



Class: 7 KEY ANSWERS TERM : II

Chapter - 1 Numbers System

Page No: 2 and 3

Exercise: 1.1

1. a) $\frac{3}{6} = \frac{1}{2} = 0.5$ b) $\frac{7}{10} = 0.7$
 c) $\frac{2}{5} = 0.4$ d) $\frac{4}{10} = 0.4$
 e) $\frac{7}{14} = \frac{1}{2} = 0.5$ f) $\frac{6}{20} = \frac{3}{10} = 0.3$

2.

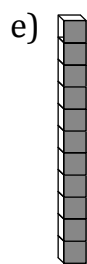
S.No	Fraction	Decimal Form
i)	$\frac{4}{5}$	0.8
ii)	$\frac{6}{10}$	0.6
iii)	$\frac{8}{16}$	0.5
iv)	$\frac{9}{10}$	0.9
v)	$\frac{6}{30}$	0.2

S.No	Decimal Form	Fraction
i)	0.4	$\frac{4}{10} = \frac{2}{5}$
ii)	0.1	$\frac{1}{10}$
iii)	0.7	$\frac{7}{10}$
iv)	0.3	$\frac{3}{10}$
v)	0.2	$\frac{2}{10} = \frac{1}{5}$

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Exercise: 1.2

1. a) 3 ones 7 tenths
 b) 5 tenths
 c) 8 ones 4 tenths
 d) 2 ones 6 tenths
 e) 1 tens 2 ones 1 tenths
2. a) 0.2 = 2 tenths
 b) 4.3 = 4 ones 3 tenths
 c) 7.9 = 7 ones 9 tenths
 d) 13.5 = 1 tens 3 ones 5 tenths



$$11.6 = 1 \text{ tens} \quad 1 \text{ ones} \quad 6 \text{ tenths}$$

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Exercise: 1.3

1. a) $69.85 = 60 + 9 + \frac{8}{10} + \frac{5}{100} = 6 \times 10 + 9 \times 1 + 8 \times \frac{1}{10} + 5 \times \frac{1}{100}$

Place value					
69.85	Hundreds	Tens	Ones	Tenths	Hundredths
	0	6	9	8	5

b) $314.57 = 300 + 10 + 4 + \frac{5}{10} + \frac{7}{100} = 3 \times 100 + 1 \times 10 + 4 \times 1 + 5 \times \frac{1}{10} + 7 \times \frac{1}{100}$

Place value					
314.57	Hundreds	Tens	Ones	Tenths	Hundredths
	3	1	4	5	7

c) $291.43 = 200 + 90 + 1 + \frac{4}{10} + \frac{3}{100}$
 $= 2 \times 100 + 9 \times 10 + 1 \times 1 + 4 \times \frac{1}{10} + 3 \times \frac{1}{100}$

Place value					
291.43	Hundreds	Tens	Ones	Tenths	Hundredths
	2	9	1	4	3

d) $721.06 = 700 + 20 + 1 + \frac{6}{100}$
 $= 7 \times 100 + 2 \times 10 + 1 \times 1 + 0 \times \frac{1}{10} + 6 \times \frac{1}{100}$

Place value					
721.06	Hundreds	Tens	Ones	Tenths	Hundredths
	7	2	1	0	6

e) $801.24 = 800 + 1 + \frac{2}{10} + \frac{4}{100}$
 $= 8 \times 100 + 0 \times 10 + 1 \times 1 + 2 \times \frac{1}{10} + 4 \times \frac{1}{100}$

Place value					
801.24	Hundreds	Tens	Ones	Tenths	Hundredths
	8	0	1	2	4

2.

S.No.	Measurements	In metre	In Decimal Form
1.	5 m 74 cm	5 and 74 hundredths of a metre	5.74
2.	2 m 91 cm	2 and 91 hundredths of a metre	2.91
3.	38 m 62 cm	38 and 62 hundredths of a metre	38.62
4.	86 cm	86 hundredths of a metre	0.86
5.	49 m 30 cm	49 and 3 tenths of a metre (or) 30 hundredths of a metre	49.3 (or) 49.30
6.	157m 9 cm	157 and 9 hundredths of a metre	157.09

3. a)

Place value					
41.92	Hundreds	Tens	Ones	Tenths	Hundredths
	0	4	1	9	2

b)

Place value					
235.08	Hundreds	Tens	Ones	Tenths	Hundredths
	2	3	5	0	8

c)

Place value					
0.75	Hundreds	Tens	Ones	Tenths	Hundredths
	0	0	0	<u>7</u>	5

d)

Place value					
60.61	Hundreds	Tens	Ones	Tenths	Hundredths
	0	6	0	<u>6</u>	1

e)

Place value						
310.341	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
	3	1	0	3	<u>4</u>	1

4. a) 0.65 m b) 0.09 m c) 13.17 m

d) 17.03 m e) 10.01 m

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Exercise: 1.4

1. a) 44.5 b) 112.3 c) 101.2

2. a) 0.4 cm b) 9.8 cm c) 7.5 cm
 d) 61.2 cm e) 3 cm f) 12.3 cm
 g) 91 cm h) 5.6 cm i) 0.7 cm
 j) 11.1 cm

3. a) 0.32 m b) 0.08 m c) 0.87 m
 d) 9.04 m e) 3.57 m f) 0.05 m
 g) 14.66 m h) 29.02 m i) 6.54 m
 j) 1.1 cm

4. a) $56.4 = 50 + 6 + \frac{4}{10}$ b) $391.17 = 300 + 90 + 1 + \frac{1}{10} + \frac{7}{100}$ c) $815.5 = 800 + 10 + 5 + \frac{5}{10}$ d) $204.973 = 200 + 4 + \frac{9}{10} + \frac{7}{100} + \frac{3}{1000}$ e) $1357.852 = 1000 + 300 + 50 + 7 + \frac{8}{10}$

$$+ \frac{5}{100} + \frac{2}{1000}$$

f) $99.909 = 90 + 9 + \frac{9}{10} + \frac{9}{1000}$

g) $101.1 = 100 + 1 + \frac{1}{10}$

h) $228.82 = 200 + 20 + 8 + \frac{8}{10} + \frac{2}{100}$

i) $70.03 = 70 + \frac{3}{100}$

j) $41.7 = 40 + 1 + \frac{7}{10}$

5. a)

Tens	Ones	Tenths	Hundredths
1	6	<u>4</u>	5

b)

Tens	Ones	Tenths	Hundredths
9	7	3	<u>2</u>

c)

Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
6	5	4	<u>7</u>	1	8

d)

Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
2	0	2	2	0	<u>9</u>

e)

Ones	Tenths	Hundredths	Thousandths
8	9	<u>3</u>	8

f)

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
6	1	7	8	8	3	<u>5</u>

6. i) (d) ii) (b) iii) (c)
 iv) (a) v) (b)

Page No: 11 and 12

Exercise: 1.5

1. a) 0.051 b) 0.112 c) 0.48
 d) 75.6 e) 0.04 f) 0.14
 g) 0.005 h) 0.06 i) 0.75
 j) 0.05

2. a) $\frac{536479}{1000}$ b) $\frac{423086}{1000}$ c) $\frac{237204}{1000}$

3. a) $\frac{8}{1000} = \frac{1}{125}$

b) $\frac{2}{10000} = \frac{1}{5000}$

c) $\frac{948}{100} = \frac{237}{25}$

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Exercise: 1.6

1. a)

Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
9	8	5	0	0	3

b)

Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
0	1	8	5	6	0

c)

Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
1	0	5	1	9	4

d)

Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
0	0	0	0	8	7

e)

Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
0	1	0	1	0	1

2. a) 43.247 b) 9.108 c) 50.006
 d) 236.09 e) 0.135 f) 7.004
 g) 4.091

3. Fill in the table below:

S.No.	Decimal Form	Hundreds (100)	Tens (10)	Ones (1)	Tenths $\frac{1}{10}$	Hundredths $\frac{1}{100}$	Thousandths $\frac{1}{1000}$
1.	607.981	6	0	7	9	8	1
2.	720.304	7	2	0	3	0	4
3.	100.001	1	0	0	0	0	1
4.	5.09	0	0	5	0	9	0
5.	111.1	1	1	1	1	0	0
6.	506.798	5	0	6	7	9	8
7.	821.043	8	2	1	0	4	3
8.	42.605	0	4	2	6	0	5
9.	304.007	3	0	4	0	0	7
10.	660.66	6	6	0	6	6	0
11.	123.9	1	2	3	9	0	0
12.	78.03	0	7	8	0	3	0

4. a) 0.6 b) 7.5 c) 3.5
 d) 4.6 e) 0.8 f) 0.55
 g) 0.84 h) 9.64 i) 8.005
 j) 10.06 k) 25.25 l) 17.05
 m) 34.75 n) 11.26 o) 12.068

5. a) $\frac{3}{5}$ b) $\frac{16}{5}$ c) $\frac{17}{5}$
 d) $\frac{3}{4}$ e) $\frac{3}{10}$ f) $\frac{7}{20}$
 g) $\frac{29}{20}$ h) $\frac{6}{25}$ i) $\frac{41}{4}$
 j) $\frac{9}{100}$ k) $\frac{213}{50}$ l) $\frac{79}{25}$

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Exercise: 1.7

1. a) 7.02 b) 24.79 c) 6.14
 d) 0.97 e) 4.03 f) 0.999
 g) 0.001 h) 0.08
2. a) 513.21 b) 0.05 c) 6.494
 d) 1.95 e) 7.83 f) 0.191
 g) 0.191 h) 23.8

3. a) 2.68, 2.86, 6.28, 6.82, 8.26, 8.62
 b) 417.29, 472.1, 472.19, 472.9, 472.91, 479.12, 479.21
4. a) 53.27, 35.72, 35.7, 35.27, 32.75, 32.5, 32.05, 27.53, 23.57
 b) 851.34, 851.3, 815.43, 815.34, 581.3, 518.43, 518.04, 185.3, 158.43
5. a) $54.31 > 54.3$ b) $0.006 = 0.00600$
 c) $75.5 = 75.50$ d) $10.01 < 10.1$
 e) $212.01 > 212.001$

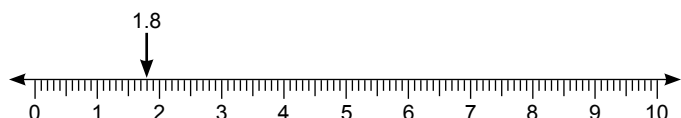
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Exercise: 1.8

1. a)



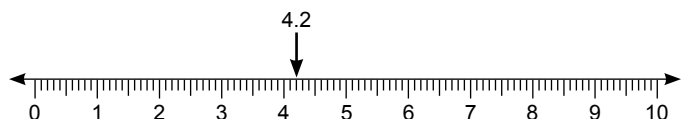
b)



c)



d)



e)



2. Sample answers: 4.1, 4.2,4.8, 4.9

3. Sample answers: 5.1, 5.2,5.8, 5.9

4. i) (b) ii) (d)

5. a) 0.8 lies between 0 and 1.
 b) 9.9 lies between 9 and 10.
 c) 4.3 lies between 4 and 5.
 d) 1.6 lies between 1 and 2.
 e) 7.5 lies between 7 and 8.
 f) 3.4 lies between 3 and 4.
6. Point A represents 2.7, Point B represents 5.9, Point C represents 8.3, Point D represents 3.1.

7. a)



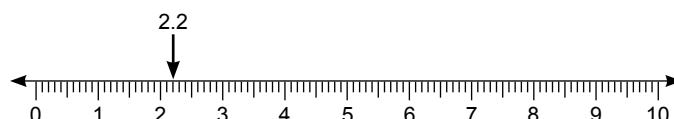
b)



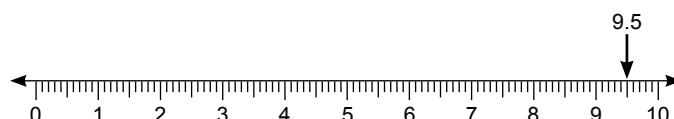
(c)



d)



e)



8. a)

Place value					
581.69	Hundreds	Tens	Ones	Tenths	Hundredths
	5	8	1	6	9

b)

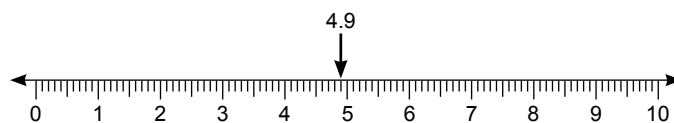
Place value						
380.702	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
	3	8	0	7	0	2

9. a) 90.207 b) 605.48
10. a) Seven point Five Two Eight
b) Four Hundred Sixteen point Zero/Four Hundred Sixteen
c) Zero point Three/Point Three 0.3
d) Sixty Nine point Four One
11. a) 0.9 b) 0.8 c) 0.35
d) 0.0078 e) 1.4 f) 1.65
g) 0.032 h) 0.02
12. a) 0.201 b) 0.98
13. School B
14. a) $\frac{15}{2}$ b) $\frac{256}{5}$ c) $\frac{68709}{1000}$
d) $\frac{1}{4}$ e) $\frac{19}{8}$ f) $\frac{3}{2000}$
g) $\frac{1}{5000}$ h) $\frac{1}{2000}$
15. a) 0.578 kg b) 8.013 kg c) 0.042 kg
d) 9.31 kg e) 12.345 kg
16. a) 0.24 m b) 7.09 m c) 11 m
d) 67.7 m e) 31.85 m
17. a) 7.003 m b) 0.073 m c) 0.703 m
d) 0.007 m e) 3.07 m
18. a) 0.03 km b) 0.415 km c) 6 km
d) 0.005 km e) 4.189 km
19. a) ₹358.60 b) ₹385.95 c) 7.6 m
d) 1.05 m e) 43.7 km f) 10.06 km
g) 30.005 km h) 3.504 km
20. a) 0.3 g b) 0.94 m c) 1.25 lit
21. Men: 0.64, Women : 0.36
22. Red Balloons: 0.4, Blue Balloons: 0.6
23. a) 0.3 lies between 0 and 1
b) 6.9 lies between 6 and 7

- c) 5.7 lies between 5 and 6
d) 1.2 lies between 1 and 2

24.

a)



b)



25. Point J represents 5.5, Point K represents 3.5,
Point L represents 7.1, Point M represents 0.2, Point N represents 9.9

Chapter - 2 Measurements

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Exercise: 2.1

	Radius	Diameter	Circumference
a	1.4 cm	2.8 cm	8.8 cm
b	4.9 cm	9.8 cm	30.8 cm
c	3.15 m	6.3 m	19.8 m
d	21 m	42 m	132 m
e	0.7 cm	1.4 cm	4.4cm

2. 968 m
3. a) 1.32m, b) 396m
4. a) $r = 14$ cm, Cir = 88cm
b) $r = 3.5$ cm, Cir = 22 cm
5. 44 cm
6. 80.52 cm
7. 76 cm
8. 2 designs, 5.8 cm of wire left over

Objective type

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

Page No: 39 and 40**Exercise: 2.2**

1. a) 1386 cm^2 b) 346.5 m^2
2. a) 1.54 cm^2 b) 616 cm^2
3. $22,176 \text{ cm}^2$
4. 88 cm
5. $C = 22 \text{ cm}$, area = 30.25 cm^2
6. 622.5 cm^2
7. 308 cm^2 , 176 cm
8. 10.5 cm^2 , 25 cm
9. $16:25$
10. 126 cm^2 , 84 cm
11. ₹98470
12. 42 cm^2

Objective type

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

Page No: 45 and 48**Exercise: 2.3**

1. 15 cm , 1.5 cm
2. Area at 8.03 is 256 cm^2 . Therefore the increase is 156 cm^2 .
3. $14\pi \text{ cm}$
4. $1:3:5$
5. 192.5 cm^2
6. 103.62 cm^2
7. 50.24 cm^2
8. 221.76 m^2 , ₹12196.80
9. 1386 cm^2
10. 2144

11. ₹1462.50
12. 322.56 m^2 , 61.44 m^2
13. 3136 m^2 , 10.20 m^2
14. ₹2,57,460.

Miscellaneous

1. 32 m , ₹10400
2. 616 m^2 , 14 m , ₹1760
3. 2016 m^2 , 176 m
4. 117.25 m^2
5. a. 1.32 m , b. 132 m
6. 134 cm^2
7. 42 cm
8. 115.5 cm^2 , 47 cm
9. 73.92 m^2
10. 116 m^2

Chapter - 3 Algebra**Try these out Page 52**

Number	Expanded Form	Exponential Form	Base	Exponent
6561	$9 \times 9 \times 9 \times 9$	94	9	4
1331	$11 \times 11 \times 11$	11^3	11	3
512	$8 \times 8 \times 8$	83	8	3
3125	$5 \times 5 \times 5 \times 5 \times 5$	55	5	5
-343	$(-7) \times (-7) \times (-7)$	$(-7)^3$	(-7)	3
169	13×13	132	13	2

Page No: 63 - 65**Exercise: 3.1**

1. a) 87, 9
b) $w \times w \times w \times t \times t \times t \times t \times t \times t \times t$
c) 54 raised to the power of 18 or 54 to the power of 18 or 54 power 18

- d) 99^{33} e) 2 g) 1
 f) 3 h) 101
2. i) (b) ii) (a) iii) (d) iv) (d) v) (c)
 vi) c) vii) b) viii) a) ix) d)
 x) (a) xi) (a) xii) a)
3. a) False b) True c) False
 d) True e) False f) False
4. a) 47^5 b) z^3 c) $19^2 \times 91^3$ d) $5^4 \times b^2$
5. a) 256 b) 243 c) 125 d) 6561
 e) 256
6. a) 7^3
 b) 6^5 c) 11^2
7. a) 2^6 or 4^3 or 8^2 b) 3^5 c) 11^3
 d) 7^4 or 49^2 e) 2^{10} or 4^5
 f) 5^6 or 25^3 or 125^2
8. a) 900000 b) 400 c) 12348
 d) 500 e) -392 f) -1152
 g) 2592 h) 27000
 i) 160000 j) 256
9. a) 71^{g+9} b) 29^{32} c) $(5w)^{25}$
 d) n^2 e) $(\frac{87}{2})^{14}$ f) 26^5
 g) 46^{30} h) 1 i) 918^{53}
 j) 201^d k) $(-89)^{12} = 89^{12}$ l) 9^{18}
10. a) 57 b) 3121 c) 49 d) 9
 e) 243 f) 27 g) 2187
11. a) 8000 b) 125 c) 1008
 d) 992 e) 1000000
12. a) 7^{59} b) 79^{391} c) 38^{25}
 d) $(9mn)^4$ e) 30^{62} f) 252^3
 g) 24^8 h) 15^7

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Exercise: 3.2

1. a) 5 b) 0 c) 6 d) 0
 e) 1 f) 1 g)) o d d
 h) even
2. a) 0 b) 5 c) 1 d) 0
 e) 6 f) 5 g) 1 h) 6
 i) 4 j) 1 k) 9 l) 6
3. a) 3 b) 4 c) 1 d) 2
 e) 9 f) 7 g) 8 h) 6
 i) 6 j) 9 k) 7 l) 8
4. a) 1 b) 1 c) 1 d) 0
 e) 7 f) 8 g) 7 h) 7
5. i) (a) ii) (d) iii) (c)

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Exercise: 3.3

1. a) $9dc^2$ and $-17c^2d$ are like terms; $99cd^2$ and d^2c are like terms
 b) $-mn$, $7nm$, nm and $7mn$ are like terms; $-7n^3m$ and $4n^3m$ are like terms
 c) $12b^3a^2c$ and $-2a^2b^3c$ are like terms
2. a) False b) False c) True
 d) False (Only positive integer)
 e) False (Degree: 3)
 f) True
 g) False (Degree: 4)
 h) False (It is 100)
3. a) 10 b) 0 c) $-2a^2b^2$ d) -3
4. i) Ans: (c) iii) Ans: (a)
 ii) d) iv) Ans: (a)

5.

S.No.	Algebraic Expression	Degree 1 st Term	of 2 nd term	The 3 rd Term	Terms 4 th Term	Degree of the Expression
1.	$15a^3 - 21a^2 - a + 4$	3	2	1	0	3
2.	$a^2b^3c - 9abc^2 + bc^7 - bc$	6	4	8	2	8
3.	$wt^2 - 4z + 7w^2t^2z^4 + 15$	3	1	8	0	8
4.	$8m^2 + 8m^3n^3 + 8mn - 8$	2	6	2	0	6
5.	$2n^3m^2 - 6m^3n - 3mn^2 + nm$	5	4	3	2	5
6.	$101 + 5a^2 + 21ab + 9b^3$	0	2	2	3	3
7.	$c^4d - c^3d^2 - c^2d^3 + cd^4$	5	5	5	5	5

6. a) $5d^5 + 6d^2 - 17d$, Degree: 5
 b) $-6a^2 - 25a + 26$, Degree: 2
 c) $9m^2n + 2n^2m + 9mn + 14m - 3n$,
 Degree: 3
 d) $10c^4 + 2c^2 + 15cd - 13d^2 - 4$, Degree: 4
 e) $7p^2 - 4q^2 + 4p - 9q$, Degree: 2
 f) $-13a^2 + 5ab + 21b^2$, Degree: 2
 g) $8m^2 - 10m - 11$, Degree: 2
 h) $9k^2 - 21$, Degree: 2

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Exercise: 3.4

1. a) 8
 b) $v = 1$ c) $v = 6$
 2. (-1)
 3. a) 6 b) 5
 4. a) 96 b) 64
 5. Degree: 6
 6. Perimeter: $14a^2 + 20ab - 4b^2$

Chapter - 4 Geometry

Try These (page 83)

1. Equilateral triangle
 Isosceles obtuse triangle
 Scalene acute triangle
 Scalene obtuse triangle
 Isosceles right triangle
 Scalene right triangle
2. a) always true
 b) never true
 c) always true
 d) never true
 e) always true
 f) always true
 g) sometimes true
 h) never true
3. $10 + 8 > x$, $8 + x > 10$, x lies between 2 and 18.

Try this (Page 87)

$\angle 2$ and $\angle 4$ are ext $\angle A$
 $\angle 6$ and $\angle 8$ are ext $\angle B$
 $\angle 10$ and $\angle 12$ are ext $\angle C$

Exercise: 4.1

1. a. 14° b. $64^\circ, 49^\circ, 67^\circ$
2. $\angle C = 90^\circ, \angle B = 54^\circ$
3. $x = 26^\circ, y = 33^\circ$
4. $45^\circ, 105^\circ, 30^\circ$
5. $\angle F = 52^\circ, \angle D = 76^\circ$
6. $\angle A = \angle B = 5^\circ, \angle C = 130^\circ$
7. $x = 30^\circ, y = 60^\circ$
8. $x = 70^\circ, y = 40^\circ, z = 50^\circ$
9. $x = 42^\circ, y = 84^\circ, z = 12^\circ$
10. $x = 135^\circ, y = 20^\circ$
11. 138°
12. $x = 38^\circ, \angle A = 26^\circ, \angle B = 66^\circ, \angle C = 88^\circ$
13. $a = 125^\circ, b = 75^\circ$
14. $x = 29$, the angle are $37^\circ, 53^\circ$
15. $x = y = 38^\circ$

Objective type

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

Try This (Page 95)

Congruent Pairs

1 and 8, 2 and 14, 5 and 10,
6 and 11, 7 and 13, 12 and 15.
3, 4, 9 and 16 do not have a congruent pair.

Exercise: 4.2

1. a. $\triangle RST \cong \triangle CAB$, (SAS)
CPCT: $RS = CA, \angle R = \angle C, \angle S = \angle A$
- b. $\triangle HTA \cong \triangle MPA$, (ASA)
CPCT: $TA = PA, HA = MA, \angle HAT = \angle MAP$

- c. $\triangle ADC \cong \triangle ADB$, (SSS)
CPCT: $\angle ADC = \angle ADB, \angle DAC = \angle DAB,$
 $\angle ACD = \angle ABD$

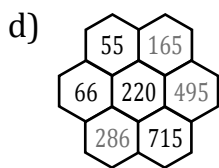
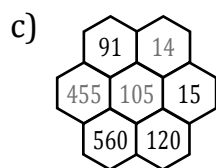
- d. $\triangle DEC \cong \triangle BFA$, (ASA)
CPCT: $DE = BF, EC = FA, \angle DEC = \angle BFA$

2. $x = 7$, SSS congruence condition
3. $x = 1, y = 8$
4. $PQ = XY, QR = YZ, PR = XZ, \angle P = \angle X, \angle Q = \angle Y,$
 $\angle R = \angle Z, QR = 6.4 \text{ cm}, XZ = 7.5 \text{ cm}, \angle Y = 100^\circ$
5. $\triangle ABC \cong \triangle DCB$ (SAS)
6. ASA congruence condition
CPCT: $RM = SM$, Yes PQ bisects RS.
7. 67
8. $x = 3, y = 6$
9. $\triangle ABC \cong \triangle CDE$ (RHS)
CPCT: $BC = DE, \angle BAC = \angle DCE, \angle ACB = \angle CED$
10. $\angle P = 50^\circ, \angle B = 80^\circ$

Constructions: To be done by Students

Misc problems:

1. $\angle APB = \angle CPD = 30^\circ$
 $\angle APB = \angle DPC = 30^\circ$
 $\angle CPD = \angle DPE = 30^\circ$
 $\angle APC = \angle BPD = 120^\circ$
 $\angle APD = \angle BPE = 150^\circ$
2. $x = 25$
3. $\triangle TSR, \triangle STP, \triangle TPQ, \triangle PQR$
4. $\triangle NPQ \cong \triangle MQR$, (SAS)
CPCT: $RM = QN$
5. 140°
6. $a = 120^\circ$ $b = 67^\circ$
7. $x = 35^\circ, y = 125^\circ$
8. $y = 31^\circ$



3. 210, 55

4. 256, 2^8

5. 70, row 8

6. 0, 0.

Objective type questions:

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

Miscellaneous

1. (a)

Figure no. (x)	1	2	3	4	...
No. of sticks (y)	6	11	16	21	...

$$y = 5x + 1$$

(b)

Figure no.(x)	1	2	3	4	...
No. of sticks (y)	5	8	11	14	...

$$y = 3x + 2$$

2. Fill in the missing numbers in the table given below.

Diagram	1	2	3	4		n
Area	1	4	9	16		n^2
Number of dots	4	9	16	25		$(n+1)^2$
Number of 1 cm line segments	4	12	24	40		$2n(n+1)$

3. Student's work



CLASS : 7 KEY ANSWERS TERM : II

Chapter - 1 HEAT AND TEMPERATURE

Evaluation:

I. Fill in the blanks with the correct word/phrase:

- mercury
- Water
- temperature
- clinical
- higher, lower
- absolute zero
- one Kelvin

II. Choose the correct answer:

- a) Kelvin
- c) thermal expansion
- d) Water is a good thermometric liquid.
- c) both a and b

III. Answer briefly:

1.

Heat	Temperature
Heat is a form of energy.	It is a measure of degree of hotness or coldness of a body.
Transfers from a hot object to a cold object.	Higher in a hot object than in a cold object.
SI unit is Joules.	SI unit is Kelvin.
When heat is transferred the total amount of heat in the system remains the same.	When heat is transferred the temperature of the system does not remain the same.

- A good thermometric liquid shows thermal expansion and is a good conductor of heat.
- 89 F and 305.15 K

4.

Clinical thermometer	Laboratory thermometer
Used to measure the body temperature (man and animals).	Used in laboratories used during scientific experiments.
Easier to use than a laboratory thermometer.	Harder to use than a clinical thermometer.
The liquid level does not come down on its own.	The liquid level gradually comes down on its own.

- A digital thermometer does not use the principle of thermal expansion of liquids. Hence, it is easier to use and does not need all the precautions that need to be taken while using laboratory thermometers.

IV. Answer in detail:

1.

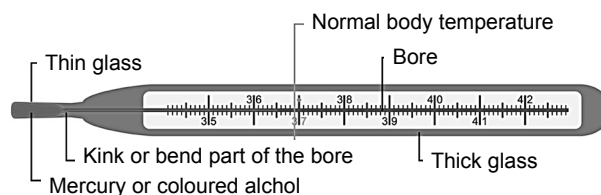


Fig. Structure of a thermometer

The most common thermometer that we use consists of a liquid in bulb, which is connected to a narrow glass column that has graduations. To measure the temperature of an object, the bulb of the thermometer is placed in contact with it. If the temperature of the object is greater than the lowest temperature on the graduations of the thermometer, the heat energy of the object flows to the liquid in the bulb. As it expands, the liquid rises in the

column. The increase in the level of the liquid in the column is proportional to the increase in its temperature. The graduations on the column help us measure the temperature.

2.

Clinical thermometer	Laboratory thermometer
Used to measure the body temperature (man and animals).	Used in laboratories used during scientific experiments.
The maximum and minimum temperatures that can be measured are 42°C and 35°C respectively.	The maximum and minimum temperatures that can be measured are 110°C and -10°C respectively.
The thermometer need not be in contact with the body while reading the temperature.	The thermometer must be in contact with the object while reading the temperature.
Has a kink that avoids the liquid to flow back to the bulb.	Does not have a kink to avoid the liquid flowing back to the bulb.
Easier to use than a laboratory thermometer.	Harder to use than a clinical thermometer.
The liquid level does not come down on its own.	The liquid level gradually comes down on its own.

3. Mercury has the following features:

- Uniform thermal expansion (equal linear expansion for equal amount of heat).
- A good conductor of heat.
- Has a high boiling point and low freezing point.
- Non-toxic and easy to handle (as much as possible).

V. Solve the numerical:

1. Convert the following temperatures:

- a) 113°F b) 29.93°F

- c) -6.6°C e) -126.6°F
d) 262.5K f) 270.9K

2. Kavipriya visits place A at 28°C, place B at 3°C and place C at 273K. Answer the following:

- a) Temperature at place A
28°C 82.4°F 301K
Temperature at place B
3°C 37.4°F 276K
Temperature at place C
0°C 32°F 273K
- b) The place with the highest temperature is A. The place with the lowest temperature is C.
- c) The difference between the highest and lowest temperatures is 28°C or 82.4°F or 301K.

VI. Give Reasons:

1. Water is transparent and it will stick to the sides of the glass tube.
2. Clinical thermometer has a kink because the mercury contracts very fast and we cannot see the body temperature accurately. The kink stops the mercury to cool rapidly there by helping in noting body temperature accurately.

(Or)

A clinical thermometer has a kink which prevents the mercury from falling on its own.

3. Mercury has the following features:

- Uniform thermal expansion (equal linear expansion for equal amount of heat).
 - A good conductor of heat.
 - Has a high boiling point and low freezing point.
4. Digital thermometers are easier to use because they do not use any liquids. This makes them easier to handle and store.

Chapter - 2 ELECTRICITY

Evaluation:

I. Choose the correct answer:

1. a) 5A 2. a) $2 \times 10^6 A$
3. b) they deliver current for a long time

II. Fill in the blanks:

1. higher, higher
2. Ammeter, voltmeter
3. a series

III. Match the following:

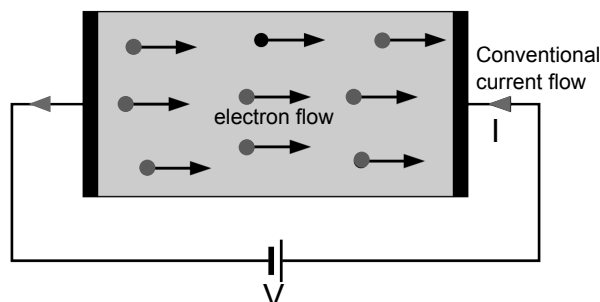
- | | | |
|-------------------|---|-----------------|
| 1. Mike | - | Magnetic effect |
| 2. Fuse | - | Safety device |
| 3. Cell | - | Chemical effect |
| 4. Circuit broken | - | Heating effect |
| 5. Switch | - | Turn on and off |

IV. Analogy:

1. wire 2. volt
3. irreversible

V. Answer in 1 or 2 sentences

1. Electrons, protons and neutrons.
2. When electric charge flows from one surface to another, it is called 'current electricity'.
3. The chemical reactions that happen in primary cells cannot be reversed whereas the chemical reactions that happen in secondary cells can be reversed.
4. Conventional current flows from the positive terminal to the negative terminal. Electron flow happens from the negative terminal to the positive terminal.



(Or)

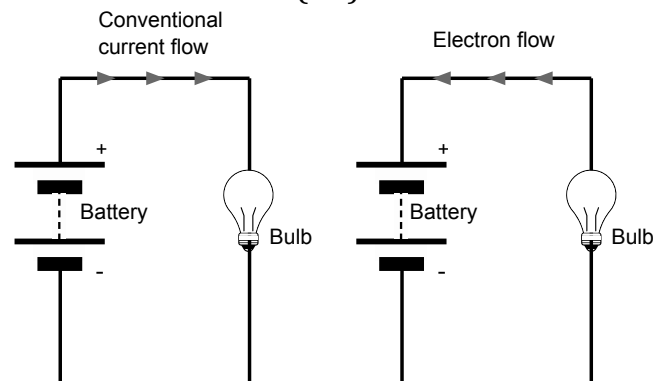
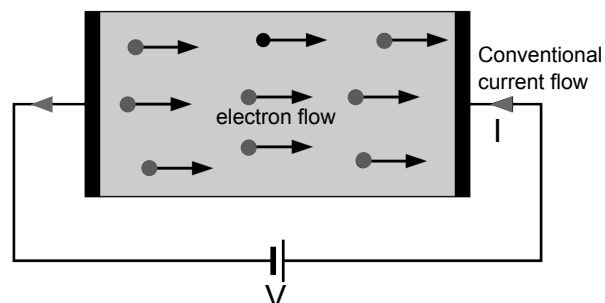


Fig. Circuit Diagrams for Direction of Current Flow

VI. Answer briefly

1. To make a circuit work, the components should be connected properly with the terminals of a power source and be 'closed' to enable the current to flow through the circuit. When a circuit is open, the flow of electric current is interrupted, and the circuit will not work. We call a circuit 'closed' when the circuit components are connected properly with a power source in such a way that it enables an uninterrupted flow of electric current. Switches are used to close or open a circuit. In other words, to let the current flow or to stop as and when required.
2. Conventional current flows from the positive terminal to the negative terminal. Electron flow happens from the negative terminal to the positive terminal.



(Or)

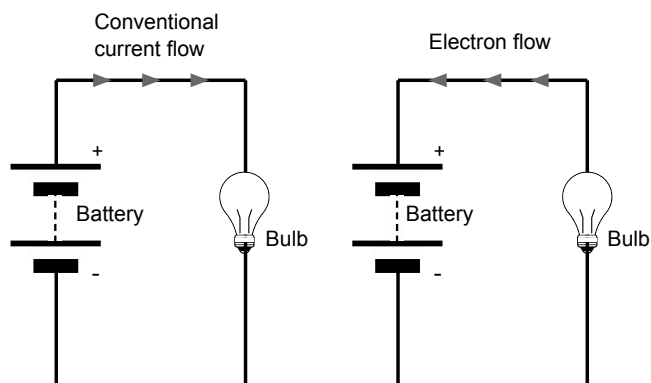


Fig. Circuit Diagrams for Direction of Current Flow

VII. Answer in detail:

1.

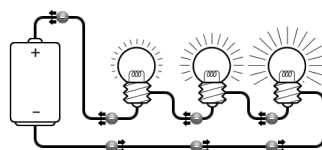
Series Circuit	Parallel Circuit
When the components of a circuit are connected in such a way that the current flows from one terminal of a power source to the other terminal through all the components, it is known as a series circuit.	In this type of circuit, the components branch out from the terminals of a power source enabling same voltage to flow through each of the components.
In a series circuit, same current flows through all of the components. When any one of the components does not work, it interrupts the flow of the current and the whole circuit will not work.	When supply of any one of the components is disrupted, it does not affect any other component.

In this circuit, the total voltage across the circuit is the sum of the voltages across each of the components. The total resistance across the circuit is the sum of resistances across each of the components. That is, $V = V_1 + V_2 + V_3$ and $R = R_1 + R_2 + R_3$.

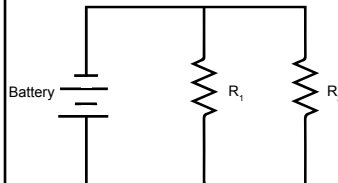
As the components branch out, same voltage can be applied to each of the components.

$$V = V_1 = V_2 = V_3$$

A circuit diagram consisting of 3 bulbs, a cell and a switch connected in series is given below.



A circuit diagram consisting of a power source and 2 resistors connected in parallel is given below.



Chapter - 3 CHANGES AROUND US

Evaluation:

I. Fill in the blanks:

1. Mass
2. Physical change
3. Exothermic physical change
4. Melting
5. Vapour
6. Condensation

II. Choose the correct answer:

1. b. evaporation
2. b. crystallization
3. a. physical
4. b. curdling
5. b. carbon dioxide
6. b. solid to gaseous
7. a. melting
8. b. crystallization

III. State true or false:

1. True 4. False 7. False 10. False
2. True 5. False 8. True
3. False 6. True 9. False

IV. Answer in 1 or 2 sentences.

1. Properties such as colour, size, shape, smell, texture, density, solubility, mass, volume, lustre, malleability (flexibility) and ductility (ability to be drawn into a thin wire) are termed as physical properties.
2. The process in which only physical properties of a substance undergo a change and there is no change in its chemical composition is a physical change.
Examples - shredding of paper, melting of ice, etc.
3. Upon heating a substance or an object, the arrangement of particles in it gets disturbed. The particles move away from each other, substance expands and volume increases.
4. Water vapours that evaporate from the earth's surface cool and condense as water droplets. Many water droplets collect together to form clouds.
5. There are certain solid substances, such as camphor and naphthalene, which can be converted into gas directly on heating without becoming liquid. This process in which a solid is converted into vapour is called sublimation.
6. Changes in which there is formation of a new substance with different chemical composition or transformation of a substance into another substance are called chemical changes. Examples - Rusting of iron, rotting of fruits, etc.
7. Fermentation is the process in which certain microorganisms break down sugar solution into alcohol and carbon dioxide. It is an irreversible process as the alcohol formed cannot be turned back into sugar.

8. Conditions needed for a chemical change are:

- physical contact of substances
- change in pressure
- heat
- electricity

V. Answer the following in detail:

1. When we add or remove heat, there is a change in the state of a substance. Due to addition of heat, the particles move faster. Processes such as melting and vapourization occur on heating. Hence these processes are called endothermic processes. Due to removal of heat, the particles slow down in their movement. Processes such as freezing and condensation occur when heat is removed. Hence these processes are called exothermic processes. Similar to physical changes, chemical changes can also be either endothermic or exothermic. During a chemical change, there may be absorption or release of heat. For example, when a paper is burnt, heat is absorbed, but while adding water to quicklime heat is given out.

2.

Freezing	Crystallization
Exothermic physical change	Endothermic physical change
Fast process	Slow process
Take place at fixed temperature	Take place at any temperature
Good preservation technique	Helps to remove solid impurities

3. The particles of liquids move randomly at different speeds. Some of the particles, especially the ones at the surface, could be moving in a direction away from the liquid. These particles have adequate energy to overcome the attractive forces of the liquid and escape into the air. Thus, slowly and steadily the liquid escapes into air in the form of vapours. This process is evaporation. Evaporation is a separation technique used

to separate dissolved solids from a solid-liquid mixture. This is the technique used to extract salt from sea water.

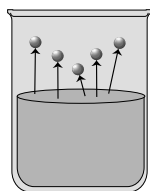


Fig. Behaviour of particles during evaporation

4. Characteristics of a chemical change are:
 - a) new substance is formed
 - b) heat, light or any other radiation may be given off or absorbed
 - c) sound may be produced
 - d) gas may be formed
 - e) smell may change or new smell may be given off
 - f) colour may change
5. Characteristics of a physical change are:
 - a) the physical properties of the substance may undergo a change
 - b) no new substances are formed
 - c) the chemical properties of the substance do not change
 - d) the change is usually temporary and reversible in nature

VI. H.O.T.S:

1. Sublimation is endothermic because it requires energy to convert a solid into a gas. The atoms or molecules in a solid substance are tightly packed. In order to excite the atoms or molecules enough to turn into a gas, energy must be added, which makes sublimation an endothermic process.

Example: Naphthalene, an organic compound commonly found in pesticides such as mothballs, sublimates easily because it is made of molecules that are held together only by weak intermolecular forces. Naphthalene is a solid that sublimates at normal room temperature (solid form

of naphthalene evaporates into gas). On cool surfaces, the naphthalene vapours will solidify to form needle-like crystals.

2. Curdling is a process in which liquid gradually turns into solid by forming clumps. It is an irreversible and permanent change. Melting of butter is a reversible change because on freezing, the melted butter changes back to its solid form. Whereas curdling of milk is an irreversible change because on curdling, milk changes to curd and cream (solid lumps), and gets spoilt when not refrigerated, and cannot be changed back to milk (liquid) by any process.
3. Food must be broken down into a form that our cells can use. Our bodies physically and chemically digest food. When we eat, our bodies physically break down food into small pieces. When food is physically changed, mechanical digestion occurs. Mechanical digestion occurs in the mouth, stomach, and small intestine. Our bodies also chemically break down those small pieces of food into tiny organic (simple sugar) molecules. This process is called digestion. Chemical digestion begins in the mouth when enzymes in saliva begin to break down carbohydrates. Most chemical changes in digestion occur in the small intestine. Large molecules of food are broken down into smaller molecules that can be absorbed by our cells. Carbohydrates, proteins, and fats are broken down in different parts of the digestive system using different kinds of enzymes. Different kinds of small molecules are formed by these processes.
4. When heat is added to a body, various things can result:
 - a) *Expansion* – When heat is added to a solid, the particles gain energy and vibrate more vigorously about their fixed positions, forcing each other further apart. As a result expansion takes place.

Similarly, the particles in a liquid or gas gain energy and are forced further apart. The degree of expansion depends on the substance.

- b) *Increase in temperature* – When heat energy is added to a substance, this results in an increase in the kinetic energy of its particles, that is, the particles move at higher speeds. Since temperature is a measure of the average kinetic energy, the temperature increases.
- c) *Change of state* – When a solid change to a liquid or a liquid change to a gas, the temperature does not change while the change of state is taking place. The heat absorbed is being used to separate the particles and there is no rise in temperature. When the change is reversed exactly the same amount of heat is released. The heat energy involved in a change of state is called the latent heat.
- d) *It may also undergo a chemical change* – In order for a chemical reaction to take place, the particles require threshold energy. Heating helps these particles to attain this energy. It produces different substances with different properties.
5. A physical change is a change to a sample of matter in which some properties of the material change, but the identity of the matter does not. Change in state of a substance is a physical change. When we heat the liquid water, it changes to water vapor. But even though the physical properties have changed, the molecules are exactly the same as before.

Chapter - 4 FUNCTIONAL UNITS OF LIFE

Evaluation:

I. Choose the correct answer from the following:

- | | |
|---------|-------------|
| 1. cell | 3. membrane |
| 2. red | 4. rough |

II. State true or false:

1. False 2. True 3. False 4. True

III. Analogy:

- | | |
|------------------|----------------------|
| 1. Multicellular | 3. Brain of the cell |
| 2. Chloroplasts | |

IV. Answer the following questions in brief:

1. Stem cells, are cells that are able to divide again and again to produce more cells. They have the unique ability to develop into other types of specialised cells like muscle cells, etc.
2. In plant cells, the cell membrane is surrounded by an outer membrane called the cell wall. It is made up of a non living substance called cellulose which gives it shape and rigidity.
3. Chromoplasts are plastids with different colours and are found in the petals of flowers and in vegetables. They contain pigments like carotene and xanthophyll.
4. Cells are interconnected with neighbouring cells through cytoplasmic bridges called plasmodesmata that allow transport of materials between cells.

V. Answer the following questions in detail:

1. The functions of the cell wall are as follows:
 - It acts as a framework and provides the cell with strength and support.
 - It protects the cell.
 - It gives shape and rigidity to the cell (due to the presence of cellulose)
 - It is freely permeable and allows the movement of substances in and out of the cell.
2. The food that we eat has to be broken down to release energy. This function is carried out by the mitochondria during cell respiration. They use up oxygen from the air to oxidise carbohydrates and fats

and release energy. This energy is stored as an energy rich compound Adenosine triphosphate (ATP) and can be used for all the other cell activities. This is why mitochondria are often referred to as the powerhouse of the cell.

3. Centrioles are tiny micro tubular structures found in a small clear area of the cytoplasm called the centrosome. They are seen only in animal cells and are located near the nucleus. Their main function is to initiate and regulate cell division in animal cells. They help with the separation of chromosomes by forming spindle fibres.
4. The nucleus is the most important part of the cell. It is a small spherical organelle surrounded by a double membrane called the nuclear membrane. It is filled with nucleoplasm, within which are thread like structures called chromatin fibres and at least one nucleolus. The chromatin fibres change to chromosomes during cell division. Chromosomes contain DNA, the genetic material of the cell. The main functions of the chromosomes are to store and carry hereditary material from one generation to the next.
The nucleus plays an important role in cell division and regulates and coordinates all the activities and reactions that take place within the cell.
5. The difference between plant and animal cells are as follows:

Animal Cell	Plant Cell
Size is usually smaller with no distinct boundaries.	Size is larger with distinct boundaries.
Cell wall absent. This helps it to have different shapes.	Cell wall made of cellulose present. It restricts the cell membrane.
Cytoplasm occupies most of the space inside the cell.	Cytoplasm forms a thin lining along the periphery.

Plastids are absent.	Plastids are present.
Vacuoles, if present are small.	Vacuoles are large taking up almost 80% of the cell.
Centrosomes are present with one or two centrioles.	Centrosomes are absent.

VI. Assertion and Reason Questions:

1. a. Assertion and Reasoning are correct
2. b. Assertion is correct, Reasoning is incorrect

Chapter - 5 BASIS OF CLASSIFICATION

Evaluation:

I. Choose the correct answer from the following:

1. Fungi
2. Linnaeus
3. Symbiosis
4. Mammalia
5. Cold blooded

II. a. Match the organism with the kingdom:

1. Euglena - Protista
2. Bacteria - Monera
3. Pinus - Plantae
4. Penicillium - Fungi
5. Frog - Animalia

II. b. Match the organism with the class:

Class	Plant Cell
1. Pisces	Catla
2. Amphibia	Salamander
3. Aves	Peacock
4. Reptilia	Snake
5. Mammalia	Man

III. Place the following organisms under the correct Phylum:

ORGANISM	PHYLUM
1. Starfish	Echinodermata
2. Snail	Annelida

3. Roundworm	Aschelminthes
4. Housefly	Arthropoda
5. Leech	Mollusca
6. Tapeworm	Platyhelminthes
7. Hydra	Coelenterata
8. ponges	Porifera

IV. Answer the following questions in brief:

1. Classification is the arrangement of plants and animals into groups based on their similarities. It is nothing but categorisation.
2. An American ecologist, R. H. Whittaker, proposed the five kingdom classification. It was based on cell structure, mode and source of nutrition and so has been accepted by all scientists, worldwide.
3. Organisms like bacteria, cyanobacteria and mycoplasma belong to Monera.
4. The Linnaean hierarchy is the system of arranging taxonomic categories in a descending order based on their relationship with other groups of organisms. The seven main categories are Kingdom, Phylum, Class, Order, Family, Genus and Species. Species is the smallest, basic group of the classification.

V. Answer the following questions in detail:

1. Classification is important to us because it gives us an idea about the diverse forms found on the earth. It helps us to identify different living organisms easily, since they are all grouped. It provides us with information about the origin and evolution of different groups of organisms. It also helps us to study different plants and animals, their features, similarities and dissimilarities. It provides information about inter relationships between different categories of organisms.

//Note to the teachers: students can mention any 3 from the above//

2. The dichotomous key is one of the tools used to identify and classify organisms based on their similarities and differences. A key has a series of statements that leads you to identify the correct name of an unidentified thing or organism. There are two choices in each step with characteristics that describe the unidentified organism. You find the answer to identify a species by using a series of questions with two possible answers. The correct answer is the choice that best describes the unknown organism. Based on the choice, you move to the next set of statements, and then again to the next, till finally you are able to identify the unknown organism.
3. The phyla in Kingdom Plantae are as follows:
 - Algae: E.g. Chara, Ulva, Spirogyra
 - Bryophyta: E.g. Riccia, Funaria
 - Pteridophyta: Eg. Fern, Marsilea
 - Gymnosperms: E.g. Cycas, Pinus
 - Angiosperms: E.g. Rice, maize, mango, neem
4. The ground rules of binomial nomenclature are as follows:
 - The scientific names must be from the Latin language or Latinised.
 - The generic name (genus) must begin with a capital letter.
 - The specific name (species) must begin with a small letter.
 - When printed, the scientific name has to be in Italics.
 - When written by hand, the generic and specific names must be underlined separately.

VI. Assertion and Reason Questions:

1. b. Assertion is correct, Reasoning is incorrect
2. a. Assertion and Reasoning are correct

CLASS : 7 KEY ANSWERS TERM : II

HISTORY

Chapter - 1 THE VIJAYANAGAR AND BAHMANI KINGDOMS

Evaluation:

I. Choose the correct answer:

1. Hampi
2. Hasan Gangu
3. 1336-1646
4. Portugal
5. 1347-1527

II. Fill in the blanks with suitable answers:

1. Vazir
2. Chandra giri
3. 1422
4. Saluva Narasimha

III. Match the following:

1. Nayaks - Gingee
2. Battle of Talikota - Rakasa Tangadi
3. Ashtadiggajas - Krishnadevaraya
4. Gulbarga bahmani - First Capital of
5. Jama masjid - Gulbarga Fort

IV. Assertion and Reason questions:

1. c) A is correct and R is wrong

V. Find the wrong pair:

- b. Ekambaranatha temple – Hampi

VI. Find the odd one:

Alauudin Hasan Bahman Shah

VII. Consider the following statements and find out which one is/ones are correct:

- d. Tenali Ramakrishna was the most famous poet among the *ashtadiggajas*.

VIII. Answer in brief:

1. He introduced several administrative and economic reforms that provided

order, stability and reliable income to the Sultanate.

He increased the number of tarafs to eight and reduced the power of the tarafdars.

To promote learning and research he established a *madrassa in Bidar*.

2. The best examples of this style of temple architecture are the Vithala temple and the Hazara Rama temple in Hampi and the Varadharaja temple and the Ekambaranatha temple in Kanchipuram.
3. Bukka I fought against the Bahmani Sultan and sent his son Kumarakampana to take Madurai. He gained control over Goa and the Krishna Tungabhadra **doab** thus laying a strong foundation for the kingdom, which paved the way for expansion and consolidation by his successors.
4. The power of the Sangama dynasty began to weaken following the death of Devaraya. The kingdom was faced with wars of succession, civil wars and political uncertainty.
5. The Bahmani Sultanate developed a distinct architectural style that borrowed elements from Persia, Turkey and Arabia and blended them with local ones. Their military architecture (forts) was modelled on medieval European architecture and their civil architecture was highly influenced by Persia. Examples are Mahmud Gawan Madrasa (Bidar), the Gol Gumbaz Tomb (Bidar) and the Jama Masjid inside the Gulbarga fort.

IX. Answer in detail:

1. The Sultans who followed Muhammad Shah III were too weak to curb the powers

of the nobles and played into the hands of one group or the other.

Shahabuddin Ahmed (1482 – 1518) was the last Sultan to exercise any real power. His four sons who succeeded him were rulers only in name with the nobles exercising power. After the reign of Sultan Kalim ullah Shah, which ended in 1527, the Bahmani/ Deccan Sultanate disintegrated. In its place arose five new independent sultanates in Ahmednagar, Bijapur, Golkonda, Berar and Bidar.

Chapter - 2 THE MUGHAL EMPIRE

Evaluation:

I. Choose the correct answer:

1. Akbar
2. Humayun
3. Chagtai-Turkic
4. Shahjahan
5. 1540-1555

II. Fill in the blanks with correct responses:

1. Haldighati
2. Badshahi
3. Rank/Position
4. Arjundev
5. Shershah

III. Match the following:

- | | | |
|--------------------|---|-----------|
| 1. Farghana | - | Babur |
| 2. Prince Khurram | - | Shahjahan |
| 3. Humayun's Tomb | - | Akbar |
| 4. Biwi-ka-Maqbara | - | Aurangzeb |
| 5. Subahdar | - | Governor |

IV. Say whether the following statements are correct or not. If a statement is incorrect, write the correct one:

1. Aurangzeb stayed in Deccan for twenty-five years.
2. Jahangir had conflict with Rajput.

V. Assertion and Reason questions:

1. R is not the correct explanation of A.
2. R is the correct explanation of A.

3. Identify the correct statements:

(ii) a, c and d are correct

4. Arrange the names of the Mughal rulers in chronological order:

Babur, Humayun, Akbar, Shahjahan

5. Name the Mughal rulers who commissioned the following monuments:

Humayun's Tomb - Akbar

Biwi-ka-Maqbara - Aurangzeb

Red Fort - Shahjahan

Agra Fort - Akbar

VI. Answer in three-four precise sentences:

1. He faced challenges from three quarters:
 - his own brothers(Kamran, Hindal and Askari),
 - Sher Shah Sur (original name: Farid Khan),
 - the Afghan ruler of Bengal and Bihar,He neither had the will nor the military capability to take on his brothers. He was forced to leave Agra.
2. The mansabdari system introduced by Akbar.
Mansab means rank/position.
The mansabdari system was practised both in military and civil departments.
A mansabdar's rank was dependent on one's zat (status) and *sawar* (the number of horses and horsemen one had to maintain).
3. The Mughal architectural style began withAkbar.ItisafusionofTurkic,Persianand Indian architectural traditions/elements. The characteristic features of Mughal

architecture are vaulted entryways, large domes and ornate decorations.

Humayun's Tomb in Delhi is the earliest example of Mughal architectural style.

VII. Answer in detail:

1. Mughal central:

The emperor was at the head of the administrative structure with absolute power. The following are some of the important central ministers under Akbar, each in charge of a department.

- the *wakil* (prime minister)
- the *diwan* or vizier [*wazir*] (finance minister)
- the *mir bakshi* (chief of the army)
- the *qazi* (the chief justice) and
- the *ṣadr al-ṣudur* (in charge of religious matters).

They were appointed, promoted and dismissed by the emperor and their duties were well defined.

Provincial Administration:

The Mughal empire was divided into *subahs* (provinces).

Each subah had a *subadhar* (governor), a *diwan*, a *bakshi*, a *ṣadr* and a *qadi* (judge/magistrate) along with agents who supplied information to the central government.

The provinces were divided into *sarkars* (districts). Each sarkar had a *fowjdar* (the administrative head). Large towns had a *kotwal* (in charge of law and order). *Sarkars* were further classified into *parganas* (or *mahals*) consisting of groups of villages.

2. The Mughal rulers were followers of the Islamic faith but their subjects were predominantly non-Muslim. Akbar was the first Mughal ruler to realise the importance of support from his subjects and abolished the *jizyah*, included Hindus in his administration at the highest levels

and married Hindu princesses. Akbar also created a new order called the *Dīn-e Ilāhī* (Divine Faith, Religion of one God).

Akbar **commissioned** translations of Indian classics from Sanskrit into Persian including the *Mahabharat* and the *Upanishads* and filled his court with artists and intellectuals of all faiths and ethnicities. Akbar's religious and non-discriminatory policy was followed by his successors, with the exception of Aurangzeb who too did not do away completely with hiring Hindus in high offices. *Sulh-i kull* (peace for all) guaranteed State protection to people of different religious backgrounds.

VIII.

1. As patrons of painting, the Mughals gave the world a legacy of enduring beauty in the form of miniature paintings. These paintings served as illustrations for books and albums. **Humayun** is credited with founding the Mughal school of painting since he brought and invited artists from Persia and set up the first Mughal painting studio.

The reigns of Jahangir and of Shah Jahan saw the highpoint of Mughal portraiture. Mughal painting combined Persian and Indian sensibilities and techniques. Paintings from Jahangir's period focus on animals, birds and scenes of life at court.

Thus the foundation for Mughal miniature painting style was laid by Humayun and it reached its heyday under Jahangir.

Chapter - 3 RISE OF THE MARATHAS AND THE PESHWAS

Evaluation:

I. Choose the correct answer:

1. a) the Mughal emperor
2. d) Raigarh
3. c) Balaji Baji Rao
4. c) Deshpande
5. c) Raghoji Bhonsle

II. Fill in the blanks with appropriate answers:

1. Sardeshmukhi
2. Shivaji
3. Shaniwarwada
4. Satara
5. Kulkarni

III. Match the correct pairs:

1. Prince Akbar - Sambhaji
2. Tarabai - Kohalpur
3. Balaji Baji Rao - Nana Saheb
4. Shaista Khan - Aurangzeb
5. Ahmed Shah Abdali - Afghanistan

IV. State whether the following assertions are correct or wrong:

1. Correct
2. Wrong
3. Correct
4. Correct
5. Correct

V. Assertion and Reason questions:

1. a) R is the correct explanation of A
2. b) II is correct

VI. Find the odd one out:

Poona

VII. Identify the wrong pair:

Gaekwad - Kolhapur

VIII. Arrange the following events in chronological order

- b) Shivaji crowned himself chhatrapati of the Marathas
- d) Shambhaji lost his kingdom to the Mughals
- c) Shahu was released by the Mughal emperor
- a) Baji Rao I was appointed Peshwa

IX. Answer in one or two sentences:

1. The Sultan of Bijapur made peace with Shivaji and acknowledged him as an

independent ruler of the territories he had managed to conquer. Shivaji resumed his raids after Shivaji's Father's death.

2. Tarabai was nephew of Shahu. Shahu claimed the Maratha throne, defeated Tarabai, occupied Maratha territory.
3. Raghoji Bhonsle was a prominent general in Shahu's reign. He expanded the territory till Nagpur.
4. Prince Akbar, the rebellious son of Aurangzeb, found shelter with Shambhaji in 1681, which brought Aurangzeb to the Deccan in 1682. The Shambhaji led Maratha forces were engaged with the Mughal army for eight consecutive years. In 1689, Shambhaji was captured and executed by the Mughals.
5. Jai Singh besieged the Maratha fort at Purandhar and made Shivaji sign the Treaty of Purandhar in 1665. In compliance with the terms of the treaty Shivaji surrendered several forts to Aurangzeb and agreed to visit his court.

X. Answer in detail:

1. He instituted the system of *ashtapradhan* or a collective of eight officials/ministers to assist him in governing this territory.

Each pradhan headed a department. They were appointed and dismissed at will by Shivaji.

They were the

- **peshwa – prime minister** - first among the eight pradhans who looked after the general administration
- **amatya or majumdar** - Finance Minister
- **waq-i-nawis** - Home/Interior Minister
- **dabir or sumant** - foreign department
- **sachiv** - official correspondent
- **pandit Rao** - religious officer
- **sar-i-naubat or senapati** - in charge of army affairs
- **nyayadhish** - chief justice

2. Shivaji built up a strong, standing army by personally supervising the recruitment, training and promotion of soldiers.

Officers in the infantry and cavalry were ranked and soldiers were paid in cash.

He paid particular attention to the maintenance of forts and built new ones.

Shivaji also organised a fairly powerful navy to safeguard the coastline and trade of the kingdom.

GEOGRAPHY

Chapter - 1 CLASSIFICATION OF RESOURCES

Evaluation:

I. Group the following as:

1.

Renewable resources	Non-renewable resources
a community of trees water plastics solar energy a herd of goats	soil minerals metals

2.

Biotic	Abiotic
cotton wood wool coal petrol silk	salt bricks cement wind sun

II. Answer the following based on instructions in each question

1.

Biodegradable	Non-biodegradable
Banana leaf Carrot Peels	Plastic plate Pencil Ball-point pen Tooth brush Light bulb

2. Recycle shop:

Cardboard boxes, old newspapers and magazines, broken pressure cooker.

III. Choose the correct answer:

1. c. nuclear energy
2. a. Bhakra Nangal
3. d. Kamuthi
4. d. Copper
5. a. Haematite

IV. Match the following:

1. Electricity - China
2. Bauxite - Australia
3. Silver - Mexico
4. Copper - Chile
5. Petroleum - USA

V. Fill in the blanks:

1. Petroleum
2. aluminium
3. China

VI. Distinguish between the following with examples:

1.

Renewable resources	Non-renewable resources
Resources that can be renewed or replenished naturally once used are called renewable resources.	Natural resources that cannot be renewed or regenerated once used are called nonrenewable resources.
These resources do not pollute the environment when they are harvested and used carefully.	Careless use of these resources may lead to its exhaustion.
Eg: Solar energy, Wind energy	Eg: Coal, Copper etc.

2.

Metallic resources	Non-Metallic resources
These resources are composed of metals. They are hard and good conductors of heat and electricity.	Non-metallic resources are mineral resources that do not contain metals. They are not good conductors of heat and electricity.
Examples include Iron, copper, gold, bauxite, silver, manganese etc	Examples include limestone, mica, coal, gypsum, dolomite, phosphate, salt, manganese, granite etc.

3.

Biotic resources	Abiotic resources
Biotic resources are resources derived from the biosphere such as living things and from forest and the materials derived from them. This mainly include fossil fuels like petroleum, coal gas, etc.	Abiotic means other than living things that mean non-living things examples are fresh air, land ,heavy metal.

VII. Answer in Brief:

1. Natural resources are obtained from the environment and are very essential for life. They exist without the action of humankind.
2. They satisfy human needs. They help in proper functioning of the system. they are used to sustain life and meet people's requirements.
3. oxygen, fresh water, solar energy and wind.
4. Three types of Non-renewable resource:
 - 1) Metallic resources
 - 2) Non-metallic resource
 - 3) Fossil fuel resources
5. Different types of coal are:
 - Anthracite
 - Bituminous
 - Lignite
 - Peat
6. It cannot be renewed or regenerated once used are called nonrenewable resources. Careless use of these resources may lead to its exhaustion.

VIII. Give reasons:

1. It is a soft ore that becomes strong when alloyed with carbon and manganese. It is found as the ore of haematite and magnetite.

IX. Fossil Fuel resources:

Fossil fuels are formed from the remains of dead plants and animals. Examples are coal, petroleum and natural gas.

Coal

Features: Coal is the most commonly available fossil fuel. Plants that get buried are turned into carbon over million of years. Coal is classified into four types based on its carbon content.

- Anthracite
- Bituminous
- Lignite
- Peat

Uses: It is used in ironing and for cooking; in boilers; and in power stations to generate electricity. It is also used to make tar to surface our roads.

Found in: China, Russia, India and Australia are the largest producers of coal. In India, Raniganj fields of Bengal and Bokaro, Jharia and Dhanbad in Jharkhand are the largest producers. In Tamil Nadu, Neyveli produces lignite.

Petroleum

Features: Petroleum is found between the layers of sedimentary rocks. It is brought to the surface by drilling oil fields found in coastal and offshore areas.

Uses: It is processed in refineries to produce kerosene, diesel, petrol and aviation fuel which are sources of energy. Petroleum is known as Black Gold.

Found in: The chief producers are Saudi Arabia, Iran, Iraq and Qatar. The others are USA, Russia, United Arab Emirates, Venezuela and Algeria. In India, the leading producers are Mumbai High in Mumbai.

Natural Gas

Features: It is a fossil fuel formed under similar conditions like petroleum.

Uses: Natural gas has provided an easy and efficient way of cooking. We use it as LPG (Liquid Petroleum Gas) in homes and as CNG (Compressed Natural Gas) in vehicles. It is also used to make chemical fertilisers.

Found in: Natural gas reserves are found in the United States of America, Russia, Iran, and Qatar. In India, Krishna and Godavari Delta, Assam, Gujarat and Mumbai.

Chapter - 2 TOURISM IN THE WORLD, INDIA AND TAMIL NADU

Evaluation:

I. Choose the correct answer:

1. d. visa
2. d. school leaving certificate
3. d. markets
4. d. on an adventure tour
5. a. To draw up a plan or schedule of a trip II.

II. Match the following:

- | | | |
|---------------------|---|---------|
| 1. Grand Canyon | - | USA |
| 2. Great Wall | - | China |
| 3. Stonehenge | - | England |
| 4. Pyramids of Giza | - | Egypt |
| 5. Colosseum | - | Italy |
| 6. Parthenon | - | Greece |
| 7. Machu Pichu | - | peru |
| 8. Taj Mahal | - | India |

III. What kind of tourism is common to each of the following groups

1. Religious tourism
2. Tourism for Recreation

1. a. Jim Corbett - National park
2. d. Dwaraka - religious place
3. b. Mount Abu - mountain
4. a. Gokarna - pilgrimage town
5. c. Kaziranga - a national park

- i. Rajasthan
- ii. Kerala
- iii. Uttarakhand

1. Chittar
2. Kodyakkarai
3. Kanchipuram
4. Yercaud
5. Kanyakumari

1. Travelling for pleasure or work involves tourism. Some people may travel for treatment, education, research and studies or for pilgrimages and festivals.

2. Ooty, Kodaikanal, Darjeeling, Shimla, Yercaud etc.
3. The components of tourism are the three As namely, accessibility, amenity and attraction.
4. The types of tourism are religious or pilgrim, recreational, ecotourism, historical, adventure, etc.
5. A place has its attractions on account of its unique physiography, weather and climate, natural features, its people and their

1.

Passport	Visa
An official document issued by a government, certifying the holder's identity and citizenship and entitling them to travel under its protection to and from foreign countries.	A visa is a document issued to a person or a stamp marked on the passport of a person who wants to visit another country.

Itinerary	Travelogue
It is a travel plan. Today, there are many tour operators who help us plan a trip.	Travelogue is an account of one's travels. It could be written or in the form of a video.

- International tourists bring in a lot of foreign exchange.
- They bring in finance through sale of goods and taxes and create employment opportunities.
- They help us develop different kinds of facilities.
- Tourists help promote cultural exchange between different states and countries.
- They promote national integration at the national level and global outlook at the international level

- Domestic and international tourists provide opportunities to learn many different languages.

Negative impacts

- Tourism leads to environmental degradation and depletion of natural resources.
- Space and water have to be provided for tourists, and if there is a short supply then local residents suffer.
- Sanitation and health facilities will have to be upgraded.

CIVICS

Chapter - 1 THE STATE GOVERNMENT

Evaluation:

I. Fill in the blanks:

- | | |
|--------------|--------------------|
| 1. President | 3. Vidhan Parishad |
| 2. Bicameral | 4. Constituencies |

II. State True or False:

- | | |
|----------|----------|
| 1. False | 3. True |
| 2. False | 4. False |

III. Answer the following in one or two lines:

1. A federal system of government means that there are two sets of governments that coexist; the Central and the State government. The powers of the government are shared between the Union and the States.
2. As of August 2019, India has 28 states and 9 Union territories.
3. A Legislature that has only a single House is called a Unicameral Legislature. A state with two Houses is said to have a Bicameral Legislature.
4. All elections are conducted and monitored by the Election Commission of India.

IV. Answer the following questions:

1. MLAs are elected by the people through general elections. The entire state is divided into several constituencies on the basis of the population, for any election. Political parties then nominate their candidates for each constituency. All the citizens that reside in a particular constituency and who have completed 18 years of age can vote. The candidate who gets the most votes is declared elected. He becomes a MLA. On completion of the elections, the party that gets the most number of MLAs is declared as the majority party. The Governor asks the leader of the majority party to form the State government.
2. The qualifications for a person to be appointed as Governor of a state are:
 - He must be a citizen of India.
 - He should have completed 35 years of age.
 - He should not be a Member of Parliament or the State Legislature.
 - He should not hold any office of profit.
3. The Chief Minister is the most powerful person and the real Executive head in the State. He is also the chief administrator of the state, and his authority in the State is very similar to the Prime Minister of the country.

He decides the size of the Council of Ministers and allocates portfolios to them. He plays an important role in formulating the policies and programmes of the government. Under his leadership, the Council of Ministers work as a team and are collectively responsible to the Legislative Assembly of the state.

V. Assertion and Reason questions:

1. c. A is correct and R is wrong
2. a. A is correct and R explains A

Chapter - 2 MEDIA AND DEMOCRACY

Evaluation:

I. Choose the correct option:

1. newspaper 3. personal
2. broadcasting 4. opinion

II. State true or false:

1. True 3. True
2. False 4. False

III. Answer the following in one or two lines:

1. Since modern media, like the television, news paper ,internet etc., reach people or the masses anywhere, be it in your own state, country, or across the globe they are also referred to as mass media.
2. Democracy is a form of Government. It means 'ruled by the people'. The people of the country have a say in how their Government is run. The three main pillars of democracy are the legislature (make the laws), executive (execute the laws) and the judiciary (ensures that the laws are followed).
3. Ethics is a set of values or moral principles that effect how we make decisions and lead our lives. They help us identify between what is right and what is wrong and lead a good life accordingly.
4. In India, people in the villages have been communicating with each other for years through many traditional forms. Different forms of storytelling in South India were carried out through song, dance and drama. Harikatha and Koothu started off as religious forms of media. Harikatha, one of the oldest forms of storytelling used to be performed in temples and other holy places. They helped spread religion, customs, traditions and folklore from one generation to the next.

IV. Answer the following questions:

1.

Personal communication	Mass communication
Communication between one person and another - helps two individuals to communicate.	Communication with one person or a group of person with the masses- helps to communicate with several people at one time.
Used by an individual for his/her personal activity.	Used to provides entertainment, information and create mass awareness.
Letters, postcards, telephones, emails, SMS	Books, magazines, newspapers, television, radios, films, etc.

2. The media is also called the watchdog of the government as it makes sure that the other three organs of the government are transparent and accountable. It brings out both the strengths and weaknesses of the government and ensures the smooth and proper functioning of the government and the country. It keeps reminding the government of its unfulfilled promises to the people.
3. Any three points from the textbook can be used.
4. Local media covers issues that involve ordinary people in the localities where they live. Be it a tree falling at a local public garden and injuring citizens, or a student excelling in a competitive exam, all these issues are covered by the local media. The local media is also used in rural areas to educate farmers about crops, seeds, fertilizers to be used, etc. Many of these are in the local languages which is even more useful and easy to follow by the people in those localities.

V. Assertion and Reason questions:

1. a. A is correct and R explains A
2. a. A is correct and R explains A