए।

प्रगती के मार्ग पर चलना है या बड़े अवसर प्राप्त करने है तो रास्ते में आनेवाली चुनौतियों से घबराना नहीं चाहिए, बल्कि धैर्यपूर्वक उनका स्वागत करना चाहिए। आग में तपकर ही सोना चमक उठता है; वैसे ही चुनौतियाँ ही हमें सफलता की ओर ले जाती हैं क्योंकि कोशिश करने वालों की कभी हार नहीं होती।

- प्र.2. (1) (ii) सैकड़ों कर्मचारियों ने लगातार काम करके प्रणाली का काम केवल दस दिन में पूरा कर डाला।
 (iv) मौसम संबंधी आँकड़े रुक-रुककर आने लगे और दस मिनट के अंतराल में उनकी बाढ़-सी आ गई।
 (i) क्या हम 'अग्नि' प्रक्षेपण में कल सफल होंगे? यह सवाल हमारे दिमागों में सबसे ऊपर था।
 (iii) रक्षामंत्री ने डॉ. कलाम से उपहार में क्या चाहिए पूछा।



- (ii) (1) ज्वार के कारण लहरें किनारों से टकराकर और अधिक शोर मचा रही थी।
 (2) अग्नि की कामयाबी का जश्न मनाने के लिए रक्षामंत्री डॉ. अब्दुल कलाम को उपहार देना चाहते थे।

शब्द	मूल शब्द	उपसर्ग	प्रत्यय
स्वीकार्यता	कार्य	स्वी	ता
उपहार	हार	उप	-
प्रक्षेपण	क्षेपण	प्र	-
खामोशी	खामोश	-	ई

(4) गर्मी, जाड़ा और बरसात जैसे विभिन्न मौसम हैं।

गर्मी से बचने के लिए हमें पानी अधिक मात्रा में पीना चाहिए और घर से बाहर निकले तो अपने साथ पानी रखना जरूरी है। गर्मियों के मौसम में तरबूज, ककड़ी खाना स्वास्थ्य के लिए लाभदायक है। पेय पदार्थ में गन्ने का रस, निंबू शरबत, छास पीना चाहिए। ज्यादा तेल, मसाले वाला भोजन नहीं खाना चाहिए जिससे पाचन की समस्या का सामना करना पड़े। गर्मी में बाहर निकले तो सिर ढकने के लिए रूमाल, टोपी का उपयोग करना चाहिए। तेज धूप के कारण त्वचा पर बहुत परिणाम होता है इसलिए सुती कपड़े पहनना जरूरी है। जितना हो सके धूप में बाहर कम ही निकलें।

ठण्डी के मौसम से बचने के लिए गर्म कपड़े और मौजे पहनने चाहिए। एड़िया और होठों को फटने से बचाए। त्वचा की नमी बनाए रखने के लिए तेल या क्रीम का प्रयोग करना चाहिए। पौष्टिक नाश्ता करना जरूरी है। खाने में ऊर्जा देनेवाला भोजन खाना चाहिए। ताजे फल, हरी सब्जियाँ, दूध का सेवन करना चाहिए। सुबह उठकर व्यायाम करना चाहिए।

बरसात में डेंगू, मलेरिया, डायरीया जैसी बीमारियाँ फैलती है इसलिए घर और घर के आसपास की जगह साफ रखनी चाहिए। घर के आसपास पानी जमा होने न दें। क्योंकि इन्ही दिनों मच्छर ज्यादा पनपते हैं। इस तरह सावधानी बरतेंगे तो मौसम की मार से बचेंगे। बारिश में भीगना नहीं चाहिए। भीगकर आए तो तुरंत गीले कपड़े बदलने चाहिए। हमेशा अपने साथ रेनकोट या छाता रखना जरूरी है। घर में बनाया हुआ भोजन ही खायें। बरसात में रास्ते पर खाना मतलब बीमारी को दावत!

स्वाध्याय

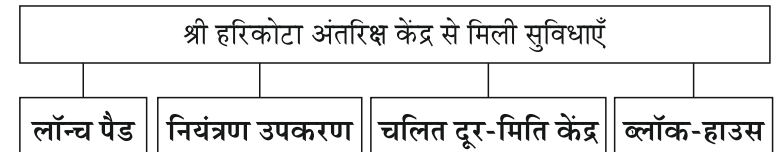
- प्र.1. (अ) (1) 'पृथ्वी' प्रक्षेपण के लिए श्रीहरिकोटा अंतरिक्ष केंद्र में विशेष सुविधाएँ स्थापित की।
- (2) सिर्फ छह सौ सेकंड्स की भव्य उड़ान ने हमारी सारी थकान को एक पल में धो डाला।
- (3) बड़े अवसर अपने साथ बराबर की चुनौतियाँ लेकर आते हैं।

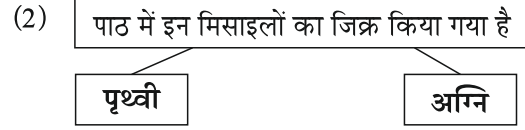
(आ) (1) परियोजना (2) गतिविधियाँ (3) लक्ष्य

(4) स्वीकार्यता (5) अग्निपरीक्षा

- प्र.2. (1) श्रीहरिकोटा अंतरिक्ष केंद्र से 25 फरवरी, 1988 को 'पृथ्वी' उपग्रह छोड़ा गया। यह देश के रॉकेट विज्ञान के इतिहास में एक युगांतरकारी घटना थी। देश एक आत्मनिर्भर देश के रूप में उभर आया। इस तरह सामर्थ्यशाली अंतरिक्ष उद्योग और व्यवहार्य मिसाइल आधारित सुरक्षा प्रणालियों ने भारत को चुनिंदा राष्ट्रों के समूह में पहुँचा दिया।
- (2) 19 अप्रैल, 1989 को 'अग्नि' का प्रक्षेपण निर्धारित किया गया था। लेकिन तकनीकी खराबियों के कारण उन्हें प्रक्षेपण स्थगित करना पड़ा। टीम के सदस्य सदमे में थे। उनका दुख दूर करने गए डॉ.ए.पी.जे. कलाम ने उनके साथ अपना अनुभव बाँटा। उन्होंने कहा कि, उनका प्रक्षेपणयान तो गिरकर समुद्र में खो गया था जिसकी वापसी भी सफलता से हुई। आपकी मिसाइल अभी तक आपके सामने है और आपने ऐसा कुछ भी नहीं खोया है जिसे एक-दो हफ्तों में सुधारा न जा सके।
- (3) डॉ. कलाम जी के प्रोत्साहन पर वैज्ञानिकों ने दिन-रात मेहनत की और 1 मई, 1989 को 'अग्नि' मिसाइल को प्रक्षेपण के लिए तैयार कर लिया। लेकिन स्वचलित कंप्यूटर जाँच अवधि के दौरान टी-10 सेकंड पर एक 'होल्ड' का संकेत दिखाई पड़ा। इसलिए 'अग्नि' का प्रक्षेपण स्थगित करना पड़ा।
- (4) 22 मई, 1989 को 'अग्नि' प्रक्षेपण निर्धारित किया गया था। उस की पहली रात में रक्षामंत्री महोदय ने डॉ. कलाम से पूछा, "कलाम! कल तुम 'अग्नि' की कामयाबी का जश्न मनाने के लिए मुझसे क्या उपहार चाहोगे?" इस तरह एक मामूली सा सवाल रक्षामंत्री ने डॉ. कलाम जी से पूछा।

प्र.3. (1)





प्र.4. विज्ञान ने हमारे दैनिक जीवन में असंख्य सुविधाएँ भर दी हैं। चिकित्सा, यातायात, मनोरंजन आदि में मनुष्य ने अभूतपूर्व तरक्की की है। इंटरनेट विज्ञान की ही देन है। दैनिक जीवन में मैं इसका उपयोग कर मेरी पढ़ाई की जटिल समस्याओं का हल ढूँढ़ने में उपयोग करूँगा। मुझे किताबें पढ़ने का शौक है। मैं अपने मोबाइल में इ-लायब्ररी से किताबें लेकर पढ़ सकूँगा। मेरे माता-पिता दूसरे शहर में रहते हैं और मैं यहाँ होस्टल में पढ़ाई करता हूँ। विड़ियो चॅट द्वारा मैं उनसे बात कर सकता हूँ, मिल सकता हूँ और दूरियाँ मिटा सकता हूँ।

सचमुच विज्ञान के कई आविष्कार मेरे लिए वरदान हैं, जिनका उपयोग करते हुए मुझे जादुई चिराग के जिन की याद आती है।

विचार मंथन

★ जिज्ञासा विज्ञान की जननी है। जिज्ञासा के कारण ही मानव प्रकृति के रहस्यों को समझ पाया और नए नए आविष्कार करके प्रगति पथ पर दौड़ पाया। अब हम बीमार होने पर वैद्य या डॉक्टर के पास ही जाते हैं, झाड़-फूँक करने वाले मांत्रिक-तांत्रिक के पास नहीं और जो उनपर विश्वास करते हैं उन्हें भी समझाने का साहस रखते हैं। विज्ञान ने हमारे कई अंधविश्वासों से परदा हटाकर हमें तथ्यों से अवगत कराया है। श्रद्धा और अंधश्रद्धा के बीच की लकीर हमें विज्ञान ने स्पष्ट समझाई है। हम विज्ञानलोक के वासी हैं और हमारे पास है,

“बहु भौतिक साधन, यंत्र यान, वैभव महान, सेवक हैं विद्युत, बाष्प शक्ति धन बल नितांत।”

अध्ययन कौशल

★ अपने स्वास्थ्य का ख्याल रखते हुए मैं सुबह छह बजे उठता हूँ। अपने नित्यकर्म करने के बाद आधा घंटा व्यायाम करता हूँ। नहाने के बाद नाश्ता और दूध पीकर पढ़ने बैठता हूँ। पाठशाला में दिया हुआ गृहकार्य पूरा कर पहले दिन पाठशाला में

पढ़ाए गए पाठ दोहराता हूँ। 9.00 बजे पाठशाला जाता हूँ। 4.30 बजे तक पाठशाला में पढ़ाई-लिखाई होती है। 4.30 बजे पाठशाला छूटती है। घर आकर हाथ-पैर धोने के बाद माँ ने किया नाश्ता करता हूँ। फिर थोड़ी देर साईकिल चलाने जाता हूँ या कभी दोस्तों के साथ खेलता हूँ। खाना खाकर अपने माता-पिता, भाई के साथ गपशप करता हूँ। थोड़ी देर दूरदर्शन के अच्छे कार्यक्रम देखता हूँ। 9.30 बजे सो जाता हूँ। छुट्टी के दिन मेरी इस दिनचर्या में थोड़ा बदलाव आ जाता है।

व्याकरण

प्र.1.



(1) रमेश ने विनम्र होकर आज्ञापालन किया।

(2) छात्र में नम्रता होनी ही चाहिए।



(1) नील निडर है।

(2) हमने एक डरावना दृश्य देखा।



(1) सीमा ने निर्जल व्रत रखा।

(2) सरोवर में जलज शोभायमान थे।



(1) मेरी निद्रा भंग करने का दुःसाहस किसने किया?

(2) देश के बालक साहसी हैं।



(1) असत्य कभी न बोलो।

(2) मामले के तह तक जाकर ही सत्यता समझ में आएगी।

प्र.2. (अ) सर्वनाम - हम, यह, कोई, कुछ, मैं, आप, कौन।

वाक्य : (1) हम दुनिया घूमने की इच्छा रखते हैं। (2) यह हमारी परीक्षा की घड़ी थी। (3) दरवाजे पर कोई दस्तक दे रहा है। (4) दूध में कुछ गिर गया है। (5) मैं अपना अध्ययन समय पर पूरा करूँगा। (6) आप हमारा मार्गदर्शन कीजिए। (7) डॉ.ए.पी.जे. अब्दुल कलाम को कौन नहीं जानता?

अनुस्वार युक्त शब्द		अनुनासिक शब्द	
अंतरिम	संगठन	सुविधाएँ	गतिविधियाँ
अंतरिम	संबंधी	बाँटा	जाँच
अंतरिक्ष	कंप्यूटर	यहाँ	बाधाएँ
तुरंत	संबोधन	आँकड़े	मँडरा
सेकंड	खंडित	पाँच	चाँद
अंततः	नींद		
रक्षामंत्रा			

लेखन कौशल (Writing Skill)

मेरी कलम से

प्र.1.

पुरस्कार

रणकपुर में मेला लगा था। रामलीला मैदान की ओर जानेवाली सड़क पर बहुत भीड़ थी। आस-पास के तहसील से भी लोग बाल-बच्चों के साथ मेला देखने आ रहे थे। रंगबिरंगे कपड़ों में भीड़ को देखने में मजा आ रहा था। पर एक बात बड़ी अखर रही थी। सड़क पर प्रवेश द्वार के बीचोंबीच एक बड़ा-सा पत्थर था। उस पत्थर से आते-जाते लोग टकरा रहे थे। क्या छोटे और क्या बड़े गिरना-पड़ना तो लगा रहा।

सुजय बहुत देर से खड़ा देख रहा था। उसे लग रहा था कि कोई तो समझदारी दिखा दे और उस पत्थर को वहाँ से हटा दे ताकि यह गिरने-पड़ने का सिलसिला खत्म हो। पर सब खुद को संभालकर आगे चले जाते। आखिर सुजय ने सोचा कि अब और इंतजार नहीं, मुझे ही कुछ करना चाहिए। विज्ञान में उसने 'तरफ' के बारे में पढ़ा था। इसलिए एक लाठी लेकर गया और वह बड़ा पत्थर हटाने में सफल भी हुआ। उस पत्थर के नीचे उसे एक चिट्ठी मिली। उस चिट्ठी में उसे गाँव के सरपंच को मिलकर पुरस्कार ले जाने की बात कही थी।

सुजय बहुत प्रसन्न हुआ। जब वह सरपंच के पास गया तो सरपंच ने उसे शाबाशी दी। उसे मेले में सबके सामने सम्मानित किया और उसे एक लैपटॉप इनाम में मिला। सरपंच ने लोगों को संबोधित करते हुए कहा, 'मेरे प्यारे ग्रामजनों, गाँव को और देश को सुजय जैसे बालकों पर गर्व है। ऐसे बालक

हमारा कल है और देश को सफलता की ऊँचाइयों पर ले जानेवाली मजबूत कड़ियाँ हैं। अन्य बालकों को सुजय से प्रेरणा लेनी चाहिए।'

सीख - हमारी सूझ-बूझ हमें मुसीबतों से बाहर निकलने का मार्ग दिखाती है। यह मेरा काम नहीं ऐसा कहकर पीछे नहीं हटना चाहिए।

प्र.2. 12 अप्रैल, 1961 मानव इतिहास का एक युगप्रवर्तक दिन था। क्योंकि इस दिन पहली बार एक धरतीवासी अंतरिक्ष की गोद में जाकर सफलतापूर्वक वापस लौटा था। यह सौभाग्य मिला था यूरी गागरिन को, जिसने भविष्य की अंतरिक्ष यात्राओं के सपने दिखाए और फिर नील आर्मस्ट्रांग ने चाँद पर कदम रखा। इन वीरों की साहस कथाएँ पढ़कर मेरे मन में भी अंतरिक्ष यात्रा की इच्छा जागी।

सुना है कि वर्जिन गैलेक्टिक एयरलाइन्स ने सफल परीक्षण कर लिया है और अंतरिक्ष में जानेवालों की बुकिंग भी शुरू कर दी है। ढाई लाख डॉलर के आसपास की टिकट खरीदकर हम अंतरिक्ष में जा सकते हैं। पढ़कर चक्कर आ गए न? जनसामान्य इतने रूपों में आराम की जिंदगी जी लेगा। परंतु रात में तारोंभरा आकाश मुझे फिर अपनी ओर खींच लेता है। अंतरिक्ष के रहस्यों से परदा हटाकर मुझे उस दुनिया की जानकारी धरतीवासियों को देनी है। क्या करूँ?

मेरे मन का दृढ़ निर्धार मुझे राह पर ले आया। अंतरिक्ष के सपने देखने हैं तो मुझे अपनी पढ़ाई-लिखाई पर ध्यान देना होगा। साथ ही खेल-कूद और कसरत भी खूब करनी होगी। पौष्टिक आहार भी लेना होगा। तभी तो मैं अपने सपनों को साकार कर सकूँगा। मुझे यू.एफ.ओ. का रहस्य, बर्मुडा त्रैंगल के बारे में जानना है। अंतरिक्ष यात्री बनकर मैं इस विषय में अधिक जान पाऊँगा। जीवन में कुछ पाने के लिए त्याग, समर्पण की आवश्यकता होती है। कड़ी मेहनत आवश्यक है क्योंकि,

'नित्य नई चुनौतियों का नाम है जिंदगी' और मेरे लिए तो,

'आकाश तक पहुँचने का अरमान है जिंदगी।'

सुनो तो जरा

★ विज्ञान प्रदर्शनी में विद्यार्थी खेल-खेल में कई वैज्ञानिक संकल्पनाएँ स्पष्ट कर देते हैं। मैंने विज्ञान प्रदर्शनी में एक ऐसा फव्वारा बनाया जो बिना बिजली और मोटर या पंप के चलता था। उसके लिए मैंने एक प्लास्टिक की खाली बोतल ली, एक पानी का जग लिया, दो स्ट्रॉ लिए, या रबर की पतली ट्यूब भी चल जाती है।

फव्वारा बनाने के लिए पहले प्लास्टिक बोतल के ढक्कन में दो छेद बनाकर उनमें स्ट्रॉ फँसा दिए। एक स्ट्रॉ बोतल के बीच तक और दूसरा बोतल के गर्दन तक। बोतल पानी से एक तिहाई भर ली और पानी लीक तो नहीं हो रहा यह देख लिया। अब स्ट्रॉ का एक सिरा पानी से भरे जग में डाल दिया और दूसरी स्ट्रॉ का एक सिरा फर्श पर एक ग्लास रखकर उसमें डाला। बोतल को उलटा करने पर थोड़ी ही देर में जग का पानी बोतल में फव्वारे की तरह उड़ने लगा।

क्योंकि बोतल में भरा पानी गुरुत्वाकर्षण के नियमानुसार नीचे फर्श पर रखे ग्लास में गिर जाता है। तब बोतल के अंदर हवा का दबाव भी कम होने लगता है। जिसके चलते जग के पानी पर हवा का दबाव अधिक होने के कारण वह बोतल के अंदर फव्वारे की तरह उड़ने लगता है।

प्रकल्प

★ स्वयं अध्ययन

- (1) 'भारत एक विकासशील देश है, परंतु अपने बौद्धिक क्षेत्र में भारत एक पूर्ण विकसित देश है।' एक समीक्षक की इस उक्ति के सत्य को प्रमाणित कर रहा एक जीता-जागता उदाहरण है भारत का प्रज्ञापुरुष, वैज्ञानिक और चिंतक रघुनाथ माशेलकर।

जन्म : आपका जन्म गोवा के माशेल गाँव में 1 जनवरी, 1943 को हुआ।

शिक्षा : अत्यंत गरीबी में पले-बढ़े माशेलकर जी के पास महाविद्यालय की फीस भरने के लिए 26 रुपए भी नहीं थे। पिता के असमय चल बसने पर अत्यंत प्रतिकूल परिस्थिति में आपने पढ़ाई पूरी की। सन 1966 में आपने मुंबई विश्वविद्यालय से 'रसायनशास्त्र' विषय लेकर अभियांत्रिकी की उपाधि प्राप्त की। पी. एच्. डी. पूरी करने के बाद आपने इंग्लैंड में अनुसंधान कार्य किया। अमेरिका और यूरोप में अध्यापन कार्य किया और भारतभूमि लौट आए।

साने गुरुजी की कविता, 'बलसागर भारत होवो' का अर्थ समझने वाले, उस दिशा में प्रयत्न करने वाले डॉ. माशेलकर चैतन्य से ओतप्रोत वैज्ञानिक हैं।

पॉलिमर विज्ञान और पेट्रो केमिकल्स माशेलकर जी के अध्ययन और शोध के प्रमुख विषय रहे हैं। विज्ञान जगत में उनके बहुमूल्य योगदान के कारण उन्हें देश-विदेश के अनेक सम्मान प्राप्त हुए हैं।

- (2) भारतीय वैज्ञानिकों ने भारत में अलग अलग क्षेत्रों में अपना महत्त्वपूर्ण योगदान दिया है। उनमें से बारह वैज्ञानिकों के नाम यहाँ पर दिए हैं। उनका कार्य आंतरजाल की सहायता से खोजने की कोशिश विद्यार्थी करें। प्रफुलचंद्र राय,

सलीम अली, श्रीनिवास रामानुजन्, चंद्रशेखर वेंकट रामन, होमी जहांगीर भाभा, जगदीश चन्द्र बसु, डॉ. ए.पी.जे. अब्दुल कलाम, हरगोविन्द खुराना, श्रीराम शंकर अभ्यंकर, विक्रम साराभाई, जयंत नारलीकर, रघुनाथ माशेलकर।

खोजबीन

- ★ पद्मभूषण भारत सरकार द्वारा दिया जानेवाला तीसरा सर्वोच्च सम्मान है जो देश के लिए बहुमूल्य योगदान के लिए दिया जाता है। 1954 में यह पुरस्कार पहली बार दिया गया। जो विज्ञान के लिए शांति स्वरूप भटनागर जी को, कला क्षेत्र में सुब्बालक्ष्मी को, तो साहित्य के लिए मैथिलीशरण गुप्त जी को मिला। इनके साथ अन्य हस्तियाँ भी थीं जिन्हें पुरस्कार मिला।

सन 2017 में 7 महानुभावों को यह पुरस्कार दिया गया।

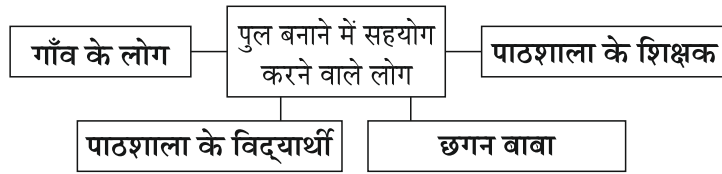
- | | |
|---|-------------------------|
| (1) पं. विश्व मोहन भट्ट | - कला, राजस्थान |
| (2) डॉ. देवीप्रसाद द्विवेदी | - साहित्य, उत्तर प्रदेश |
| (3) स्वामी निरंजनानंद सरस्वती | - योगा, बिहार |
| (4) चो. सी. रामास्वामी | - साहित्य, तमिलनाडू |
| (5) डॉ. टी. इ. उदवाडिया | - औषधी, महाराष्ट्र |
| (6) राजकुमारी महाचक्री सिरिनधर | - साहित्य, थायलैंड |
| (7) श्री जैनाचार्य विजय रत्नसुंदरसुरी महाराजा | - अध्यात्म, गुजरात |

7. जहाँ चाह, वहाँ राह

- प्र.1. (1)
- (2) (i) (1) असत्य (2) सत्य
(ii)
- (3) (i) (1) अनुपस्थित (2) संभव
(ii) (1) विद्यार्थी (2) बस्ती

- (4) पाठशाला में अनुपस्थित रहने के कारण विद्यार्थियों की पढ़ाई पर बुरा असर पड़ता है। अनुपस्थित विद्यार्थी अन्य विद्यार्थियों से पढ़ाई में पीछे छूट जाते हैं। जिस दिन अनुपस्थित रहते हैं उस दिन की पढ़ाई दूसरे दिन करने में समय चला जाता है। अध्यापक जो पाठशाला में पढ़ाते हैं वह समझने में अनुपस्थित बच्चों को दिक्कत होती है और विद्यार्थियों की सोचने समझने की शक्ति कम हो जाती है। उनको अनुपस्थित रहने की आदत हो जाती है। उनका आत्मविश्वास कम होता है। पढ़ाई से ध्यान हट जाता है। अच्छी श्रेणी लाने वाले विद्यार्थी भी वार्षिक परीक्षा में पीछे रह जाते हैं।

प्र.2. (1)



- (2) (3) गाँव के लोग सहायता के लिए आगे आए।
 (1) सामग्री खरीदने के लिए आवश्यक राशि जमा हुई।
 (4) पत्थर इकट्ठे किए गए।
 (2) बंजर जमीन से मिट्टी खोदी गई।
- (3) (i) (1) पाठशालाएँ (2) ईंट
 (ii) (1) उपजाऊ (2) अंत
- (4) भारत की अनेक महत्त्वपूर्ण परंपराओं में से श्रमदान भी एक परंपरा है। सामूहिक श्रमदान का अर्थ है निःस्वार्थ होकर एकजुट से जनकल्याण का कार्य करना। सामूहिक श्रमदान से लोगों के बीच आपसी सहयोग, परोपकार, त्याग, दया, उदारता की भावना उत्पन्न होती है और हमारा शारीरिक और मानसिक विकास होता है। हममें आत्मविश्वास का निर्माण होता है। सामूहिक श्रमदान से हम गाँव की समस्याओं का समाधान कर के उन्हें विकसित और खुशहाल बना सकते हैं जैसे कुएँ खोदना, स्वच्छता, वृक्षारोपण संबंधी कार्य आदि। सामूहिक श्रमदान से सबकुछ संभव कर

सकते हैं। समाज, गाँव और शहर को पूर्ण शक्तिशाली बनाने में सामूहिक श्रमदान से सहायता मिल सकती है। सामूहिक श्रमदान से कठिन कार्य संपन्न हो सकते हैं जो अकेला व्यक्ति नहीं पूरा कर सकता। सामूहिक श्रमदान का मूल्य जानकर परस्पर सहयोग निभाना सबकी जिम्मेदारी है। सामूहिक श्रमदान एक तरह से विश्वबंधुत्व की भावना उजागर करता है।

स्वाध्याय

प्र.1. (अ) (1) यह वाक्य गुरुजी ने विद्यार्थियों से कहा।

(2) यह वाक्य आशीष ने अपने मित्र-सहेलियों से कहा।

(3) यह वाक्य जुई ने तुषार से कहा।

(4) यह वाक्य दामिनी ने अपने साथियों से कहा।

(5) यह वाक्य आशीष ने अपने साथियों से कहा।

(आ) (1) अनुपस्थिति (2) माहौल (3) सामग्री

(4) स्वप्नपूर्ति (5) हौसले

प्र.2. (अ) (1) क्योंकि धुआँधार बरसात हो रही थी।

(2) क्योंकि बरसात के कारण नाले में पानी भरा था और नाले को लाँघना विद्यार्थियों के लिए संभव नहीं था।

(3) क्योंकि दामिनी ने विश्वास के साथ कहा था कि हर समस्या का निदान संभव है और सब मिलकर विचार करेंगे तो कोई न कोई रास्ता अवश्य मिलेगा और बरसात में भी वे पाठशाला जा पाएँगे।

(आ) (4) विद्यार्थियों ने छोटे-छोटे समूह बनाकर प्रकल्प पर काम करना शुरू कर दिया।

(3) पाठशाला के शिक्षक और गाँव के लोग सहायता के लिए आगे आए।

(1) बंजर जमीन से मिट्टी खोदी गई।

(2) विद्यार्थी हँसते-खेलते पुल से पाठशाला की राह जाने लगे।

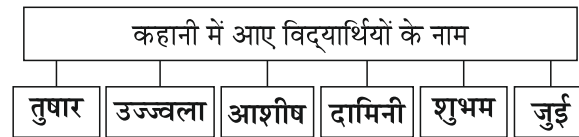
प्र.3. (1) कहानी का शीर्षक है 'जहाँ चाह, वहाँ राह' जो सर्वथा सार्थक है। कहानी में छोटे बच्चों ने नाले पर पुल बनाने का निश्चय किया। यह एक असंभव लगने वाला कार्य था जो उनके हौसले के कारण संभव हुआ और उनकी पाठशाला नियमित जाने की इच्छा पूरी हुई। मनुष्य बुद्धिमान है और हर समस्या का हल वह ढूँढ़ सकता है क्योंकि 'कोशिश करने वालों की कभी हार नहीं होती।'

(2) यह कहानी येसंबा गाँव के बच्चों की है जो पाठशाला में पढ़ते थे। येसंबा गाँव में एक नाला था जो गाँव को दो भागों में बाँट देता था। एक तरफ बस्ती और दूसरी तरफ खेत और पाठशाला थी। बरसात के दिनों में नाले में पानी भर जाता। तब बड़े-बुजुर्ग अपने गाय-बैलों के साथ खेत में पहुँच जाते पर बच्चों को नाला लाँघना मुश्किल हो जाता और वे पाठशाला नहीं जा पाते।

एक दिन बच्चे पाठशाला नहीं जा पाए थे और बरगद के पेड़ के चबूतरे पर बैठकर बातें कर रहे थे। तब उन्होंने अपनी समस्या हल करने के बारे में विचार किया। उन्होंने नाले पर पुल बनाने का निश्चय किया। उनके हौसले को देखकर गाँव के लोग और पाठशाला के शिक्षक सहायता के लिए आगे आए। पुल के लिए धन जमा किया और अंततः उनकी वर्षों की कठिनाई दूर हो गई। नाले पर केवल पंद्रह दिनों में ग्रामीणों और विद्यार्थियों के सामूहिक श्रमदान से पुल बना। एकता, संगठन और श्रमदान के कारण असंभव को उन्होंने संभव कर दिखाया।

प्र.4. (1) पुल बनाने की योजना में साथ मिलकर काम करने वाले

(2) विद्यार्थी शिक्षक गाँव के लोग



प्र.5. घर : छुट्टी का दिन था। सुबह जल्दी आँख खुल गई थी। माता-पिता और दीदी सब सोए थे। तभी मैंने सोचा आज मैं सबके लिए चाय बनाऊँगा और फिर उन्हें जगाऊँगा। मैंने अपनी योजना के अनुसार चाय चढ़ा दी। पर दूध फट गया था। अब दूधवाला दूध ला देगा तभी मैं सबको चाय पिला सकूँगा। मैंने लेमन-टी के

बारे में पढ़ा था। फिर क्या? मैंने सब को लेमन-टी पिला दी। घर में सबने मेरी तारीफ की और मुझे लगा मैंने आज बड़ा काम कर दिया।

विद्यालय : मेरा हस्ताक्षर ठीक-ठाक है। सुंदर नहीं पर हर कोई आसानी से पढ़ सकता है। विद्यालय में जब हमारी वर्ग शिक्षिका ने फलक लेखन के लिए मुझे चुना तो मैं बहुत प्रसन्न हुआ। मैंने उस हफ्ते भर में कई किताबों से पढ़कर सुवचन ढूँढ़े और फलक पर लिखे। मेरे इस कार्य के लिए मुझे शाबाशी मिली।

परिवेश : अपना परिवेश साफ-सुथरा रखना हमारा कर्तव्य है। और 'स्वच्छ ग्राम-स्वस्थ ग्राम' नारा तो चारों ओर सुनाई देता है। मैंने अपने परिवेश में एक दल बनाया और हमारे दल के बच्चे किसी को भी सड़क पर कूड़ा नहीं फेंकने देते।

त्योहार : इस बार हमने दीवाली के त्योहार पर अनाथालय में जाकर बच्चों को मिठाई और नए कपड़े बाँटे। मिठाई और कपड़े पाकर उन बच्चों के चेहरों पर मुस्कराहट आई जो हमारे दिल को छू गई।

प्र.6. श्रद्धा और विज्ञान दोनों मनुष्य को समान रूप से प्रभावित करते हैं। विज्ञान मनुष्य को भौतिक सुखों की प्राप्ति कराता है तो श्रद्धा उसका आत्मबल बढ़ाती है। असाध्य बीमारियों का इलाज विज्ञान कर देता है पर उस चिकित्सक पर श्रद्धा और विश्वास ही हमें दवा के साथ-साथ ठीक होने में मदद करते हैं। विज्ञान हमें भौतिक शक्ति प्रदान करता है तो श्रद्धा हमें मन की शक्ति प्रदान करती है। इस कर्ममय जीवन में दोनों का बराबरी से महत्त्व है। क्योंकि....

'मन के हारे हार है, मन के जीते जीत।'

हमारे जीवन रथ का एक शक्तिशाली अश्व है 'मन' और दूसरा 'विज्ञान'। इन दोनों के तालमेल से ही जीवन सफल होगा और हम तरक्की करेंगे।

खोजबीन :

★ 'कंधे से मिलते हैं कंधे और कदमों से कदम मिलते हैं, जब चलते हैं हम ऐसे तो दिल दुश्मन के हिलते हैं।'

★ ऐसी इस भारतीय सेना के तीन रेजिमेंट हैं - (1) थलसेना (2) नौसेना और (3) वायु सेना

इसके अलावा नाभिकीय कमान प्राधिकरण भी एक विभाग है और तटरक्षक दल भी है।

- ★ भारतीय सेना के पद : तीनों विभागों के मुख्य राष्ट्रपति होते हैं।
सेना के पद - (1) फिल्ड मार्शल (2) जनरल (3) लेफ्टिनेंट जनरल
(4) मेजर जनरल (5) ब्रिगेडियर (6) कर्नल
(7) लेफ्टिनेंट कर्नल (8) मेजर (9) कैप्टन
(10) लेफ्टिनेंट (11) सूबेदार मेजर (12) सूबेदार
(13) नायब सूबेदार (14) हवालदार, नायक और लांस नायक

इनके पोशाकों के रंग अलग-अलग हैं।

थलसेना के पोशाक का रंग खाखी है और उसपर हरे रंग के धब्बे हैं।

नौसेना की पोशाक सफेद रंग की है और वायुसेना की पोशाक आसमानी नीले रंग की है।

देश की सीमाओं की तथा अंदरूनी सुरक्षा की जिम्मेदारी सेना पर है।

इनके गौरव में यह कविता मैंने पढ़ी जो मुझे अच्छी लगी -

‘नियम बद्ध रहन-सहन इनका, सदा चौकन्ना रहना,

रिश्ते-नातों से दूरी सहना किसी से कुछ न कहना।

सक्षम है भारत की सेना प्रत्येक आपदा से लड़ने में,

देश का गौरव रखने हेतु, कभी नहीं पिछड़ने में।’

‘करो या मरोठ इस निर्धार के साथ हर अभियान में समर्पण की भावना के साथ उतरने वाली यह सेना रणभूमि में मृत्यु के सपने संजोए हुए ही जीती है।

व्याकरण

प्र.1.

उद्देश्य	विधेय
(1) हिमालय	देश का गौरव है।
(2) महासागर	अपने देश के चरण पखारता है।
(3) निखिल	कश्मीर घूमने गया था।
(4) मुंबई	देश की आर्थिक राजधानी है।
(5) परिश्रम	सफलता की कुंजी है।

प्र.2.

विराम चिह्न	नाम
(1) ।	पूर्णविराम
(2) “ ”	दोहरा उद्धरण चिह्न
(3) ?	प्रश्न चिह्न
(4) -	योजक चिह्न
(5) ,	अल्पविराम
(6) ‘ ’	इकहरा उद्धरण चिह्न
(7) !	विस्मयादिबोधक चिह्न

प्र.3.

हिंदी	मराठी	हिंदी	मराठी
गाँव	गाव	पाठशाला	पाठशाळा
खेत	शेत	पाँच	पाच
फीट	फुट	छुट्टी	सुट्टी
रास्ता	रस्ता	ज्यादा	जास्त
शक्ति	शक्ती	पुल	पूल
हाथ	हात	तालियाँ	टाळ्या
पंद्रह	पंधरा	व्यक्ति	व्यक्ती

प्र.4. (1) जंगल की आग की तरह फैलना - अर्थ : तेजी से फैलना

वाक्य - गाँव में आतंकवादी आ चुके हैं यह बात गाँव में जंगल की आग की तरह फैल गई।

(2) दाद देना - अर्थ : प्रशंसा करना।

वाक्य - अध्यापक ने राम की होशियारी की दाद दी।

(3) जहाँ चाह वहाँ राह - अर्थ : इच्छा होने पर मार्ग मिलता है।

वाक्य - अंततः आतंकवादी के चंगुल से हम बच निकले; सच कहते हैं जहाँ चाह वहाँ राह।

लेखन कौशल (Writing Skill)

प्र.1. इसी वर्ष की घटना है। फरवरी में हमारे विद्यालय का वार्षिक महोत्सव बड़े धूमधाम से मनाया गया। मातोश्री प्रमिला बेन सभागृह में मशहूर कलाकार समीर वाजपेयी ने पधारकर अध्यक्षपद विभूषित किया। इस अवसर पर कई गणमान्य अतिथि, पाठशाला के आजी-माजी छात्र एवं अभिभावक उपस्थित थे। गणेश वंदना एवं सरस्वति वंदना से कार्यक्रम की शुरुआत हुई। छठी कक्षा के छात्रों ने स्वागत गीत प्रस्तुत किया।

तत्पश्चात हमारे विद्यालय के निरीक्षक शर्मा सर ने अध्यक्ष महोदय का परिचय दिया और गुलदस्ता देकर सम्मानित किया। अध्यक्ष महोदय के करकमलों द्वारा होनहार छात्रों को पुरस्कार दिए गए।

इस अवसर पर अनेक सांस्कृतिक कार्यक्रम रखे गए। नृत्य, संगीत, एकांकी आदि द्वारा भारतीय संस्कृति की झाँकियाँ प्रस्तुत की गईं। अध्यक्ष महोदय ने कार्यक्रम की भूरी-भूरी प्रशंसा की और विद्यार्थियों के सुनहरे भविष्य की कामना करते हुए हमें शुभाशीष दिया। धन्यवाद यापन के बाद राष्ट्रगीत गाया गया जो मैंने मेरे साथियों के संग प्रस्तुत किया। इसके साथ ही इस रंगारंग कार्यक्रम का समापन हुआ।

प्र.2. किसी भी बात को बिना सोच समझ के या बिना किसी आधार के मानना अंधविश्वास है। सदियों से चली आई हमारी मान्यताएँ, मृत्यु का भय, पाप से मिलने वाला दंड, भूत-प्रेत का वास आदि बातें हमें अंधविश्वासी बना देती हैं। अंधविश्वास को दूर करने का एकमात्र उपाय है अपने आप पर भरोसा करना। कड़ी मेहनत, लगन और संकल्प से अपने पथ पर चलने वालों को मंजिल मिल ही जाती है। अतः हमें कर्मठ बनकर आगे बढ़ना होगा, क्योंकि....

सच्चाई को सहर्ष स्वीकार करने पर ही हम अंधविश्वास की दलदल से बाहर निकलेंगे। वैज्ञानिक दृष्टिकोण अपनाने से ही हमारी राह आसान होगी। वरना चेचक जैसी बीमारी को देवी का प्रकोप मानकर लाइलाज मरने के लिए छोड़ देते हम। वैज्ञानिक दृष्टिकोण प्रत्येक विषय, वस्तु और घटना के बारे में हमारी सोच और समझ को विकसित करता है। किसी भी घटना-परिघटना के रहस्य को वैज्ञानिक दृष्टिकोण से समझना चाहिए और फिर उसपर विश्वास करना चाहिए। तार्किक सोच से ही हम प्रगति कर सकते हैं और सुनहरे भविष्य का निर्माण कर सकते हैं यह बात हम कभी न भूलें।

वाचन जगत से

(1) गणतंत्र दिवस पर प्रधान मंत्री के हाथों साहसी बालकों को सम्मानित किया जाता है। उनको हाथी पर बिठाकर उनका जुलूस निकाला जाता है। चारू और चिन्मय ऐसे ही वीर बालक हैं।

एक दिन दोपहर के वक्त वे दोनों अपनी माँ के साथ लोकल ट्रेन से कहीं जा रहे थे। रास्ते में दो बदमाश गाड़ी में चढ़े और एक ने एक साठ साल की वृद्धा का बैग झपट लिया। दूसरे ने चाकू दिखाकर बच्चों की माँ का बैग छीना। चारू ने तब बदमाशों के हाथों से अपनी माँ का बैग छीन लिया। इसपर बदमाश ने चारू के बाल खींचे, उसे पीटा पर चारू ने बैग नहीं छोड़ा। चिन्मय ने उस बदमाश के बाल खींचे और उसे काट लिया जिसके कारण बदमाश के हाथ से चाकू छूट गया। चिन्मय ने झट चाकू उठाया और ट्रेन से बाहर फेंक दिया। दोनों भाई-बहनों को चोटें आईं पर वे उन बदमाशों से लड़ते रहे। इसी मूठभेड़ में वृद्धा का बैग भी बदमाश के हाथ से छूट गया जिसे चिन्मय ने पकड़ लिया। हालात बेकाबू होते देख अगला स्टेशन आते ही बदमाश भाग गए। इस तरह दोनों बालकों ने मिलकर दो-दो बदमाशों के दाँत खट्टे किए।

(2) विद्यार्थी स्वयं करें।

प्रकल्प

अध्ययन कौशल्य

★

रोग	टीका
तपेदिक (टीबी)	बी.सी.जी
डिप्थीरिया	डी.टी.पी या डी.पी.टी
खसरा	एम्.एम्.आर.
रोटावायरस	रोटावायरस
टायफॉइड (मोतीझरा)	टायफॉइड
रुबेला	एम्.एम्.आर.
हैपेटाइटिस ए	हैपेटाइटिस ए.
टिटनस	डी.टी.पी. या डी.पी.टी.

8. जीवन नहीं मरा करता है।

प्र.1. (1) - आ, (2) - ई, (3) - अ, (4) - इ

(2) (I) दुःखी होना। सपनों के टूट जाने का परिणाम आँसू बहाना।

(ii) (1) आँसू - क्या नीलाम हुए तो तपस्या पूरी हुई?

(2) माला - क्या बिखर गई तो समस्या हल हुई?

(3) जिनके सपने टूट गए हैं उन्हें कवि समझा रहे हैं,

इस तरह छिप-छिपकर आँसू बहाने वालो, ये आँसू मोतियों की तरह अनमोल हैं, इन्हें व्यर्थ मत लुटाओ, क्योंकि कुछ सपनों के मर जाने से जीवन मरा नहीं करता है। आँसूओं की माला बिखरे देने से समस्या हल नहीं होती। जीवन में आने वाली कठिनाइयाँ खुद ही हल नहीं होती। आँसू अगर नीलाम हो गए तो समझो कि तपस्या पूरी हुई। अपने रुठे दिनों को मनाने वालो, फटी हुई कमीज को सिलाने वालो कुछ दीपों के बुझ जाने से आँगन नहीं मरता है। आँगन में रोशनी लेकर नए दीपक आते ही हैं।

प्र.2. (1)

'अ'	'आ'
(1) गगरियाँ	पनघट
(2) उपवन	माली
(3) खिड़की	धूल
(4) किश्तियाँ	तट

(2) (i) (1) असत्य (2) सत्य

(ii) तम की उमर बढ़ाने वालो! लौ की आयु घटाने वालो!

(3) पनघट पर कितनी ही गगरियाँ फूटीं परंतु पनघट ने फूटी हुई गगरियों की चिंता नहीं की। कितनी ही बार पानी में किश्तियाँ डूब गईं लेकिन किनारे पर जीवन की चहल-पहल बनी रही। ऐ अंधकार की उम्र बढ़ाने वालो और ज्योति की आयु घटाने वालो, याद रखो कि पतझड़ कितनी भी कोशिश कर ले परंतु उपवन मरा नहीं करता, उसमें बहार फिर से आती ही है।

प्र.3. (1) गोपालदास सक्सेना 'नीरज'

(2) 'चंद खिलौनों के खोने से बचपन नहीं मरा करता है।'

(3) यह पंक्ति मुझे सबसे अच्छी लगी। जीवन की सच्चाई इसमें छिपी है। खिलौना टूटने पर रोना तो खूब आता है पर नया खिलौना मिलने पर टूटे हुए खिलौने को बालक भूल जाता है जैसे ही जीवन में उम्मीदों के बँधने टूटने का गम और खुशी समाहित रहती है। उम्मीद टूटने पर गम में डूबे हम फिर से नई उम्मीद के जागने पर उत्साह के साथ आगे बढ़ते हैं।

(4) कालचक्र निरंतर गतिमान है। समय कभी किसी के लिए रुकता नहीं है। हमारे कुछ सपने पूरे नहीं हुए तो जीवन खत्म नहीं होता। हमें नई उम्मीद के साथ जीवन में आगे बढ़ना चाहिए। आँसू समस्याओं का हल नहीं होता। जीवन में सुख-दुःख तो आते ही हैं, जीवन में असफल हुए तो जीवन रुकता नहीं। यह संदेश मिलता है।

स्वाध्याय

प्र.1. (अ) (1) पतझड़ के मौसम में पेड़ के पत्ते झर जाते हैं और उपवन मुरझा जाता है। परंतु पेड़-पौधों की शाखाओं में फिर से बहार देखने की इच्छा जीवित होती है। वह इच्छा उपवन को मरने नहीं देती और वसंत ऋतु के आते ही उपवन फिर से पल्लवित हो जाता है।

(2) पनघट पर औरते पानी भरने आती हैं। उनकी गगरियाँ मिट्टी की होती हैं जो लंबे समय तक नहीं टिकतीं इसलिए फूट जाती हैं। फूटने पर औरते नई गगरियाँ ले आती हैं और पानी ले जाती हैं। गगरियों के फूटने की चिंता न पनघट करता है न औरते। पनघट पर चहल-पहल वैसी ही बनी रहती है।

(3) इस धरती पर कुछ भी नष्ट नहीं होता, केवल उसका रूप बदल जाता है। जिस तरह किताब पुरानी हो जाती है तो उसपर नया आवरण चढ़ाकर उसे नया बना देते हैं जैसे ही हमारा जीवन भी शाश्वत है। समस्याओं के आने से वह खत्म नहीं होता। काल चक्र निरंतर गतिमान है और हमें इस सच्चाई के साथ जीना है, आगे बढ़ना है।

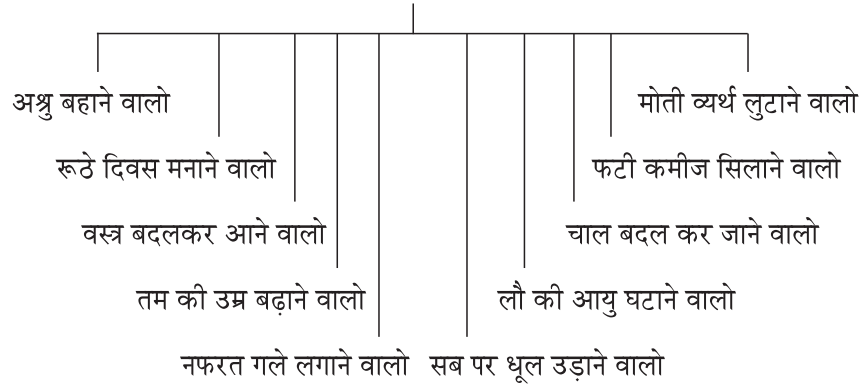
(आ) इस कविता में कवि 'नीरज' जी ने हमें विविध उदाहरण देकर जीवन की शाश्वतता की ओर संकेत किया है। हम जीवन में कई सपने देखते हैं। सपने पूरे होते हैं तो हमें जीवन सुखमय लगता है और सपने टूट जाने पर हम भी टूट कर बिखर जाते हैं। कवि हमें समझा रहे हैं कि आँसू बहाने से कभी समस्या का हल नहीं निकलता। जीवन में सुख और दुख दोनों आते ही हैं। अपनों द्वारा ही हमारे साथ छल होता है और हमारी असफलता पर खिल्ली भी उन्हीं द्वारा उड़ाई जाती है। अपनों की खोल से बाहर निकलकर वे पराए हो जाते हैं पर जीवन रुकता नहीं।

(इ) निम्न पंक्तियाँ जीवन की शाश्वतता बताती हैं।

- * कुछ सपनों के मर जाने से जीवन नहीं मरा करता है।
- * कुछ दीपों के बुझ जाने से आँगन नहीं मरा करता है।
- * कुछ खिलौनों के खोने से बचपन नहीं मरा करता है।
- * लाख करे पतझर कोशिश पर उपवन नहीं मरा करता है।
- * कुछ मुखड़ों की नाराजी से दर्पन नहीं मरा करता है।

प्र.2.

कवि ने इन सबको संबोधित किया है



अध्ययन कौशल

- ★ सौरऊर्जा वह ऊर्जा है जो सीधे सूर्य से प्राप्त की जाती है। सौरऊर्जा ही मौसम एवं जलवायु में परिवर्तन लाती है। यह ऊर्जा ही धरती पर सभी प्रकार के जीवन (पेड़-पौधे, जीव-जंतु आदि) का सहारा है।

वैसे तो सौरऊर्जा के विविध प्रयोग किए जाते हैं। किंतु सौरऊर्जा को विद्युत ऊर्जा में बदलना अहं है। सौरऊर्जा जो रोशनी और उष्मा दोनों रूपों में प्राप्त होती है और कई प्रकार से उपयोग में लाई जाती है। सौर उष्मा का उपयोग अनाज को सुखाने, खाना पकाने, पानी उबलाना, पानी शुद्ध करने के लिए तथा बिजली बनाने के लिए किया जाता है।

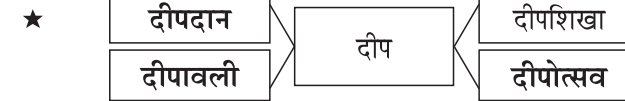
इसके प्रयोग में खामियाँ भी हैं। बरसात के दिनों में जब सूर्य किरणें कम मात्रा में मिलती हैं तो उसका परिणाम उत्पाद पर होता है। फिर भी सौरऊर्जा एक ऐसी ऊर्जा है जिसका स्रोत निरंतर मिलता रहेगा, अन्य ऊर्जा स्रोतों की तरह नष्ट नहीं होगा।

व्याकरण

भाषा की ओर

- ★ (1) कामायनी (महाकाव्य) कवि जयशंकर प्रसाद
- (2) विशाखा लंदन से दिल्ली आती है [हवा जैसी.] आने की सूचना नहीं देती।
- (3) $\left\{ \begin{array}{l} \text{बालभारती} \\ \text{सुलभभारती} \end{array} \right\}$ हिंदी की पुस्तकें हैं।
- (4) किसी दिन हम भी आपके ^{घर} आएँगे

मेरी कलम से



लेखन कौशल (Writing Skill)

- ★ समय की अपनी गति है और वह कभी न रुकी है न रुकेगी। हमारे मन को हम धैर्य धारण करने के लिए समझाएँ तो ही हम समय के खेल का मजा उठा पाएँगे। फिर हमें जीवन में दुख की घड़ियाँ बोझ न लगेंगी। असफलताएँ हमें कमजोर नहीं बना पाएँगी। हम समय के साथ कदम से कदम मिलाकर आगे बढ़ सकेंगे और सफल भी बनेंगे।

हमें याद रखना चाहिए कि परिवर्तन तो सृष्टि का नियम है। 'सबै दिन जात न एक समान' इस आशा पर ही दुनिया कायम है। कालचक्र निरंतर गतिमान है। इसलिए हमें अच्छे दिनों में घमंड नहीं करना चाहिए और बुरे दिनों में हिम्मत नहीं छोड़नी चाहिए।

हमें यह भी याद रखना चाहिए कि 'समय और लहरें किसी की प्रतीक्षा नहीं करती हैं। कोई भी भविष्य में प्रयोग करने के लिए समय को इकट्ठा नहीं कर सकता। अतः समय की कद्र करनी चाहिए। नहीं तो 'अब पछताए होत क्या, जब चिड़ियाँ चुग गईं खेत' वाली पंक्ति याद आएगी। अतः समयनिष्ठता को अपनाकर सफलता प्राप्त करनी चाहिए। समय के अनुसार चलने से संसार का कठिन से कठिन कार्य भी आसान हो जाता है। इसलिए कवि रहीम कहते हैं

समय लाभ सम लाभ नहीं, समय चूक सम चूक।

चतुरन चित रहि मन लगी, समय चूक की हूक।।

सुनो तो जरा

★ विद्यार्थी स्वयं कृती करें।

अभ्यास - 1

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संज्ञा शब्द	सर्वनाम शब्द	विशेषण शब्द	क्रिया शब्द
पेड़	हम	चार	बैठना
अमित	कोई	मीठे	पिलाना
प्यास	कौन	थोड़ा	गिरना

संज्ञा शब्द	भेद	वाक्य
पेड़	जातिवाचक संज्ञा	पेड़ की छाया में पंछी बैठे हैं।
अमित	व्यक्तिवाचक संज्ञा	अमित दादाजी को पानी दे रहा है।
प्यास	भाववाचक संज्ञा	दादाजी को प्यास लगी है।

सर्वनाम शब्द	भेद	वाक्य
हम	पुरुष वाचक सर्वनाम	हमने पेड़ पर घरौदा देखा।
कोई	अनिश्चय वाचक सर्वनाम	कोई गा रहा है।
कौन	प्रश्नवाचक सर्वनाम	पेड़ पर कौन बैठा है?

विशेषण शब्द	भेद	वाक्य
चार	संख्यावाचक विशेषण	पेड़ पर चार पंछी बैठे हैं।
मीठे	गुणवाचक विशेषण	आम मीठे हैं।
थोड़ा	अनिश्चित परिमाणवाचक विशेषण	दादाजी थोड़ा पानी पीजिए।

विशेषण शब्द	भेद	वाक्य
बैठना	अकर्मक क्रिया	बच्चे पेड़ के नीचे बैठे हैं।
पिलाना	प्रेरणार्थक क्रिया	बच्चे ने दादाजी को पानी पिलाया।
गिरना	सहायक क्रिया।	आम नीचे आ गिरा।

पुनरावर्तन - 1

प्र.1. पाठशाला ... लालच ... चम्मच ... चतुर ... रजत ... तरफ ... फसल

प्र.2.

भारत	अंततः	पृथ्वी	जादू	प्रणाली
सामग्री	लहरें	रोजगार	यातायात	क्रांति
अगस्त	उन्नति	हालाँकि	आँगन	मुक्ति
उंगली	चाँदनी	घोंसला	होशियार	विश्वास

उचित क्रम :

स्वर : अ आ इ ई उ ऊ ए ऐ
ओ औ अं अः अँ आँ

प्र.3.

व्यंजन :	क	ख	ग	घ	ङ		
	च	छ	ज	झ	ञ		
	ट	ठ	ड	ढ	ण	ड़	ढ़
	त	थ	द	ध	न		
	प	फ	ब	भ	म		
	य	र	ल	व	श		
	ष	स	ह	ळ			
	क्ष	ज्ञ	त्र	श्र			

प्र.4.

भव्य प्रदर्शनी

‘चित्रकला हुनर की पहचान
चित्रकला प्रदर्शनी की शान’

अपनी कला को लेकर उड़ान भरो

क्षणभर की भी देरी न करो

- * पाठशाला में पढ़ने वाले छात्रों के चित्र आमंत्रित हैं।
- * चित्र चित्रकला की किसी भी शैली में हो सकता है - छाया चित्र, व्यक्तिचित्र इ.
- * छात्र अपने प्रधानाचार्य के प्रमाणपत्र के साथ अपना चित्र प्रदर्शनी में दें।

अंतिम तिथि - 30 नवंबर 2020

संपर्क करें - श्री. मधुकर सावंत (चित्रकला शिक्षक)
विवेक विद्यालय, मलाड (प.)
मुंबई।

टेलीफोन - 0222xxxxxxx

उपक्रम

(1) हिंदी सुविचार -

- * दूसरों को सहयोग देना ही उन्हें अपना सहयोगी बनाना है।
- * स्वास्थ्य सबसे बड़ी दौलत है,
संतोष सबसे बड़ा खजाना है,
आत्मविश्वास सबसे बड़ा मित्र है।
- * हार और जीत हमारी सोच पर निर्भर है,
मान लिया तो हार और ठान लिया तो जीत !
- * मंजिल मिले ना मिले यह तो मुकद्दर की बात है,
हम कोशिश भी ना करें यह तो गलत बात है।
- * खुशानसीब हैं वे जो वतन पर मिट जाते हैं,
मरकर भी वे अमर हो जाते हैं।
- * जननी जन्मभूमि स्वर्ग से महान है।
- * परहित सरिस धरम नहिं भाई।
परपीड़ा सम नहिं अधमाई।।

- * आलस्य मनुष्य का सबसे बड़ा शत्रु है।
- * निज भाषा उन्नति है, सब उन्नति को मूल।
- * अनेकता में एकता है, हिंद की विशेषता।
- * फूल सुगंध दे झरे बरस गए बादल जलभरे,
वही मनुष्य मनुष्य है जो मनुष्य के लिए मरे।
- * गया वक्त लौटकर कभी नहीं आता।
- * लहरों से डरकर नौका पार नहीं होती,
कोशिश करने वालों की कभी हार नहीं होती।

(2) मुख्य समाचारों का लिप्यंतरण -

- * टीम इंडिया खेलेगी चैंपियंस ट्रॉफी में
लिप्यंतरण - Team India Khelegi Chaimpiyans trofee men.
- * राजस्थान की वाइल्ड लाइफ सेंचुरीज पर वन्यजीवों से छेड़छाड़ की
निगरानी होगी।
लिप्यंतरण - Rajasthan kee wild life centuries par
vanyajeevon se chedachad kee nigrani hogi.
इस तरह लिप्यंतरण कीजिए।

(3) * मातृभाषा के पाँच वाक्यों का हिंदी में अनुवाद -

- God helps those who help themselves.
अनुवाद - भगवान उन्हीं की मदद करते हैं जो स्वयं की मदद करते हैं।
 - Time & tide wait for none.
अनुवाद - समय और लहरें किसी की प्रतीक्षा नहीं करते।
 - “There is no word ‘impossible’ in my dictionary” said Napoleon.
अनुवाद - नेपोलियन ने कहा था, “ ‘असंभव’ यह शब्द मेरे शब्दकोष में नहीं है।”
 - Every day may not be good but there is something good in every day.
अनुवाद - हर दिन शायद अच्छा न हो परंतु हर दिन में कुछ न कुछ अच्छा होता ही है।
 - A man is known by the company he keeps.
अनुवाद - मनुष्य की पहचान उसके साथ रहने वाले लोगों से होती है।
- (4) विद्यार्थी स्वयं करें।