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Key to

My SEMESTER

BOOK - 5B

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EMAIL : progresspublishers@gmail.com

ENGLISH

11. THE BEGINNING OF MARATHON RACE

1. (a) defeated (b) way (c) chosen
(d) Marathon (e) managed

2. (a) Pheidippides was a young runner whose work was to convey messages to other places.
(b) The message was the victory of Greeks over Persians at Marathon.
(c) Because he was the fastest runner.
(d) Pheidippides died when he reached Athens.
(e) The world remembers Pheidippides by including the Marathon race in Olympics.

3. (a) Greek forces defeated the Persians.
(b) A computer has a good memory.
(c) In my school there is a relay race.
(d) Trees and plants are very important source of our life.
(e) We have to save money for future.

4. (a) General Miltiades, Pheidippides
(b) Pheidippides, General
(c) Pheidippides, to himself
(d) General, Pheidippides

5. (a) surrender (b) gulp (c) collapse
(d) whisper (e) blur

6. (a) He said that he was doing his homework.
(b) Reena said that she was not well.
(c) Our teacher said that the earth revolves round the sun.
(d) Tom said that Mohan was a good boy.
(e) She told me that she would go to play.

7. (b) I play football very well.
(c) I will go to school.

8. (a) *Interrogative* Did he run to his tent ?
Negative He did not run to his tent.

(b) *Interrogative* Did the ruler bend down ?
Positive The ruler bent down.

9. careful childhood action neighbourhood
ownership friendship wonderful selection

10. Chinese Japanese
Iranian French
Canadian Indian

11. Letters, speedpost, emails, telephones, mobiles, fax, are some methods to send messages.
Telephone is the fastest means for giving messages.

12. THE SELFISH GIANT - 1

1. (a) visit (b) eating (c) wanted
(d) filled (e) poured

2. (a) The children liked the giant's garden because it was full of fruit trees, lovely flowers, plants and chirping birds.
(b) The giant shouted and chased the children away.
(c) The giant built a high wall around the garden and put the signboard outside - Trespassers will be prosecuted.
(d) The children were afraid to go into the giant's garden because he was mighty and strong so could harm them.
(e) (i) The trees bear no leaves, flower plants had no flowers no birds visited.
(ii) Trees put on new leaves, birds came back, nature was happy.
(f) Autumn went away without entering the giant's garden because there were no children to play in the garden.

3. (a) Neha is a very sweet and charming girl.
(b) Gold is a precious metal.
(c) Giant chased the children.
(d) We climb the high wall and peep inside.
(e) My mother admires me a lot.

4. (a) The sweet songs of birds filled the air.
(b) The children had no other place to play.
(c) The trees began to put on new leaves and branches.
(d) Snow covered the trees, plants and the grass.
(e) Autumn gave golden fruits to every garden.

5. (a) He will go to school by bus.
(b) Will he go to school by bus ?

(a) They will defend their country.
(b) Will they defend their country ?

(a) She will dance around in happiness.
(b) Will she dance around in happiness ?

6. (a) snow and frost
(b) giant's garden
(c) Birds, spring
(d) Because the giant was too selfish.

7. vanish, foolish, polish, finish, rubbish

8.

1. blossom	2. chirp	3. creature
4. ditch	5. execute	6. marvellous
7. plenty	8. precious	9. several
10. spring	11. trespasser	12. visit

9. bring slant lady clay bout

13. THE SELFISH GIANT - II

1. (a) leaped (b) blowing (c) playground
(d) stretched (e) covered

2. (a) The trees in his garden were full of fine blossoms because spring had come back. Birds were flying and singing.
(b) Because he was too small to climb.
(c) The giant told the children that his garden would be the playground for children. You are all free to play run around and enjoy by eating the fruits.
(d) When he grew old and feeble.
(e) One morning the giant saw a tree covered with white blossoms. Its branches were golden and silver fruits hung from them. He saw the small child whom he loved under the tree.
(f) They found the giant dead under the tree which was full of white blossoms.

3.

Present Continuous	*Past Continuous*	*Future Continuous*
I am going.	I was going.	I will be going.

	A little boy is standing.	A little boy was standing.	A little boy will be standing.
	We are playing.	We were playing.	We shall be playing.
	Are the girls laughing?	Were the girls laughing?	Will the girls be laughing?
	Are the boys reading?	Were the boys reading?	Will the boys be reading? reading?
	Is he coming?	Was he coming?	Will he be coming?

4. (a) a (b) the (c) an
(d) an (e) the (f) an

5. (a) whatever (b) whenever (c) wherever
(d) whoever (e) whenever

6. If I have a beautiful garden I will have special entrance for the children. I will make the children happy in my garden. I will have playground for children. I will like to have mango tree, banyan tree, orange tree and apple tree. I will also have variety of beautiful flower plants all over the garden.

14. A CHILD'S EVENING PRAYER

1. (a) false (b) true
(c) false (d) true (e) true

2. (a) health (b) parents
(c) doings (d) love
(e) innocent, grateful

3. (a) The child says the prayer before going to bed.
(b) The child's prayer for the father is to preserve and pay him due reverence.
(c) The child prays strength and health for many years for the mother.
(d) The child prays for his brothers to keep safe from evil doings and sloth.
(e) The child prays to God to impart him innocent and grateful heart.

(f) Samuel Taylor Coleridge is the author of the poem.

4. (a) verb, noun (b) verb, noun
(c) noun, verb (d) noun, verb
(e) noun, verb

5. (a) can (b) can (c) can
(d) could (e) could

6. (a) may (b) may (c) might
(d) might (e) may

7. eat watch bring friend

15. DAVID LIVINGSTONE

1. (a) He wanted to help the people who were dying due to lack of medical help.
(b) It was not a good custom.
(c) He spent his whole life in selfless service.

2. (a) animals (b) fell
(c) stopping (d) saddened
(e) make (f) remembered, spent

3. (a) People had little knowledge about the interior parts of Africa.
(b) He faced thick forests, marshy lands, flooded rivers and dangerous waterfalls.
(c) He helped the people of Africa in proper medical treatment and freedom from slavery.
(d) White men used to capture African people even little ones and sold them as slaves, saddened Livingstone very much.
(e) Morton Stanely was an American. He was sent to find out the truth about D.Livingstone by and American newspaper.
(f) They embalmed his body and carried to Zanzibar and ultimately to his native place, England where he was buried with full honours.
(g) Because he spent his whole life in selfless service for the upliftment of African people.

4. (a) There are seven continents in the world.
(b) I went on a journey to Shimla.

(c) The jungle is full of poisonous serpents.
(d) There are many hardships in his life.
(e) There is good treatment for patients in Apollo Hospital.

5. (a) manner (b) time (c) manner
(d) place (e) manner

6. (a) faster (b) more
(c) louder (d) harder

7. (a) humbly (b) soundly (c) tightly
(d) quickly (e) proudly (f) loudly

8. (a) look into (b) looks after
(c) looking for (d) look at

9. Ganga
Dal Lake
Angel Falls

16. WISDOM AT LAST

1. (a) going (b) sitting (c) nervous
(d) watching (e) leader

2. (a) Because they scored poor marks and father and mother would scold them for this.
(b) There was a drug in the ice-cream.
(c) They took out all the money from the bags when the boys fell asleep.
(d) Y.P. Singh assistant commissioner rescued the boys from the clutches of smuggler.
(e) He was a criminal and leader of a smuggling gang.
(f) Mr. Singh's character I like the most because he rescued the boys.

3. (a) have done (b) have solved (c) had read

4. (a) had put (b) had run (c) had, done

5. (a) will have ploughed
(b) shall have reached
(c) will, have finished

6. (a) before (b) never
(c) late (d) daily

7. ten past seven ten minutes to eight
quarter to ten half past five

8. Excuse me
I am sorry
Excuse me
Thank you
Pardon me

17. THE TYGER

1. (a) The poet has spelt the word as 'Tyger' instead of 'Tiger' deliberately to make it sound more expressive in relation to the text of the poem.
The correct word is 'Tiger'
(b) Yes, I have seen the tiger in the zoo.
(c) The burning bright means the colour of the tiger's bright eyes.
(d) God has made the beauty and symmetry of the tiger.
(e) The eyes of the tiger are fearful and bright.

2. (a) has been going
(b) have been playing
(c) have been gathering

3. (a) had been preparing
(b) had been learning
(c) had been doing

4. (a) will have been working
(b) will have been taking
(c) will have been working

5. Do you like dogs ? Most dogs are friendly. They bark and wag their tails to make friends. They like to play with you. A few dogs are not friendly. When you see a strange dog, you have to wait and see how he will act.
Most people are also friendly. They smile at you and you also smile at them, and you make friends. But a few people just pretend to be friendly.

6. (a) for (b) since (c) for
(d) for (e) since (f) since

7. birds - chirp
doves - cluck

dogs - bark
goats - bleat
horses - neigh
snakes - hiss
hens - coo
pigs - grunt

8.

foal	calf
colt	tadpole
puppy	chicken

9. night flies fire neat wasp

10. Once a wolf was eating his food. Suddenly, a bone stuck in his throat. He went for help to many animals. But none could help him. At last, he went to a crane who has a long neck and said, "A bone has stuck in my throat. You can reach down my throat with your long neck and take it out. I shall reward you." The crane put his long neck inside the mouth of the wolf. At last, he pulled the bone out. He then asked the wolf to pay him for his good work. The wolf was now out of danger. He forgot the good service of the crane. He said, " You put your neck into the mouth of a wolf, and still alive. This is your reward. Go away or I will kill you."

11. tiger, cub, tigress, den, roar, wild

18. HERE COMES DADDY

1. (a) ✗ (b) ✓ (c) ✗
(d) ✓ (e) ✗

2. (a) up, down (b) coming (c) stared
(d) stopped (e) sprinkling (f) walked

3. (a) Peter and Lucy went out to watch Peter's daddy to come home.
(b) They saw a lady with a baby carriage down the street, a man sweeping leaves, two boys on a bicycle, and a little spotted dog.
(c) They saw a lady with a baby carriage first of all.

(d) The first truck stopped in front of the grocery store to deliver some bread.

(e) No, the car didn't stop. A lady and a dog were in the car.

(f) The milk truck made clankety clank sound.

(g) The bus stopped and out got a tall, thin lady, a little old man with an umbrella, a boy with a suitcase, and a man carrying a bag.

4. (1) Peter and Lucy went out to the corner to watch for Peter's Daddy to come home.

(2) Pretty soon along came someone sitting in an auto-rickshaw.

(3) A little truck came up the street. Could this be Daddy coming home ?

(4) Around the corner came a car. A lady and a dog were in it. Could this be Daddy coming home ?

(5) A big milk truck came up the street. Could this be Daddy coming home ?

(6) A great big moving van drove up and stopped. Could this be Daddy coming home ?

(7) Up the street came a truck sprinkling water from its sides. Could this be Daddy coming home ?

(8) Then around the corner came a bus full of people.

(9) "Here's Daddy, now !" Peter shouted.

5. (a) comes (b) went (c) will bring

(d) has won (e) had won (f) are watering

(g) have sung

6. (a) takes care of patients.

(b) flies an aeroplane.

(c) cakes and cookies.

(d) sells medicines.

(e) mends shoes.

7.

spinster	bitch
governess	huntress
Goddess	tigress
poetess	maid

8. bells - ring
leaves - rustle
hands - clap
clouds - thunder
doors - bang
wings - flap

9.

spotted	rattle	carried	stopped
umbrella	Daddy	carriage	Pretty

10. grocery - store
narrow - minded
large - scale
parallel - lines
broad - smile
angry - looks
slow - motion

11. (a) Give milk to me.
(b) Give him a glass of water.
(c) He will give the book to you.
(d) Will you give some milk to me ?
(e) They gave them prizes .

12. (a) autorickshaw, car, truck, milk-truck, van
(b) car
(c) autorickshaw
(d) car

19. FROM THE TOWN TO THE VILLAGE

1. (a) living (b) help (c) excited
(d) return (e) accompanies

2. (a) The people lived together peacefully and friendly in the neighbourhood of the boy.
(b) They take part in each festival irrespective of different religions.
(c) He don't like the noise and busy life all around morning to night.
(d) He loves to see fields, meadows and the trees in a nearby village.

(e) The town life is busy and polluted and the village life is pollution free. I see birds, animals and butterflies in the village but not in the city.

3. (a) I bid farewell to my grandmother with much sorrow.
(b) She speaks three languages.
(c) I celebrate my birthday every year.
(d) I take part in dance competition.
(e) I enjoyed my winter vacation.

4. (a) at (b) in (c) beside
(d) between (e) during (f) by
(g) on (h) since (i) with

5. (a) There is a snake in the garden.
(b) There are many aeroplanes in the sky.
(c) There are a few animals in the zoo.
(d) There are many patients in the hospitals.
(e) There is a dog in my home.
(f) There are students in the classroom.
(g) There is a book on a table.
(h) There is a pen in my pocket.

6.

BA	-	Bachelor of Arts
PO	-	Post Office
USA	-	United State of America
VIP	-	Very Important Person
MP	-	Member of Parliament
MA	-	Master of Arts
PM	-	Prime Minister
UNO	-	United Nation Organisation

7. (a) The noise
(b) Vehicles and loudspeakers

(a) Clean and fresh air
(b) Greenery, watching birds

8. *From* _____
Date _____
Dear Seema,

Hi, How are you. I am fine. Hope you are also fine. Here I celebrated the 15th Aug and Raksha bandhan

together with my whole family. I bound the Rakhi to my brother's hand and enjoyed a lot.

Yours friend
Ritu

20. LITTLE THINGS

1. (a) full (b) moment (c) make
(d) virtue (e) bless

2. (a) The mighty ocean is made of drops of water.
(b) The beauteous land is made of little grains of sand.
(c) The mighty ages is made of little moments.
(d) Our little error leads our soul away from the path of virtue.
(e) Little deeds of kindness, little words of love make our earth an Eden.

3. (a) better (b) happy (c) worst
(d) sweeter (e) coldest (f) taller

4. (a) growth (b) payment (c) decision
(d) selection (e) sin

5.

actress	hen
doe	hostess
bridegroom	mare
filly	hind

6. (a) no (b) be (c) two
(d) sum (e) won (f) aloud
(g) weak

7.

beauteous	virtue
errors	heathen
heaven	youthful

8. A camel thought he is the highest. He approaches a cow and asked, "Who is higher ?" The cow compared and said you are higher. The camel again approaches buffalo and asked "Who is higher ?" The buffalo said you are higher. Then the camel approaches a fox and asked "Who is higher ?" The clever fox sits on a platform and says you are not.

SUMMATIVE ASSESSMENT - 2

1. (a) he noticed thorns upon the stem.
(b) when we think that nothing good can possibly come from us.
(c) help others to realize that they can overcome their faults.
(d) One who shows me my flaws is my favourite friend.

2. Once a wolf was eating his food. Suddenly, a bone stuck in his throat. He went for help to many animals. But none could help him. At last, he went to a crane who has a long neck and said, "A bone has stuck in my throat. You can reach down my throat with your long neck and take it out. I shall reward you." The crane put his long neck inside the mouth of the wolf. At last, he pulled the bone out. He then asked the wolf to pay him for his good work. The wolf was now out of danger. He forgot the good service of the crane. He said, " You put your neck into the mouth of a wolf, and still alive. This is your reward. Go away or I will kill you."

4. (a) at (b) during
(c) by (d) on

5. (a) huntress (b) spinster
(c) maid (d) bridegroom

6. Do you like dogs ? Most dogs are friendly. They bark and wag their tails to make friends. They like to play with you. A few dogs are not friendly. When you see a strange dog, you have to wait and see how he will act.

Most people are also friendly. They smile at you and you also smile at them, and you make friends. But a few people just pretend to be friendly.

5. (a) time (b) place (c) manner

7. ten past five quarter to ten

9. (a) Rohan said that he was not well.
(b) Tom said that Mohan was a good boy.
(c) She told me that she would go to play.

10. (a) They will defend their country.
(b) Will they defend their country ?

11. (a) happy (b) coldest (c) taller

12. 1. true 2. true 3. true
4. false 5. true

13. 1. Marathon 2. sitting 3. help
4. bless 5. visit

14. (a) Neha is a very sweet and charming girl.
(b) A computer has a good memory.
(c) Gold is a precious metal.
(d) We climb the high wall and peep inside.
(e) My mother admires me a lot.

15 (a) The children were afraid to go into the giant's garden because he was mighty and strong so could harm them.
(b) Because they scored poor marks and father and mother would scold them for this.
(c) People had little knowledge about the interior parts of Africa.
(d) The child prays to God to impart him innocent and grateful heart.
(e) Because he was the fastest runner.

MATHEMATICS

UNIT 10

Page No. 74

1. 1. 9563 2. 675 3. 5205 4. 908 5. 64070
   6. 501 7. 50090 8. 1207 9. 72312
2. 1. 7.65m 2. 9.673m 3. 8.672m 4. 9264.6m
3. 1. 95.46846 2. 479.65 3. 36.42 4. 73895 5. 96.5
   6. 16.625
4. 1. 6.328 2. 5.903 3. 8.00246 4. 9.462
5. 1. 3.475 2. 0.896 3. 1.843 4. 25.860
   5. 73.340 6. 9.075

Page No. 75

1. 1. 78.085 2. 173.141 3. 111.88 4. 299.35
2. 1. 1830m 2. 326m16cm
   3. 79m28cm 4. 1003km 201m
   5. 411m 45cm

Page No. 76

1. 1. 60 567 2. 527 663 3. 166 77 4. 666 77
2. 1. 269m 80cm 2. 42m 20cm
   3. 449km 089m

Page No. 77

1. 1. 322 65 2. 382 85 3. 37 24 4. 135 216
   5. 3587 96 6. 1904 14 7. 1004 53 8. 11196
2. 1. 129m 75cm 2. 40m 3. 47m 25cm
   4. 29232km 5. 16579km 136m

Page No. 78

1. 1. 8m 14cm 2. 13km 75cm 3. 37km 425m
   4. 2km 809m 5. 7m 26cm 6. 45m 20cm
   7. 15km 8. 76m 12cm
2. 1. 95cm 2. 1m 23cm 3. 1m 35cm

Page No. 79

1. 1. 140 014 2. 30 833 3. 105 405 4. 642 187
2. 1. 271kg 798g 2. 19g 35cg
   3. 15kg 900g 4. 136kg 500g

1. 1. 663 177 2. 312 114
3. 735 567 4. 302 428

Page No. 80

2. 1. 34.62kg 2. 17kg 250g
3. 57kg 500g

1. 1. 25kg 04g 2. 21kg 200g 3. 25kg 500g
4. 42kg 300g 5. 330kg 750g 6. 9169kg 719g
7. 4941kg 300g 8. 6138kg

Brain Tuner

2

Page No. 81

2. 1. 4dag 8g 75cg 0mg 2. 99kg 375g
3. 21kg 4. 300g 5. 134kg

1. 1. 43kg 200g 2. 54kg 641g 3. 56kg 407g
4. 84kg 610g 5. 40kg 920g 6. 72kg 961g

2. 1. 215g 2. 3kg 7hg 5dag 1g
3. 150g 4. 9dag 7g

Page No. 82

1. 1. 204l 0dl 5cl 2. 254l 6dl 3cl 3. 32l 480ml 4. 1162kl 910l

Page No. 83

2. 1. 299l 4dl 6cl 2. 37l 100ml 3. 22l 150ml

1. 1. 38dl 5cl 6ml 2. 16dl 5cl 7ml 3. 5l 280ml 4. 435kl 157l

2. 1. 87l 3dl 5cl 2. 134kl 400l 3. 43l 3dl 3cl

Page No. 84

4. 6l 700ml 5. 5l 600ml

1. 1. 72l 400ml 2. 77l 640ml 3. 92l 015ml 4. 49l 840ml
5. 164l 97ml 6. 528kl 77l 6. 391l 6dl 8cl 8.1012kl 5hl 2dal

2. 1. 161l 400ml 2. 118kl 2hl 1dal 3. 62l 500ml 4. 6l

Page No. 85

1. 1. 715ml 2. 75l 3ml 3. 21l 96ml 4. 63l 04ml
5. 17l 550ml 6. 8l 3ml 7. 12dal 5l 8dl 8. 10hl 3dal 4l
9. 19l 9dl 7cl 10. 18dl 3cl 4ml

2. 1. 11l 8dl 4cl 2. 69l 57ml 3. 245ml 4. 14km

Page No. 87

1. 1. 60cm 2. 30cm 3. 2cm 4. 120cm
5. 30g 6. 8kg 7. 100g 8. 500g
9. 500ml 10. 100ml 11. 15l 12. 1l

Page No. 89 MCQ - VI

1. 1kg 50g 2. 1kg 170g 3. 2146km 4. 20 crates
5. 2.823km 6. 338,880 sq.metre 7. 171km
8. 68cm 9. metre 10. 135kg

UNIT 11

Page No. 91

1. 1. 11% 2. 98% 3. 23% 4. 47%
   5. 60% 6. 55%
2. 1. 25% 2. 37% 3. 46% 4. 69%
   5. 73% 6. 89%

1. 1. 50% 2. 75% 3. 25% 4. 10%

Page No. 92

1. 1. $\frac{40}{100}$ 40 2. $\frac{70}{100}$ 70 3. $\frac{90}{100}$ 90 4. $\frac{56}{100}$ 56
   5. $\frac{66}{100}$ 66 6. $\frac{75}{100}$ 75 7. $\frac{50}{100}$ 50 8. $\frac{75}{100}$ 75
   9. $\frac{84}{100}$ 84 10. $\frac{86}{100}$ 86 11. $\frac{75}{100}$ 75 12. $\frac{30}{100}$ 30

Brain Tuner

1. 24% 2. 61% 3. 15%

Page No. 93

1. 1. $\frac{20}{100} = \frac{1}{5}$ 2. $\frac{35}{100} = \frac{7}{20}$ 3. $\frac{16}{100} = \frac{4}{25}$

Page No. 94

2. 1. $\frac{10}{100} = \frac{1}{10}$ 2. $\frac{20}{100} = \frac{1}{5}$ 3. $\frac{24}{100} = \frac{6}{25}$ 4. $\frac{55}{100} = \frac{11}{20}$
   5. $\frac{36}{100} = \frac{9}{25}$ 6. $\frac{72}{100} = \frac{18}{25}$ 7. $\frac{75}{100} = \frac{3}{4}$ 8. $\frac{90}{100} = \frac{9}{10}$

1. 1. $\frac{70}{100}$ 70 2. $\frac{50}{100}$ 50 3. $\frac{30}{100}$ 30 4. $\frac{25}{100}$ 25
   5. $\frac{75}{100}$ 75 6. $\frac{45}{100}$ 45 7. $\frac{35}{100}$ 35 8. $\frac{16}{100}$ 16
   9. $\frac{54}{100}$ 54 10. $\frac{63}{100}$ 63 11. $\frac{92}{100}$ 92 12. $\frac{79}{100}$ 79
   13. $\frac{135}{1000}$ 13.5 14. $\frac{167}{1000}$ 16.7 15. $\frac{295}{1000}$ 29.5 16. $\frac{672}{1000}$ 67.2

Page No. 95

1. 1. $\frac{37}{100}$ .37 2. $\frac{49}{100}$ .49 3. $\frac{38}{100}$ .38 4. $\frac{65}{100}$ .65
   5. $\frac{72}{100}$ .72 6. $\frac{15}{100}$ .15 7. $\frac{40}{100}$ .40 8. $\frac{43}{100}$ .43
   9. $\frac{9}{100}$ .09 10. $\frac{6}{100}$ .06 11. $\frac{1}{100}$ .01 12. $\frac{3}{100}$ .03

Page No. 96

1. 1. 9 2. 1 3. 19.20 4. 8 5. 125
   6. 5.12 7. 50 8. 32 9. 15
2. 1. 8 2. 14 3. 45 4. 64 5. 350

Page No. 97

1. 1. 40% 2. 5.71% 3. 66.66% 4. 10% 5. 5%
   6. 20% 7. 50% 8. 20% 9. 33.33%
2. 1. 70% 2. 40% 3. 10% 4. 90% 5. 80%

Brain Tuner

1. 50% 2. 30% 3. 40%

Page No. 99 MCQ - VII

1. 0.07 2. 0.0206 3. 80% 4. 320
5. 40 6. “per 100 parts” 7. 102
8. 272 9. 171 10. 49

UNIT 12

Page No. 101

1. 1. 3:4 2. 1:2 3. 3:2 4. 1:5 5. 3:2
   6. 2:3 7. 2:3 8. 3:5 9. 3:4 10. 4:5
   11. 7:1 12. 3:7
2. 1. 5:2 2. 5:3 3. 1:2 4. 5:1

Page No. 102

3. 1. 8:7 2. 32:7 3. 8:1 4. 4:1
   5. 7:1 6. 7:4
4. 1. 400, 600, 500 2. 4800, 7200
   3. 150, 250

UNIT 13

Page No. 104

1. 1. 8 2. 60 3. 22 4. 21 5. 44
2. 1. 77 2. 56 3. 52 4. 87 5. 85

Fast Food Corner

1. 5841 2. 227 3. 167 4. 100 5. 163

UNIT 14

Page No. 105

1. 1. 156975 2. 6750 3. 36 4. 156 5. 336
   6. 1035 7. 4050

Page No. 106

1. 1. 6 books for ₹ 120 2. 5kg potatoes for ₹ 55
2. 1. 14 hrs 2. 2550 kg 3. 864 km 4. 4 days

Page No. 108

1. 1. Profit, 25 2. Loss, 8 3. Profit, 225 4. Loss, 35
   5. Profit, 220 6. Loss, 24 7. Profit, 73 8. Profit, 270
   9. Loss, 245 10. Loss, 72
2. 1. Profit, 11 2. 122 3. 360 4. Profit, 875
   5. Profit, 675

Page No. 110

1. 1. 1020 2. 1158 3. 1440 4. 1400
2. 1. 13080 2. 13100 3. 13000 4. 24000
3. 1. 17,750 2. 5840 3. 1810 4. 3135 5. 3200

Page No. 111

1. 1. Profit – 25; 6.25% 2. Profit – 55; 10%
   3. Loss – 48; 6% 4. Loss – 42; 12%
   5. Profit – 48; 6% 6. Loss – 500; 20%
   7. Profit – 70; 5% 8. Loss – 50000; 25%

Page No. 112

2. 1. 5% 2. 10% 3. 10% 4. 5% 5. 5%

Page No. 113

1. 1. 28 2. 56 3. 430.50 4. 5175 5. 8325.60
2. 1. 3 2. 11.30 3. 75 4. 3.75 5. 1860
3. 1. 500 2. 335 3. 54.50 4. 579.50 5. 8900

Page No. 114

1. 1. 150 2. 150 3. 68 4. 64 5. 126
   6. 1152 7. 3600 8. 3456 9. 375 10. 10000

Page No. 115 MCQ - VIII

1. 12 2. 6 : 7 3. 82 4. 32 5. ₹ 565
   6. ₹ 1450 7. 4% 8. ₹ 50 9. ₹ 824 10. ₹ 75

UNIT 15

Page No. 118

1. 1. 06:20 2. 14:35 3. 11:55 4. 15:45 5. 07:00
   6. 21:10 7. 12:50 8. 22:20 9. 17:00 10. 17:20
   11. 23:30 12. 13:40 13. 22:00 14. 16:50 15. 20:15
   16. 19:30
2. 1. 1:10 p.m. 2. 6:20 p.m. 3. 2:15 p.m. 4. 7:45 p.m.
   5. 5:40 p.m. 6. 4:30 p.m. 7. 11:30 p.m. 8. 3:40 p.m.
   9. 10:10 p.m. 10. 8:45 p.m. 11. 8:40 p.m. 12. 00:15 p.m.
3. 1. 4a.m. 2. 10:15a.m. 3. 10p.m. 4. 12:30p.m. 5. 8:55p.m. 6. 11:59p.m.
   7. 9:47p.m. 8. 01:10a.m. 9. 1:09p.m. 10. 6p.m. 11. 11a.m. 12. :35a.m.
4. 1. 9:35 2. 00:00 3. 13:50 4. 05:55 5. 21:30 6. 19:20
5. 2. 9:45 p.m.; 21:45 hrs 3. 7:40 p.m.; 19:40 hrs
   4. 8:50 a.m.; 08:50 hrs 5. 2:50 p.m.; 14:50 hrs
6. 1. 2:20 p.m. 2. 18:40 hrs

Page No. 119

1. 1. 111 2. 186 3. 163 4. 90 5. 186 6. 191
   7. 49

Page No. 121

1. 1. 25 2. 47 3. 66 4. 37 5. 20 6. 35
2. 1. 1257 2. 831 3. 644 4. 1763 5. 2198 6. 1044
3. 1. 515 2. 580 3. 445 4. 355 5. 255 6. 190
4. 1. 18925 2. 16550 3. 26740 4. 33917 5. 31225 6. 12045
1. 1. 5 weeks 5 days 2. 11 hrs 14 min. 3. 6 weeks 3 days
   4. 14 hrs 56 min. 5. 4 weeks 2 days 6. 9 hrs 7 min.
   7. 9 weeks 3 days 8. 61 hrs 14 min. 9. 14 days 14 hrs
   10. 16 min. 48 sec. 11. 20 days 20 hrs 12. 2hrs 35min. 45sec.
   13. 27 days 7 hrs 14. 2 hrs 25 min. 15. 18 days 20 hrs

Page No. 122

1. 1. 21 5 15 2. 25 2 15 3. 23 59 8 4. 28 55 13

Page No. 123

2. 1. 4 4 20 2. 4 4 18 3. 2 4 4. 5 4
1. 1. 4 hrs 20 min. 2. 7 hrs 45 min. 3. 9 hrs 50 min. 4. 6 hrs 40 min.
   5. 5 hrs 10 min. 6. 4 hrs 40 min. 7. 10 hrs 15 min. 8. 2 hrs 50 min.
   9. 5 hrs 40 min. 10. 4 hrs 50 min.

Page No. 124 MCQ - IX

1. 13:00 hours 2. 10 3. 100 4. 168
5. 4 hrs 38 min. 6. 12:01 p.m. 7. 400 8. 135 hrs
9. 15 10. 14 hours 42 minutes

UNIT 16

Page No. 126

1. 2. 48 3. 148 4. 340 5. 400 6. 500

Page No. 127

2. 2. 86 3. 220 4. 120 5. 74 6. 148

3. 1. 12cm 2. 14cm 3. 11cm

4. 1. 352cm 2. 290cm 3. 96m 4. 740m 5. Rs 15000

Page No. 128

1. 1. 6 2. 7 3. 8

2. 1. 8 2. 8 3. 6

Page No. 130

1. 1. 25 sq.cm 2. 49 sq.cm 3. 121 sq.cm 4. 225 sq.cm
   5. 81 sq.cm 6. 289 sq.cm 7. 1225 sq.cm 8. 625 sq.cm
   9. 2500 sq.cm 10. 100 sq.cm 11. 3600 sq.cm 12. 10000 sq.cm
2. 1. 1225 sq.cm 2. 3025 sq.cm 3. 576 sq.m 4. 2000 sq.m
   5. 720000 sq.cm
3. 1. 54 sq.cm 2. 108 sq.cm 3. 150 sq.cm 4. 400 sq.cm
   5. 48 sq.m 6. 300 sq.m 7. 1200 sq.m 8. 3375 sq.m
   9. 5940 sq.m
4. 1. 4730 sq.cm 2. 300 sq.m 3. 24200 sq.cm 4. 3196 sq.m
   5. 150 sq.m

Page No. 131

1. 1. Rs 20250
   2. 100000 sq.cm
   3. 25 m sq. plots
   4. Rs 12656.25
   5. 150 sq.m; Rs 6825
   6. 3222
   7. Rs 191100
   8. 5513

Page No. 132

1. 1. 9 2. 6 3. 5 4. 35
   5. 19 6. 45 7. 35 8. 36

Page No. 133

1. 1. 4 sq.cm 2. 4 sq.cm 3. 2 sq.cm 4. 4 sq.cm
   5. 6 sq.cm 6. 6 sq.cm 7. 6 sq.cm 8. 5 sq.cm
   9. 24 sq.cm

Page No. 134

1. 1. 10 sq.cm 2. 11 sq.cm 3. 7 sq.cm
   4. 4 sq.cm 5. 11 sq.cm 6. 6 sq.cm

UNIT 17

Page No. 136

1. 1. smallest 3. biggest

Page No. 137

1. 1. 2 2. 6 3. 12 4. 15
2. 1. 12 cubes 2. 16 cubes 3. 28 cubes 4. 36 cubes
   5. 11 cubes 6. 9 cubes 7. 18 cubes 8. 18 cubes

Page No. 138

3. 1. No 2. Yes 3. Yes 4. No
4. B

Page No. 140

1. 1. 12 cu.cm 2. 18 cu.cm 3. 10 cu.cm 4. 8 cu.cm
2. 1. 20 2. 20 3. 20 cu.cm
3. 1. 6 2. 12 3. 12 cu.cm

Page No. 142

1. 1. 240 cu.cm 2. 32 cu.cm 3. 343 cu.cm

Page No. 143

2. 1. 1440 cu.cm 2. 2880 cu.cm 3. 390 cu.cm
   4. 1802.625 cu.cm 5. 556.875 cu.cm 6. 310 cu.cm
3. 1. 2744 cu.cm 2. 15625 cu.cm 3. 91.125 cu.cm
   4. 1 cu.cm 5. 1.728 cu.cm 6. 274.625 cu.cm
4. 1. 1050 cu.cm 2. 343 cu.cm 3. 528 cu.cm
   4. 499.125 cu.cm 5. 1920 bricks

Page No. 145 MCQ - X

1. 9 cm 2. 16 cm 3. 31 cm 4. 588sq.cm
5. 16 6. 60 cm 7. 800 8. 11 m
9. 36 10. 600 cu.cm

UNIT 18

Page No. 149

2. 1. 23^0C 2. 58^0F 3. 8^0C 4. 62^0F
3. 98^0F 77^0F 25^0F 115^0F 171^0F
4. 1. 25^0F 2. 2:00 p.m., 2^0C 3. 2.9^0F
5. 1. 60^0C 2. 5^0C 3. 0^0C 4. 30^0C

UNIT 19

Page No. 153

1. 1. a line has no end points but a ray has only one end point.
   2. a line and a ray does not have a definite length.

3. a ray does not a definite length but a line segment has a definite length and a ray has only line end point while a line segment has two end points.
4. both are straight.
5. plane has flat surface but line has not any flat surface.

4. Line segment LM, MN, NP, LP, MP, LN
5. Ray ST and Ray SR

Page No. 154

1. 1. (i), (iv)

Page No. 155

2.

	angles	vertex	arms
1.	$\angle PQR$	Q	QP, QR
2.	$\angle RST$	S	SR, ST
3.	$\angle XYZ$	Y	YX, YZ
4.	$\angle AOB$	O	OA, OB
5.	$\angle MON$	O	OM, ON

3. $\angle ROS$, $\angle SOT$, $\angle TOU$, $\angle ROT$, $\angle SOU$, $\angle ROU$
4. 1. line NP, line PN
   2. Rays OQ, OR, ON, OP
   3. $\angle NOQ$, $\angle NOR$, $\angle ROQ$, $\angle POQ$, $\angle NOP$

Page No. 156

1. 1. 180^0 2. Protractor
   3. 180 equal subdivisions 4. 1^0

Page No. 157

2. 1. 80^0 2. 45^0 3. 120^0 4. 110^0
   5. 90^0 6. 140^0

Page No. 158

1. 1. acute 2. obtuse 3. right 4. obtuse 5. obtuse
   6. obtuse 7. straight 8. acute 9. acute 10. obtuse
2. 1. acute 2. obtuse 3. acute 4. straight
   5. right 6. obtuse

Page No. 159

3. 1. right 2. straight 3. acute 4. obtuse
4. 1. acute 2. straight 4. obtuse 4. right
5. 1. $\angle COB$, $\angle DOE$, $\angle AOB$
   2. $\angle DOB$, $\angle COE$, $\angle AOE$
   3. $\angle EOB$, $\angle DOC$

Page No. 161

2. 1. 155^0 2. 65^0

Brain Tuner

90^0 angle

Page No. 164

1. 1. yes 2. no 3. yes 4. no
2. 1. ✓ 3. ✓ 4. ✓
3. 1. false 2. false 3. true 4. true
4. 1. Netaji Marg
   2. Safdarjang Road, Shanti Path, Link Road
   3. Link Road
   4. Safdarjang Road, Shanti Path, Link Road
   5. Prithvi Raj Road, Between Netaji Marg and Prithvi Raj Road

Page No. 170

1. 1. true 2. false 3. true 4. false 5. true
   6. true 7. false
2. 1. closed 2. longest 3. equal 4. centre
   5. two 6. chord

Page No. 171

5. 1. AO, OB, DO, OC 2. AB, CD 3. DB, CB
6. a. AO, OE, HO, GO, OC, FO, OB
   b. AOE, HOD, GOC c. AB, FE
7. AB, BC, CD, DA, Chords = 6, Diameters = 2, AC, DB
8. 1. 5 cm 2. 7 cm 3. 16 cm 4. 21.5 cm 5. 25.5 cm
   6. 32.5 cm 7. 53.5 cm 8. 64 cm
9. 1. 8 cm 2. 14 cm 3. 26 mm 4. 5 cm 5. 12.4 m
   6. 1 m 7. 50 mm 8. 19 cm
10. 1. 6 cm 2. 33 cm 3. 16.34 cm 4. 25.14 cm 5. 332.57 cm
    6. 29.54 cm

Page No. 174

1. 1. ΔPQR 2. PQ, QR, RP
   3. $\angle P$, $\angle Q$, $\angle R$ 4. P, Q, R
2. ΔNST, ΔRSM, ΔRST, ΔSTO, ΔRST, ΔTOU, ΔROU, ΔTRU, ΔTUP, ΔRQU, ΔSPQ, ΔSQU, ΔSPU, ΔNRT, ΔMRT, ΔSOR

Page No. 177

1. 1. true 2. true 3. false 4. false
   5. true 6. true
2. 1. triangle 2. vertices 3. equal 4. right 5. two
3. 1. Scalene 2. Right angled 3. Acute angled
   4. Obtuse angled 5. Equilateral

Page No. 178

4. 1. one 2. three 3. right angled
5. 1. equilateral 2. isosceles 3. scalene 4. scalene
6. 1. isosceles 2. scalene 3. equilateral 4. isosceles

7. 1. right angled 2. acute angled
   3. obtuse angled 4. acute angled
8. 1. right angled 2. obtuse angled
   3. acute angled

Page No. 181

1. 1. yes 2. no 3. no 4. no
   5. yes 6. no
2. 1. 60^0 2. 70^0 3. 40^0 4. 60^0
   5. 25^0 6. 62^0

Brain Tuner

45^0

Page No. 182 MCQ - XI

1. 105^0 2. $91^0, 65^0, 24^0$ 3. AB
4. an acute 5. 4.5 6. 90^0 7. a line segment
8. 100^0 9. a chord 10. isosceles

UNIT 20

Page No. 183

1. 1. ✓ 3. ✓

Page No. 184

1. 1. ✓ 3. ✓

Page No. 185

1. 2. ✓ 3. ✓ 2. 1. yes 2. Yes 3. No

Page No. 186

1. 1. ✓ 2. ✗ 3. ✗ 4. ✓

UNIT 21

Page No. 191

1. Triangular number 6, 10, 15, 21, 28, 36, 45
   Square number 4, 9, 16, 25, 36, 49

Page No. 192

1. 1. 10, 15, 21, 28, 36, 45, 55
   2. 16, 25, 36, 49, 64, 81, 100
   3. odd numbers 4. even numbers
2. 1 = 1 2 = 4 3 = 9 4 = 16 5 = 25
   6 = 36 7 = 49 8 = 64 9 = 81 10 = 100
3. 1. 25, 26 2. 21

SUMMATIVE ASSESSMENT-2

Page No. 196

1. 1. Interest 2. diameter 3. 13:00 hrs
   4. acute 5. meter
2. 1. 100 2. 0.0206 3. ₹ 1450
   4. isosceles 5. 16
3. 1. $\frac{72}{100} = \frac{18}{25}$ 2. 479.65 3. 36.42
   4. 73895 5. 15310 sec. 6. 73.340
4. 1. 5175 2. 75 3. 54.50
   4. 1152
5. ∠ROS, ∠SOT, ∠TOU, ∠ROT, ∠SOU, ∠ROU
6. 2. 70^0 6. 62^0
7. a. AO, OE, HO, GO, OC, FO, OB, OD
   b. AOE, HOD, GOC
   c. AB, FE
8. 1. 10, 15, 21, 28, 36, 45, 55
   2. 16, 25, 36, 49, 64, 81, 100
9. 1. 3:2 2. 3:5 3. 3:4 4. 3:7
10. 1. 60 2. 21
11. 1. Loss – 48; 6% 2. Profit – 70; 5%
12. 1. 9 2. 108 3. 35
14. 1. 390 cu.cm 2. 15625 cu.cm
15. 1. acute 2. obtuse 3. right
17. 1. 5% 2. 5 hrs 10 min. 3. 740m
    4. 150 sq.m; ₹ 6825 5. 2.9^0F

GENERAL SCIENCE

8. SOLIDS, LIQUIDS AND GASES

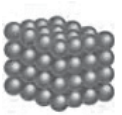
A. 1. wood 2. increases 3. condensation
4. contraction 5. expand

B. 1. matter 2. Atoms 3. decreasing
4. increase 5. Heating, cooling

C. 1. c 2. e 3. d
4. a 5. b

D. 1. Molecules in a solid cannot move freely because in solids, molecules are packed closely together.
2. A liquid does not have its own shape but has fixed volume. It takes the shape of its container because the molecules are not very tightly packed. They move freely.
3. A solid changes into a liquid as the temperature increases because the states of matter are interchangeable.

E. 1. Matter is made up of tiny particles known as molecules.
2. Solids, liquids and gases are the three forms of matter.
3. In solids, molecules are packed closely together. They cannot move freely but can only vibrate.
In liquids, molecules are not very tightly packed. They can move freely.
In gases, molecules are very loosely packed and can move freely in all directions.



Arrangement of molecules in solids

Arrangement of molecules in liquids

Arrangement of molecules in gases

4. All matters can be changed from one state to another by heating or cooling. So, we can say that the states of matter are interchangeable. Examples are as follows-
   * Melting is the change that occurs when a solid changes into a liquid as the temperature increases.
   * Evaporation is the process by which water changes into vapour due to heat.

* Condensation is the process by which water vapour change back into droplets of water on cooling.
* Freezing is the change that occurs when liquid changes into a solid as the temperature decreases.

5. The changes of states are temporary because cooling or heating reverses the changes.
6. The increase in size of matter on heating is called expansion. The decrease in size of matter on cooling is called contraction.

9. FORCE, WORK AND ENERGY

A. 1. magnetic 2. less 3. lubricants
4. fulcrum 5. energy

B. 1. electrostatic 2. force 3. Work
4. Friction 5. inclined

C. 1. Push, Pull 2. Wind, Water 3. Screw, Wedge
4. Wheelbarrow, Bottle opener 5. Axe, Knife

D. Lever : scissors, fishing rod, bottle opener
Inclined plane : slide, ramp, screw
Wheel and axle : bicycle wheel, egg beater
Wedge : axe, blade

E. 1. Screw 2. Pulley 3. Wedge
4. Wheel and axle

F. 1. Magnetic force 2. Electrostatic force 3. Frictional force

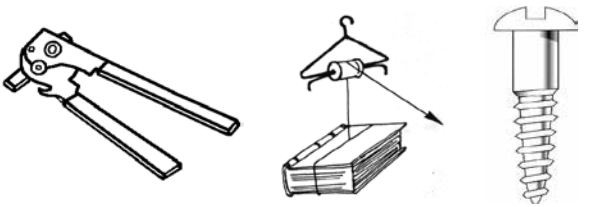
G. 1. A push or pull that changes the state of motion of an object is called a force. A force can –
- make a stationary object move.
- change the shape and size of an object.
- stop movement or make a moving object change its speed.
- change the direction in which an object is moving.

2. Sir Isaac Newton was the first to discover the law of gravity. Law of gravity means that every object attracts another object towards it, using a force, called gravity. Gravity acts between everything in the universe. All the planets including the earth are held in their orbit around the sun because of gravity.
3. Friction is helpful in our daily life. It-
   * helps us to grasp things.
   * helps us to walk.
   * produces heat.
   * helps cars to move and stop.
   * helps in writing.
4. Two ways to reduce friction are :
   * The moving parts of machines are oiled and greased regularly to reduce friction.

* Ball bearings and smooth metal balls are placed between the moving parts of machines to reduce friction.

5. Potential energy is stored energy. It is waiting to be converted into power while kinetic energy is the energy of motion. The amount of kinetic energy depends upon the mass and speed of an object.
   In first order lever the fulcrum is between the load and the effort. In second order lever load lies between the fulcrum and the effort.
6. A *machine* is a device by which a small force applied at convenient point can be used to overcome a large force at some other point. It makes our *work easier*. Lever, inclined plane, pulley, wheel and axle, screw and wedge are some examples of simple machines.
7. The screw is one of the most commonly used mechanical devices in the world because they are used to lower and raise things. They are also used to hold objects together.
8. A pulley consists of a *grooved wheel* with a *rope round it*. It is a machine used for lifting a load straight up. A grooved wheel is fixed to a support high up. A rope goes round the wheel. The load is fixed to one end of the rope. The effort is applied downwards at the other end of the rope. It pulls the load upwards. The load and the effort move equal distances but in opposite directions.

H.



10. AIR AND WATER

A. 1. troposphere 2. 78% 3. oxygen
   4. oil 5. rain water

B. 1. wind 2. gases, water vapour
   3. oxygen 4. air-pressure 5. solvent
   6. filterate

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

D. 1. The greenhouse gases are necessary for survival on earth because without the greenhouse gases such as water vapour, carbon dioxide, methane and nitrous oxide, the earth would be too cold for the survival of living organism.

2. Air is the very life of all plants because it is very useful for green plants. They take carbon dioxide from the air in making their food in the presence of sunlight.
3. Water in lakes, streams and rivers is unfit for drinking because it carries insoluble materials like sand, leaves, dung, dead plants, etc. and it may take harmful germs.

E. 1. Atmosphere is a thin layer of gases that surrounds the earth. It is important for us because it traps energy and maintains a suitable temperature to live on the earth.
2. The air in exosphere is cold although the temperature here can increase a lot because the hot molecules are far away and floating here and there.
3. Air is necessary for all of us. We cannot live without it. Air contains oxygen which is used by most organisms for respiration and carbon dioxide used by plants for photosynthesis.
4. Nitrogen, oxygen, with traces of water vapour, carbon dioxide, argon, and various others are the components of air.
5. Water vapour is present in air at all times. Take a glass and put some ice cubes into it. Place it in the open air. Let it remain undisturbed for a few minutes. Now observe the outside of the glass. Drops of water shall be seen clinging there. Where have they come from? The water vapour in the air has condensed into water drops.
6. Some examples to show the uses of air pressure are -
   Inflating tyres, playing musical "wind" instruments, drinking through straws, flushing toilets, blowing up balloons, breathing, etc.
7. Salt, sugar, soda, etc. are very common things that dissolve in water.
8. The methods to purify water are :
   * Sedimentation * Filtration * Distillation
   * Boiling * Chemicals
   Sedimentation : Take the impure water in some vessel. Leave the vessel undisturbed for sometime. The impurities settle down and clean water stays above them. This process is known as *sedimentation.*
   Boiling : Boiling kills most of the disease germs in water. Boil the impure water for 10 -15 minutes. The germs get killed and the water becomes pure. Filter this water. It is fit for use now.

9. Distilled water is not at all good for drinking purposes because it loses all its minerals that are necessary and useful to us.
10. We can separate soluble substance by distillation method. Take some water in a glass and dissolve some salt in it. Put the salt solution in retort whose tube goes into the mouth of a flask. The glass is kept cool by putting cold water upon it. Heat the retort. The water will be evaporated. The vapour will pass into the cold flask and the salt is left behind.

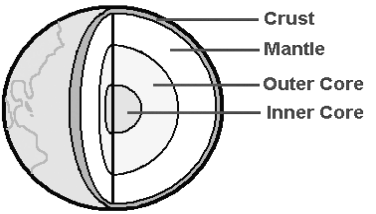
11. SUN AND PLANETS

A. 1. sun 2. core 3. mercury
4. neptune 5. earth

B. 1. greater 2. 71% 3. outer core
4. Phobes, Deimos 5. Uranus

C. 1. The planets revolve around the sun because the gravity of the Sun keeps them in their orbits. Just as the moon orbits the earth because of the pull of earth's gravity, the earth orbits the sun because of the pull of the sun's gravity.
2. Jupiter is called a gas giant because it does not have a solid surface. Under its atmosphere is a large liquid ocean of hydrogen and water.

D. 1. The natural objects visible in the sky are called celestial or heavenly bodies. Stars, planets and moons are all heavenly bodies. The sun and the eight planets together form our solar system.
2. Earth is the only planet to have life because plants, animals and people all live on the earth.
3. Earth looks like a blue ball because seventy-one percent of the earth's surface is covered with water.
4. The three layers of the earth are crust, mantle and core.



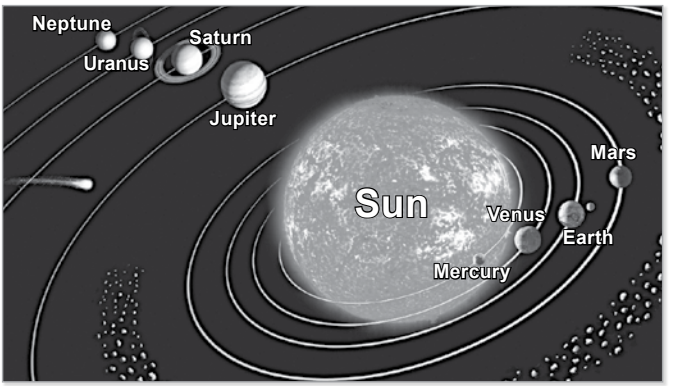
Crust : Crust is the outermost and the thinnest layer of the earth. It occupies less than one percent volume of the earth. It is made of rocks and contains everything essential for life.

Mantle : Inside the crust is the mantle, the largest layer of the earth. It occupies nearly eighty percent volume of the earth.

Core : The centre of the earth is known as the core.

5. The ozone layer protects life on earth from the harmful effects of the ultraviolet rays of the sun.

6. Mars is considered the Red planet because the 'iron oxide' found on its surface gives it a reddish appearance.

7. 

Solar system

E. 1. Moon 2. Mantle 3. Venus
4. Jupiter 5. Saturn 6. Neptune

12. THE MOON AND SHADOW

A. 1. a gibbous moon 2. 1957 3. solar eclipse
4. lunar eclipse
B. 1. Craters 2. Soviet Sputnik 1
3. Umbra 4. Neil Armstrong 5. Full moon
C. 1. moon 2. light 3. 27, 17, 43
4. straight 5. longer

D. 1. The earth's gravity acts on the moon and the moon's gravity acts on the earth. The earth being bigger in size, its gravity is stronger than that of the moon. As a result the moon's motion is dominated by the earth.

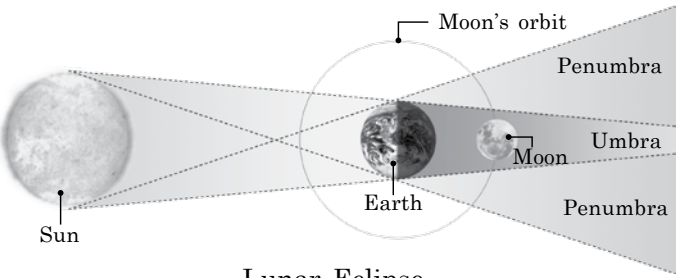
2. The moon has almost no atmosphere, because of its weak gravity. Without an atmosphere, there is no wind or water erosion. So, there is 'no change in the moon's surface' for billions of years.

3. The changing shape of the bright part of the moon that we see is called its phase. The phases of the moon depend on its position in relation to the sun and earth. As the moon makes its way around the earth, we see the bright parts of the moon's surface at different angles. These are called "phases" of the Moon.

The different phases of the moon have different names. As the moon waxes the moon moves through the new moon, crescent moon, first-quarter moon, gibbous moon and full

moon phases. From here the moon wanes through the gibbous moon, third-quarter moon, crescent moon and new moon phases. Half moon is often used to mean the first-quarter and third-quarter moons.

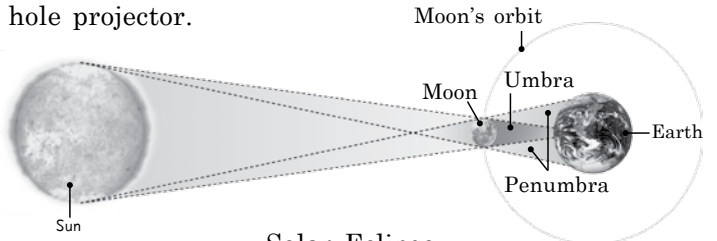
4. When the bright part is getting bigger, the moon is *waxing*. When the bright part is getting smaller, the moon is *waning*.
5. Artificial Satellites are *human built objects* orbiting the earth and other planets in the solar system. These get into orbit with the help of a rocket or a space shuttle. These are used for studying the earth as well as other planets. Artificial satellites can have a range of missions, including scientific research, weather observation, military support, navigation, earth imaging and communication.
6. Take three card-boards cut in equal size. Place them one over the other and drill a hole in all the three card-boards. Now place them in stands. Their holes must be in the same straight line.
   Place a lighted candle on one side of the card-boards. The rays of its light travel to all sides. One or two of them passes through the holes of the card-boards also.
   Look through the hole of the last card-board. You will be able to see the light. Why? It is because the light travels in a straight line.
7. The shadow of an object in light has two regions. The central dark region is called *umbra*. The outer less dark region is called *penumbra*.
8. A lunar eclipse occurs at night. It occurs when the moon passes through the shadow of the earth. A lunar eclipse lasts for a short time. During a lunar eclipse the moon may turn a reddish colour. It is not dangerous at all to look at a lunar eclipse because the moon does not make its own light.



Lunar Eclipse

A solar eclipse occurs during the day. It occurs when the moon goes in front of the sun and blocks most of the sun's

light from the earth. During a total eclipse all you can see from earth is a ring of light around the moon which is part of the sun the moon did not cover. It is dangerous to look at a solar eclipse directly, even if you have sun glasses or smoked glass. It is better to view solar eclipses through a pin hole projector.



Solar Eclipse

E. 1. Gibbous moon 2. Crescent moon 3. Half moon
4. Full moon 5. New moon

13. EARTH ALERTS

A. 1. dormant 2. focus 3. aftershock
4. eight 5. Pacific
B. 1. plates 2. Magma 3. Richter scale
4. Ring of Fire 5. tsunami
C. 1. Mount Etna in Italy
2. Mount Mauna Kea located in the Hawaiian Islands in USA
3. Mt. Kilimanjaro in Africa
D. 1. Molten rock below the surface of the earth that rises in volcanic *vents*, is known as *magma*.
2. An *aftershock* is a smaller earthquake that may occur after a previous large earthquake, in the same area of the main shock. This occurs when the earth's crust adjusts to the effects of the main shock.
3. Any form of precipitation that contains harmful substances such as carbon dioxide, nitrogen and sulphur oxides is known as acid rain.
4. A scale used to express the total amount of energy released by an earthquake is known as Richter Scale. It has eight levels – the lowest or 1 indicates a quake that is almost not felt and at level 8, it indicates a very strong earthquake.
5. The point at the earth's surface directly above the focus is called the *epicentre*.
6. A tsunami is a series of large sea waves caused by a submarine earthquake or volcanic explosion. It is a Japanese word meaning *tidal wave*.

E. 1. When the earth's plates move abruptly, they give rise to volcanic eruptions, earthquakes and tsunamis known as natural calamity.

2. Volcanic eruptions can cause blasts, hot ash flows, mud slides, avalanches, falling ash and floods.

3. The three major types of volcanoes are :
   Active Volcanoes :
   The volcanoes that erupted recently and may erupt again soon, are called *active volcanoes*.
   Dormant Volcanoes :
   The volcanoes that are quiet for many years and may erupt again in future are called *dormant* or *sleeping volcanoes*.
   Extinct Volcanoes :
   The volcanoes that have not erupted for the last 10000 years or more are called *extinct* or *dead volcanoes*.

4. Earthquake is a *sudden shaking* and *vibration* of the earth's surface. Earthquakes occur when the moving *tectonic plates* that make up the surface of the earth move apart or bump into each other, or slide under each other.

5. The effect of tremor is greatest at the *epicentre*. Maximum destruction occurs at and around the epicentre. Within no time, houses collapse, roads, bridges are damaged and thousands of people die. Very high intensity earthquakes damage the entire city and town.

6. Long high sea waves caused by a submarine earthquake is the reason for a tsunami.

7. A volcano causes fire and destroys everything. Buildings are destroyed and people are made homeless. Poisonous gases kill people and animals. They cause acid rain and cause various illness to survivors. An earthquake destroys houses, roads, bridges and thousands of people die. Tsunami destroy boats, buildings, houses, cars, etc. and whatever is on the sea coast.

14. KNOWING THE ENVIRONMENT

A. 1. animals 2. pesticides 3. biogas
4. plants 5. ozone layer

B. 1. components 2. high
3. oxygen, carbon dioxide 4. global warming
5. plastic bags

C. 1. Weakening of the ozone layer which protects the earth from the harmful rays of sun getting earth hotter day by day.

2. Poisonous chemicals released from the factories, pesticides used in farming, dumping wastes near water bodies etc. contaminate the soil and ground water.

D. 1. Our environment includes living and non-living things around us. Microbes, plants, animals and humans are living things. Air, water and land are non-living things.

2. Environment has two types of components - Biotic and Abiotic. Biotic means related to living things such as humans, plants, animals and microbes. Abiotic means related to non-livings. It includes air, water, soil, wind etc. Biotic components of the environment cannot survive without abiotic components. So, these two components have an effect on each other.

3. Large crowded cities, industries, scientific inventions, etc. lead to disturbance in the environment.

4. Ozone layer performs the vital role of protecting humans and other living things from the harmful ultraviolet rays of the sun.

5. Industries use a lot of water and release the water mixed with *poisonous chemicals* in rivers or in fields, causing harm to the life forms found in the environment. People dump wastes near water bodies, making them dirty.

6. To save the existence of life on earth we should take the following steps :
   Use alternate sources of energy like biogas, wind energy, solar energy and energy from water.
   Keep the water bodies clean and use them carefully.
   Keep the environment *clean* and *green*.
   We should not use plastic bags, it is poisonous and does not decay easily. Use paper, jute or canvas bags.

- Encourage use of *non-polluting fuel*.
  Save energy by *switching off the lights* when you are not using them.
- *Walk* or *use bicycle* if the journey is a short one.

SUMMATIVE ASSESSMENT - 2

A.	1. 78%	2. expand	3. magnetic
	4. earth	5. a gibbous moon	
B.	1. high	2. Richter scale	3. straight
	4. oxygen	5. inclined	
C.	1. F	2. T	3. F
	4. T	5 F	

D 1. Atmosphere is a thin layer of gases that surrounds the earth. It is important for us because it traps energy and maintains a suitable temperature to live on the earth.

2. A *machine* is a device by which a small force applied at convenient point can be used to overcome a large force at some other point. It makes our *work easier*. Lever, inclined plane, pulley, wheel and axle, screw and wedge are some examples of simple machines.

3. The natural objects visible in the sky are called *celestial* or *heavenly bodies*. Stars, planets and moons are all heavenly bodies. The sun and the eight planets together form our *solar system*.

4. The increase in the average temperature of the earth's surface, air and ocean is known as global warming.

5. The point at the earth's surface directly above the focus is called the *epicentre*.

E. 1. The planets revolve around the sun because the gravity of the Sun keeps them in their orbits. Just as the moon orbits the earth because of the pull of earth's gravity, the earth orbits the sun because of the pull of the sun's gravity.

2. Poisonous chemicals released from the factories, pesticides used in farming, dumping wastes near water bodies etc. contaminate the soil and ground water.

3. A liquid does not have its own shape but has fixed volume. It takes the shape of its container because the molecules are not very tightly packed. They move freely.

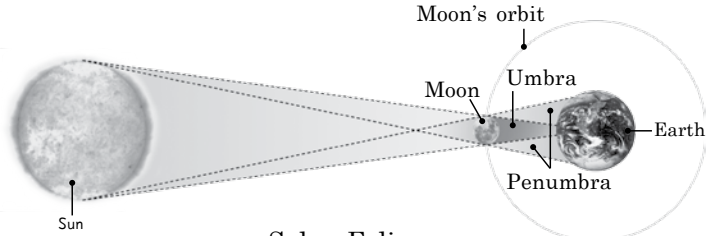
4. Air is the very life of all plants because it is very useful for green plants. They take carbon dioxide from the air in making their food in the presence of sunlight.

F. 1. Screw 2. Pulley 3. Wedge
4. Wheel and axle

G. 1. Craters 2. Neptune 3. Oxygen
4. Soviet Sputnik 1 5. Mercury

H. 1. Moon 2. Mantle 3. Venus
4. Jupiter 5. Saturn 6. Neptune

I.



Solar Eclipse

J. 1. Screw, Wedge 2. Wheelbarrow, Bottle opener
3. Axe, Knife 4. Mount Etna in Italy, Sakurajima, Japan
5. Push, Pull

K. 1. Potential energy is stored energy. It is waiting to be converted into power while kinetic energy is the energy of motion. The amount of kinetic energy depends upon the mass and speed of an object.

2. When the bright part is getting bigger, the moon is waxing. When the bright part is getting smaller, the moon is waning.

3. The volcanoes that erupted recently and may erupt again soon, are called active volcanoes.
The volcanoes that are quiet for many years and may erupt again in future are called dormant or sleeping volcanoes.

L. 1. To save the existence of life on earth we should take the following steps :
Use alternate sources of energy like biogas, wind energy, solar energy and energy from water.
Keep the water bodies clean and use them carefully.
Keep the environment clean and green.
We should not use plastic bags, it is poisonous and does not decay easily. Use paper, jute or canvas bags.

- Encourage use of non-polluting fuel.
Save energy by switching off the lights when you are not using them.
- Walk or use bicycle if the journey is a short one.

2. Artificial Satellites are human built objects orbiting the earth and other planets in the solar system. These get into orbit with the help of a rocket or a space shuttle. These are used for studying the earth as well as other planets. Artificial

satellites can have a range of missions, including scientific research, weather observation, military support, navigation, earth imaging and communication.

3. The three layers of the earth are crust, mantle and core.
   Crust : Crust is the outermost and the thinnest layer of the earth. It occupies less than one percent volume of the earth. It is made of rocks and contains everything essential for life.
   Mantle : Inside the crust is the mantle, the largest layer of the earth. It occupies nearly eighty percent volume of the earth. (for diagram Lesson-11 Q-D part 4)
4. The methods to purify water are :
   * Sedimentation * Filtration * Distillation
   * Boiling * Chemicals
   Sedimentation : Take the impure water in some vessel. Leave the vessel undisturbed for sometime. The impurities settle down and clean water stays above them. This process is known as sedimentation.
   Boiling : Boiling kills most of the disease germs in water. Boil the impure water for 10 -15 minutes. The germs get killed and the water becomes pure. Filter this water. It is fit for use now.
5. All matters can be changed from one state to another by heating or cooling. So, we can say that the states of matter are interchangeable. Examples are as follows-
   * Melting is the change that occurs when a solid changes into a liquid as the temperature increases.
   * Evaporation is the process by which water changes into vapour due to heat.
   * Condensation is the process by which water vapour change back into droplets of water on cooling.
   * Freezing is the change that occurs when liquid changes into a solid as the temperature decreases.

SOCIAL STUDIES

12. EQUATORIAL REGIONS

A. 1. sun 2. temperature 3. evergreen
4. habitat 5. torrid

B. 1. hot and humid 2. forest layer 3. anaconda snake
4. Pygmies 5. tsetse flies

C. 1. c 2. a 3. d
4. e 5. b

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

E. 1. The equatorial forest region is located in the torrid zone between the Tropic of Cancer and the Tropic of Capricorn.
2. The climate is hot and humid in the equatorial region because of its great uniformity of temperature. There are no seasons in this region.
3. The high temperature and heavy rainfall are the two main factors responsible for the luxuriant vegetation in the equatorial region.
4. The equatorial forest is a natural habitat for gorillas, chimpanzees, monkeys, elephants, flying foxes, alligators, snakes turtles, etc. Colourful birds like toucans, humingbirds, macaws and parrots are found in these forests.
5. Tea, coffee, rubber and cocoa are four plantation crops.

13. DESERT REGIONS

A. 1. 25 centimetres 2. equator 3. Sahara
4. oasis 5. Africa

B. 1. 9,100,000 2. $40^{o}C - 50^{o}C$ 3. small leaves
4. active at night 5. oasis

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

D. 1. A desert is actually a piece of land, no matter hot or cold, that has small amount of precipitation throughout the year.
2. Australia - Great Australian Desert
Africa - Sahara Desert
Asia - Thar Desert
3. The climate of a hot desert is extremely hot and dry with cold nights. A desert heats rapidly during the day time and similarly cools rapidly during the night.

4. An area in a desert where the underground water comes to the surface is called an oasis.
5. Its ability to store water in the stomach, store food in the hump, its broad padded feet with long legs to walk in the sand, and eyes with eyelids which protect eyes during sandstorms, make a camel the ideal form of transport in deserts.

14. GRASSLAND REGIONS

A. 1. grasslands 2. Grasslands 3. chinook
4. Prairie 5. Argentina

B. 1. Antarctica 2. Downs 3. Prairies
4. cattle 5. grasses 6. coasts

C. 1. d 2. e 3. a
4. b 5. c

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

E. 1. We find grasslands, in north temperate zone and south temperate zone. Pampas, Velds, Downs, Prairies and Steppes are the different types of grasslands.
2. Prairies is called the Wheat Basket of the World because they grow crops such as wheat, barley, rye, flax, oat and other nutritious grasses.
3. The grasslands of the Southern Hemisphere have moderate climate throughout the year because they are located near the coasts.
4. Ranches are big traits of land covering a few kilometres.
5. Giraffe, elephant, zebra, grizzly bear, deer and bison are some grazing animals of grasslands of the Northern Hemisphere.

15. POLAR REGIONS

A. 1. frigid 2. Antarctica 3. penguins
4. ocean 5. Inuits

B. 1. Lapps 2. to kill animals 3. Inuits
4. Huskies 5. Kayak

C. 1. d 2. a 3. e
4. b 5. c

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

E. 1. Global warming is the warming of earth by gases that have been released into the atmosphere. These gases trap heat and so earth warms up.
2. It is not possible to grow crops in a frigid zone because of the severe cold.

3. Lapps, Samoyeds, Yakuts, Chukchis and Nenets are some tribes found in the polar regions.
4. Right at the poles, the sun shines for half the year and it is dark for the other half of the year. This makes the year like one day.
5. They live in permanent wooden houses, use automatic rifles to hunt animals and motorboats for fishing. Many of them work in mines and oil fields.

16. EARTH'S FOUR SPHERES

A. 1. hydrosphere 2. atmosphere 3. lithosphere
4. biosphere 5. life

B. 1. rivers 2. water vapour 3. blue
4. crust 5. atmosphere

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

D. 1. Hydrosphere, atmosphere, lithosphere and biosphere are the four spheres of our environment.
2. Hydrosphere is the part of the earth's surface which is covered with water. Life exists on the earth because of the presence of water.
3. The clouds become bigger and heavier as more water droplets gather together. When the droplets in the clouds become very heavy, they fall to the earth in the form of rain. Most of the water that falls on the land surface goes back into lakes, rivers and oceans. It again evaporates and again comes down as rain. This goes on repeating. This repeated change of water to water vapour, and then back to water, is called water cycle.
4. The uppermost solid layer of the earth is called lithosphere. It is formed of rocks and soil.
5. Abiotic components are non-living things namely air, water, land, soil, rocks, minerals, sun and light. Biotic components are living things, namely humans, animals and plants. Biotic components of the environment cannot survive without abiotic components.

17. OUR GOVERNMENT

A. 1. Union 2. President 3. coalition
4. Governor 5. Supreme

B. 1. people 2. 35 years 3. 25 years
4. High Court 5. President of India 6. President

C. 1. c 2. a 3. e
4. b 5. d

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

E. 1. The President of our country is elected by the members of the two houses of Parliament (MPs) and State Legislative Assemblies (MLAs).
2. The President appoints the Prime Minister.
3. The Lieutenant Governor is the head of the union territory.
4. Members of Parliament (Lok Sabha) are elected by the people of India by voting system.
5. The Judiciary takes care of the maintenance of law and order in the country. It consists of a network of judicial bodies or law courts.

18. GREAT INVENTIONS

A. 1. 105 AD in China 2. Bible
3. Charles Babbage 4. Karl Benz
5. Thomas Alva Edison

B. 1. China 2. trains 3. aeroplane
4. JRD Tata

C. 1. c 2. d 3. e
4. b 5. a

D. 1. Flyer was the name of the first plane.
2. Robert Hutchings Goddard invented the world's first liquid-fueled rocket.
3. Before the invention of paper, people used to write on clay, papyrus, wood, slate, leaves and parchment. The Romans wrote on waxed tablets with a pointed pen for temporary notes and messages.
4. Alexander Graham Bell, the inventor of telephone has proven a boon to the entire mankind. It is the most popular and widely used means of communication and has literally changed the world and made it smaller.
5. A steam engine is a heat engine that makes use of the potential energy that exists as pressure in steam, converting it to mechanical work. Steam engines were used in pumps, locomotive trains and steam ships.

19. MODERN COMMUNICATION

A. 1. e-mails 2. personal 3. Telephone
4. Internet 5. mass

B. 1. mobile phone 2. mass 3. Internet
4. literate people 5. relay

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

D. 1. Radio, television, newspapers and other print media are various means of mass communication.
2. Cell phones played an important impact on our lives. It is one of our most valuable means of communication. In just a few seconds, we can telephone a person across the street, in another part of the country, or in another continent. Cell phones have given new meaning to the term multitasking.
3. Internet is helpful for us in many ways -
   a. We can book railway and air tickets.
   b. We can get all the information about the time of arrival or departure of trains and flights.
   c. We can do our bank work online instead of going to the bank. We can check our accounts, pay our bills etc.
   d. Every major news channel on TV has a website which we can access at any time to keep ourselves updated.
   e. We can buy things online by just placing our order at a website. The things we order are delivered at our doorstep.
4. Electronic mail, commonly called email or e-mail, is a method of exchanging messages from one to one or more recipients. We can send the e-mail through Internet.
5. Satellites are the bodies placed in orbit that move round the earth or another planet to collect information or for communication.

20. THE UNITED NATIONS

A. 1. 1945 2. six 3. Security
4. 54 5. Secretariat

B. 1. 1945 2. New York 3. 15
4. General Assembly 5. One

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

D. 1. The UN charter was formed on 24 October, 1945.
2. The main functions of the General Assembly of the UN are -
   * To admit new members.
   * To appoint Secretary General of the UN on the recommendation of the Security Council.
   * To elect ten temporary members for the Security Council.
   * To pass the annual budget.
   * To receive and discuss reports of main bodies of the UN.
3. The main role of International Court of Justice is to settle disputes which are referred to it. It acts when both the parties agree to go to it for a decision.

4. The six official languages of the UN are English, French, Russian, Spanish, Chinese and Arabic.
5. The UNESCO stands for the United Nations Educational, Scientific and Cultural Organization.
   The WHO stands for The World Health Organisation.
   The ILO stands for The International Labour Organisation.
   The IAEA stands for The International Atomic Energy Authority.

21. WORLD CELEBRATIONS

A. 1. Earth 2. Worker's 3. human beings
   4. global
B. 1. WHO 2. increased 3. May Day
C. 1. d 2. a 3. e
   4. c 5. b
D. 1. Earth Day is celebrated because it is the only planet which sustains all living things including the humans. The celebration raises awareness about conservation efforts and help protect the environment by preserving natural resources.
2. World Health Day is celebrated every year on April 7 under the sponsorship of the World Health Organisation (WHO).
3. On this day workers, particularly those who work in factories, mills and workshops with their unions bring out a procession to mark their demands.
4. The main objective of the Human Rights Day is to help promote discrimination free societies and a world of equal treatment for all.
5. The key aspect of the observance of International Literacy Day is the need to mobilise public opinion in favour of the struggle against illiteracy.

SUMMATIVE ASSESSMENT - 2

A. 1. 15 2. atmosphere 3. trains
   4. people 5. husky
B. 1. equator 2. mass 3. evergreen
   4. atmosphere 5. Governor
C. 1. T 2. T 3. F
   4. T 5. T
D. 1. Steam engine 2. Telephone
   3. Paper 4. Computer

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

F. 1. The UNESCO stands for the United Nations Educational, Scientific and Cultural Organization.
The WHO stands for The World Health Organisation.
The ILO stands for The International Labour Organisation.

G. 1. Right at the poles, the sun shines for half the year and it is dark for the other half of the year. This makes the year like one day.
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