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> > ISBN : 978-81-8449-700-7 Code No. : FY-6-S (EM)

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NOTE FROM PUBLISHER

It gives me great pride and pleasure in bringing to you **Sura's Science Full year Guide** for **I, II and III** Terms for **6**th **Standard**. It is prepared as per the latest Textbooks, for the year 2020.

This guide encompasses all the requirements of the students to comprehend the text and the evaluation of the textbook.

- Additional questions have been provided exhaustively for clear understanding of the units under study.
- Chapter-wise Unit Tests with Answers.

In order to learn effectively, I advise students to learn the subject section-wise and practice the exercises given. It will be a teaching companion to teachers and a learning companion to students.

Though these salient features are available in this Guide, I cannot negate the indispensable role of the teachers in assisting the student to understand the subject thoroughly.

I sincerely believe this guide satisfies the needs of the students and bolsters the teaching methodologies of the teachers.

I pray the almighty to bless the students for consummate success in their examinations.

Mr. Subash Raj, B.E., M.S. - Publisher Sura Publications

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Evaluation

| I. | Choose the correct answer. | | |
|----|--------------------------------------|---------|--|
| 1. | The girth of a tree can be measure | d by | |
| | (a) metre scale | (b) | metre rod |
| | (c) plastic ruler | (d) | measuring tape[Ans : (d) measuring tape] |
| 2. | Conversion of 7 m into cm gives _ | | _ |
| | (a) 70 cm | (b) | 7 cm |
| | (c) 700 cm | (d) | 7000 cm [Ans : (c) 700 cm] |
| 3. | Quantity that can be measured is | called | l |
| | (a) physical quantity | (b) | measurement |
| | (c) unit | (d) | motion [Ans : (a) physical quantity] |
| 4. | Choose the correct one | | |
| | (a) $km > mm > cm > m$ | (b) | km > mm > m > cm |
| | (c) $km > m > cm > mm$ | (d) | km > cm > m > mm |
| | | | [Ans : (c) km > m > cm > mm] |
| 5. | While measuring the length of an | obje | ct using a ruler, the position of your eye |
| | should be | | |
| | (a) left side of the point. | | |
| | (b) vertically above the point where | e the 1 | measurement is to be taken. |
| | (c) right side of the point | | |
| | (d) any where according to one's co | onven | ience. [Ans : (b) vertically above the |
| | | poin | t where the measurement is to be taken.] |
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Sura's O Science (FY) - Term - I O 6th Std O Unit 1 O Measurements

| II. | Fill in the blanks. | | | |
|-------------|--|-----------------|------------------|------------------|
| 1. | SI Unit of length is | | | [Ans : m] |
| 2. | 500 gm = kilogram | | | [Ans : 0.5] |
| 3. | The distance between Delhi and Cl | nennai can be m | easured in | =' |
| | | | [, | Ans : Kilometre] |
| 4. | $1 \text{ m} = __\ \text{cm}.$ | | | [Ans : 100] |
| 5. | $5 \text{ km} = __\ \text{m}.$ | | | [Ans : 5000] |
| III. | State True or False. If false, | correct the s | statement. | |
| 1. | We can say that mass of an object i | s 126 kg. | | [Ans : True] |
| 2. | Length of one's chest can be measu | ured by using m | etre scale. | [Ans : False] |
| 3. | Ten millimetres makes one centime | etre. | | [Ans : True] |
| 4. | A hand span is a reliable measure of | of length. | | [Ans : False] |
| 5. | The SI system of units is accepted | everywhere in t | he world. | [Ans : True] |
| IV. | Complete the analogy : | | | |
| 1. Ans : | Sugar : Beam balance :: Lime ju Measuring Jar. | ice:? | | |
| 2. Ans : | Height of a person : cm :: Length mm (milli metre) | n of your sharp | ened pencil lead | l:? |
| 3. Ans : | Milk : volume :: vegetables: mass | _? | | |
| V. | Match the following : | | | |
| | 1. Length of the fore arm | a. Metre | | |
| | | | | |

| 1. | Length of the fore ann | a. Metre |
|----|------------------------|---------------------|
| 2. | SI unit of length | b. Second |
| 3. | Nano | c. 10 ³ |
| 4. | SI Unit of time | d. 10 ⁻⁹ |
| 5. | Kilo | e. Cubit |
| | | |

| Ans : | 1. Length of the fore arm | e. Cubit |
|-------|---------------------------|---------------------|
| | 2. SI unit of length | a. Metre |
| | 3. Nano | d. 10 ⁻⁹ |
| | 4. SI Unit of time | b. Second |
| | 5. Kilo | c. 10 ³ |

Sura's O Science (FY) - Term - I O 6th Std O Unit 1 O Measurements

VII. Arrange the following in the increasing order of unit.

1 Metre, 1 centimetre, 1 kilometre, and 1 millimetre.

Ans : 1 millimetre < 1 centimetre < 1 Metre < 1 kilometre.

VII. Answer in a word or two.

- 1. What is the full form of SI system?
- **Ans :** International System of Units.
- 2. Name any one instrument used for measuring mass.

Ans : Beam balance.

3. Find the odd one out : kilogram, millimetre, centimetre, nanometre

Ans: Kilogram.

4. What is the SI Unit of mass?

Ans: Kilogram.

5. What are the two parts present in a measurement?

Ans : A number and the units.

VIII. Find the answer for the following questions within the grid.

| | | | | | i. | | | | | | | | | |
|----------------|---|----------------|---|----------------|----------------|----|----------------|-----------------|----------------|---|---|----------------|---|----------------|
| A | | Р | | L ⁷ | | | | | | | | R | | K |
| C | | 0 | | Е | | | | | | | | 0 | | S |
| M | | K | | N | | | | | | | | R | | Ι |
| Р | | R ¹ | | G | | | | | | | | R | | Т ⁹ |
| R | Н | Е | S | Т | Е | D | L | L ¹⁰ | Ι | Т | R | E ³ | D | Α |
| L | | Т | | Η | | 70 | | | | D | | Н | | Р |
| 0 | | Е | | 0 | | | | | N | | | K | | E |
| A ⁶ | | M^5 | А | S | S | | | 0 | | | | R | | V |
| V | | Ι | | Е | | | С | | | | | Т | | 0 |
| E | | L | | K | | Е | | | \land | | | S | | S |
| R | | L | | Ι | S ² | | | | T ⁴ | À | | K | | Η |
| Α | | Ι | | Т | | | | Ι | | | | V | | Р |
| G | | Μ | | Х | | | М | | | | | N | | U |
| E | | Z | | D | | E | S | K | Р | G | Ι | W | М | F |
| Z | Т | D | K | Η | | | 0 ⁸ | D | 0 | М | Е | Т | E | R |

| 1. | 10^{-3} is one | [Ans : Millimetre] |
|----|---|------------------------------|
| 2. | SI Unit of time is | [Ans : second] |
| 3. | Cross view of reading a measurement leads to | [Ans : error] |
| 4. | is the one what a clock reads. | [Ans : Time] |
| 5. | is the amount of substance present in an object | [Ans : Mass] |
| 6. | can be taken to get the final reading of the recordin | ngs of different of students |
| | for a single measurement. | [Ans : Average] |
| 7. | is a fundamental quantity. | [Ans : Length] |
| 8. | shows the distance covered by an automobile. | [Ans : Odometer] |

 \otimes

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| 4 | | This is Only foi for Full Book C | r Sample Order Online and Availa Sura's O Science (FY) | able - Tei | at All Leading Book m - I o 6th Std o Uni | stores t 1 o Measurements | | | |
|-----------|-------------------|---|--|---------------|--|-----------------------------------|--|--|--|
| 9. 10. | A ta Lia | A tailor uses to take measurements to stitch a cloth. [Ans : Tape] | | | | | | | |
| IX | An | swer briefly | | | | [] | | | |
| 1. Ans | Def The mea | Define measurement. The comparison of an unknown quantity with some known quantity is known as measurement. | | | | | | | |
| 2. | Def | fine mass. | | | | \otimes | | | |
| Ans | : Ma | ss is the measure | e of the amount of matt | er in | an object. | | | | |
| 3. Ans | The | e distance betwe | een two places is 43.65 | 5 km | . Convert it into m | etre and cm. 🛞 | | | |
| | (a) | Convert km in | to metre | | | | | | |
| | | 1 km | = 1000 m | | | | | | |
| | | ∴ 43.65 km | $= 43.65 \times 1000 = 43$ $= 43650 \text{ m}.$ | 365(| 0.00 = 43650 | | | | |
| | (b) | Convert km in | ito cm. | | | | | | |
| | | 1 km | = 1000 m | | | | | | |
| | | 1 m | = 100 cm | | | | | | |
| | | 1 km | $= 1000 \times 100 \text{ cm}$ | | | | | | |
| | | 1 KM • 43 65 km | = 100000 cm $= 43.65 \times 100000 $ | . 136 | 5000 00 | | | | |
| | | •• +5.05 km | = 4365000 cm. | 750 | 5000.00 | | | | |
| 4. | Wł | nat are the rules | to be followed to mal | xe ao | curate measurem | ent with scale? | | | |
| Ans | : (i) | Take care to wr | rite the correct submult | iple. | | | | | |
| | (ii) | Always keep th | ne object in parallel to t | he s | cale. | | | | |
| | (iii) |) Start the measu | rement from '0' of the | scal | e. | | | | |
| Χ. | So | lve the follow | ving. | | | | | | |
| 1. | Th in l | e distance betwe kilometre. | en your school and yo | ur h | ouse is 2250 m. Exp | press this distance | | | |
| Ans | : Dis | stance between so | chool and house is 2250 | 0 m. | | | | | |
| | | 1000 m | = 1 km | | | | | | |
| | | :. 2250 m | $= 2250 \div 1000 = 2.2$ | 25 kr | n. | | | | |
| 2. | Wh is 2 | tile measuring the second s | he length of a sharpen e other end is 12.1 cm | ed p . Wł | encil, reading of th nat is the length of | e scale at one end the pencil? | | | |
| Ans | : Sha | arpened pencil R | eading at one end | = | 2.0 cm. | P | | | |
| | Sha | arpened pencil R | eading at the other end | = | 12.1 cm. | | | | |
| | | Length of | the pencil | = | Difference betwee | n two ends. | | | |

= 12.1 cm. - 2.0 cm.

= 10.1 cm.

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Sura's \odot Science (FY) - Term - I \odot 6th Std \odot Unit 1 \odot Measurements

XI. Answer in detail.

1. Explain two methods that you can use to measure the length of a curved line.

Ans : Measuring the length of a curved line, by two methods.

First method - using a string.

- (i) Draw a curved line AB on the paper.
- (ii) Place a string along the curved line.
- (iii) Make sure that the string covers every bit of the curved line.
- (iv) Mark the points where the curved line begins and ends on the string.
- (v) Now stretch the string along the length of a meter scale.
- (vi) Measure the distance between two markings of the string.
- (vii) This will give the length of a curved line.

Second method - using a divider.

- (i) Draw a curved line AB on a paper.
- (ii) Separate the legs of the divider by 0.5 cm or 1 cm using a ruler.
- (iii) Place it on the curved line starting from one end. Mark the position of the other end.
- (iv) Move it along the line again and again cutting the line into number of segments of equal lengths.
- (v) The remaining parts of the line can be measured using a scale.
- (vi) Count the number of segments.
- (vii) Length of the line = (No. of segments × length of each segment) + length of the left over part.

2. Fill in the following chart.

| Property | Definition | Basic Unit | Instrument used for measuring |
|----------|------------|------------|----------------------------------|
| Length | | | |
| Mass | | | |
| Volume | | | |
| Time | | | |

Ans :

| Property | Definition | Basic Unit | Instrument used for measuring |
|----------|---|---------------------------------|---------------------------------------|
| Length | The distance between one end and the other desired end. | Metre | Meter scale, Measuring tape. |
| Mass | Mass is the measure of the amount of matter in an object. | Kilogram | Beam balance |
| Volume | Volume is the Space occupied by an object. | Solid - Metre Liquid - Litre | Measuring Scale Graduated cylinder |
| Time | It is period between two events. | Second | Clock |

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Sura's O Science (FY) - Term - I O 6th Std O Unit 1 O Measurements

🗷 Intext Activities

\rightarrow ACTIVITY - 1

Form a group of 5 members. Select one person and let others measure her/his height individually using your hand span and cubit. Compare your answers with others. Do you find any differences? Why? Now you all stand in front of a wall and mark your height on the wall. Measure your height with a scale. What differences do you infer?



Ans : Activity to be done by the students themselves

→ ACTIVITY :

In the given activity, measure the quantities using suitable measuring units and express them with suitable multiple and submultiples.

| Picture | Activity | Measuring Unit m/kg/s | Multiple / Submultiple |
|---------|------------------------------------|--------------------------|------------------------------|
| | Length of tip of pencil. | metre | millimetre (Sub multiple) |
| | Length of the pen | metre | centimetre |
| | Distance between two cities | kilo metre | metre |
| | Mass of dry fruits in table | kilo gram | milligram (Sub multiple) |
| 0 | Mass of ornaments | kilo gram | milligram (Sub multiple) |
| | Time taken to finish 100 m race | Seconds | Seconds (Sub multiple) |

→ ACTIVITY - 2

Aim: To find the length of a curved line using a string.

Materials needed: A meter scale, a measuring tape, a string and a sketch pen. Method:

- Draw a curved line AB on a piece of paper.
- Place a string along the curved line. Make sure that the string covers every bit of the curved line.
- Mark the points where the curved line begins and ends on the string.



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Sura's O Science (FY) - Term - I O 6th Std O Unit 7 O Computer - An Introduction

Additional Questions

I. Fill in the blanks.

- 1. _____ is also a computer.
- 2. Computers are available in _____.
- _____ and _____ are different types of computers. [Ans : Laptops and tablets] 3.

II. Short Answers.

- 1. Mention the two types of softwares.
- **Ans**: (i) Operating software
 - (ii) Application software

2. Give any two examples of operating software.

Ans: Windows and Linux are operating software.

3. Mention any two output devices.

Ans : Printers and Monitors are output devices.

Time : 40 min.

| I. | Choose the correct answer. | | | $(4 \times 1 = 4)$ |
|-----|------------------------------------|---------|----------------------|--------------------|
| 1. | Who is the father of computer? | | | |
| | (a) Martin Luther King | (b) | Graham Bell | |
| | (c) Charlie Chaplin | (d) | Charles Babbage | |
| 2. | When was the first computer intro | duced? | | |
| | (a) 1980 | (b) | 1947 | |
| | (c) 1946 | (d) | 1985 | |
| 3. | Who is the computer's first progra | ammer? | | |
| | (a) Lady Wellington | (b) | Augusta ada Lovelace | |
| | (c) Mary Curie | (d) | Mary Comb | |
| 4. | Pick out the odd one. | | | |
| | (a) Calculator | (b) | Abacus | |
| | (c) Flash card | (d) | Laptop | |
| II. | Fill in the blanks. | | | $(3\times1=3)$ |
| 5. | Data is information. | | | |
| 6. | Information is data. | | | |
| 7. | is a device that uses inde | ex numb | er. | |

[Ans : Smart phone]

[Ans : different shapes]

SCIENCE - TERM -

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| 86 | Sura's O Science (FY) - | Term | - I O 6th Std O Unit 7 O Co | omputer - An Introduction | | |
| III. 8. 9. | True or False. Computer is an electronic device Computer can do calculators fa | ce. st. | | $(2 \times 1 = 2)$ | | |
| IV. | Match the following. | | | $(5 \times 1 = 5)$ | | |
| 10. | First generation computer | (a) | Artificial Intelligence | | | |
| 11. | Second generation computer | (b) | Integrated circuit | | | |
| 12. | Third generation computer | (c) | Vacuum tubes | | | |
| 13. | Fourth generation computer | (d) | Transistor | | | |
| 14. | Fifth generation computer | (d) | Micro processor | | | |
| V. 15. 16. 17. | Short Answer (Any two only). What is a computer? Write a short note on Data. Give any two examples of operating software | | | | | |
| VI. 18. | Answer in detail. Explain in detail the application | ns of c | computer. | $(1 \times 5 = 5)$ | | |
| | (| Ansi | wer Key | | | |
| I. | 1) (d) Charles Babbage, | | 2) (c) 1946 | | | |
| II. III. | (b) Augusta ada lovelace unprocessed Processed Analog Computer. True. | | 4) (c) Flash card | | | |
| | 9) True. | | | | | |
| IV. V. | First generation compute Second generation compute Third generation compute Fourth generation compute Fifth generation compute Refer Sura's Guide Page | r uter er ter r No. 8 | Vacuum tubes Transistor Integrated Circuit Micro processor Artificial Intellige 34, Q.No. V - 1 | ence | | |
| VII | 16) Refer Sura's Guide Page17) Refer Sura's Guide Page18) Refer Sura's Guide Page | No. 8 No .8 No. 8 | 34, Q.No. V - 3 35, Q.No. II - 2 34, O.No. VI - 1. | | | |
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|---|--|--|---|--|-------------------------|--|
| Reg. No.Time : 2.00 HoursSCIENCEMarks : \mathcal{O} I. The girth of a tree can be measured by a) Metre scaleNo.I. The girth of a tree can be measured by a) Metre scaleNo.II. The girth of a tree can be measured by a) Metre scaleNo.II. The girth of a tree can be measured by a) Metre scaleNo.II. The girth of a tree can be measured by a) Metre scaleNo.II. The girth of a tree can be measured by a) Metre scaleNo.II. The girth of a tree can be measured by a) Metre scaleNo.II. The girth of a tree can be measured by a) Metre scaleNo.II. Choose the correct answer : $5 \times 1 = 5$ No.II. Fill in the blanks : $5 \times 1 = 5$ Solid : rigidity :: gas :II. Fill in the blanks : $5 \times 1 = 5$ Solid : rigidity :: gas :II. Match the following : $5 \times 1 = 5$ II. Match the following : $5 \times 1 = 5$ II. Match the following : $5 \times 1 = 5$ II. Match the following : $5 \times 1 = 5$ II. Match the following : $5 \times 1 = 5$ II. Match the following : $5 \times 1 = 5$ II. Match the following : <th colspan<="" th=""><th>к</th><th>COMMON FIRST TERM SUMMA</th><th>ΓΙVΕ</th><th>EXAMINATION - 2019 - 20</th></th> | <th>к</th> <th>COMMON FIRST TERM SUMMA</th> <th>ΓΙVΕ</th> <th>EXAMINATION - 2019 - 20</th> | к | COMMON FIRST TERM SUMMA | ΓΙVΕ | EXAMINATION - 2019 - 20 | |
| Time : 2.00 HoursSCIENCEI. Choose the correct answer : $5 \times 1 = 5$ IV. Answer any 15 questions : $15 \times 2 =$ 1. The girth of a tree can be measured by a) Metre scale b) plastic ruler c) metre rod d) measuring tapeIV. Answer any 15 questions : $15 \times 2 =$ 1. The girth of a tree can be measured by a) Metre scale b) plastic ruler c) metre rod d) measuring tapeIV. Answer any 15 questions : $15 \times 2 =$ 1. The girth of a tree can be measured by a) Metre scale b) plastic ruler c) metre rod d) measuring tapeIV. Answer any 15 questions : $15 \times 2 =$ 2. Unit of speed is a) m b) s c) kg d) m/sIV. Answer any 15 questions : $15 \times 2 =$ 3. Filteration method is effective in separating mixture. a) solid-solid b) solid-liquid c) liquid-liquid d) liquid-gasIV. Say true or false : a) To and from motion is called oscillat motion. b) Robots will replace human in futur20. UngsO trachea5. Who is the father of computer? a) Martin Luther King b) Graham Bell c) Charlie Chaplin d) Charles BabbageDistance (m) 0 11. Fill in the blanks : is less than in $5 \times 1 = 5$ 6. 500 gram = kilogram.Solid : rigidity :: gas : b) Solid : definite shape :: : sh of the vess24. Why do we separate mixures?25. Arrange in Correct sequence : Transpiration - Conduction - Absorpt - Fixat26. Identify the desert plant from the following: Cactus, Hydrilla, Mango and Rose27. Define the term "Habitat". 28. How do the birds catch their prey?29. Name the locomotory organ of an amoc | | STANDA | ARD - | VI Reg. No. | | |
| I.Choose the correct answer : $5 \times 1 = 5$ IV.Answer any 15 questions : $15 \times 2 = 16$.1.The girth of a tree can be measured by a) Metre scale b) plastic ruler c) metre rod d) measuring tape16.What is the full form of SI system?2.Unit of speed is a) m b) s c) kg d) ms/s17.Find the odd one out: Kilogram, Millimeter, Centimet Nanometer3.Filteration method is effective in separating mixture. a) solid-solid b) solid-liquid c) liquid-liquid d) liquid-gas18.Define Measurement.4.Lizards breath through their a) skin b) gills c) lungs d) trachea3.Martin Luther King b) Graham Bell c) Charlie Chaplin d) Charles Babbage5.Nho is the father of computer? a) Martin Luther King b) Graham Bell c) Charlie Chaplin d) Charles Babbage5. $\times 1 = 5$ 6.500 gram = kilogram.7.Gravitational force is a force.23.Complete the given analogy : a) Solid : definite shape :: is ho of the vess9.Tap root system is present in plant.10.Influenza is a disease.24.Why do we separate mixures?11.What the following : $5 \times 1 = 5$ 14.Volume $-$ Fixat26.Identify the desert plant from the following: Cactus, Hydrilla, Mango and Rose27.28.How do the birds catch their prey?29.Name the locomotory organ of an amore | Tin | ne : 2.00 Hours SCIE | NCE | Marks : 60 | | |
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| 5. Who is the father of computer? a) Martin Luther King b) Graham Bell c) Charlie Chaplin d) Charles Babbage 11. Fill in the blanks : 5 × 1 = 5 6. 500 gram = kilogram. 7. Gravitational force is a force. 8. In solids, the space between the particles is less than in 9. Tap root system is present in plant. 10. Influenza is a disease. 11. Volume - Pendulum 12. Oscillatory motion - Monocot 13. Gets compressed easily - Bacteria 14. Fibrous root - M³ | | c) lungs d) trachea | Dist | tance (m) 0 4 12 20 | | |
| II.Fill in the blanks : $5 \times 1 = 5$ 6.500 gram = kilogram.7.Gravitational force is a force.8.In solids, the space between the particles is less than in9.Tap root system is present in plant.10.Influenza is a disease.11.Match the following : $5 \times 1 = 5$ 11.Volume- Pendulum12.Oscillatory motion- Monocot13.Gets compressed easily -Bacteria14.Fibrous root- M³ | | a) Martin Luther King b) Graham Bell c) Charlie Chaplin d) Charles Babbage | 21. 22. | Define force.True or false, give the correct statementa) Particles in solids are free to move.b) Air is a pure substance. | | |
| 8. In solids, the space between the particles is less than in 9. Tap root system is present in plant. 10. Influenza is a disease. 11. Match the following: 5 × 1 = 5 11. Volume - Pendulum 12. Oscillatory motion - Monocot 13. Gets compressed easily - Bacteria 14. Fibrous root - M³ 24. Why do we separate mixures? 25. Arrange in Correct sequence : Transpiration - Conduction - Absorpt - Fixat 26. Identify the desert plant from the following: Cactus, Hydrilla, Mango and Rose 27. Define the term "Habitat". 28. How do the birds catch their prey? 29. Name the locomotory organ of an amore | II. 6. 7. | Fill in the blanks : $5 \times 1 = 5$ 500 gram = kilogram.Gravitational force is a force. | 23. | Complete the given analogy : a) Solid : rigidity :: gas : b) Solid : definite shape :: : shape of the vessel | | |
| Influenza is a disease.Transpiration - Conduction - Absorpt - FixatIII. Match the following: $5 \times 1 = 5$ III. Volume- Pendulum12. Oscillatory motion- Monocot13. Gets compressed easily - BacteriaBacteria14. Fibrous root- M³ | 8. 9. | In solids, the space between the particles is less than in Tap root system is present in plant. | 24. 25. | Why do we separate mixures? Arrange in Correct sequence : | | |
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| 15. Cholera - Cotton, wool 30. What are the different types of | III. 11. 12. 13. 14. 15. | Match the following : $5 \times 1 = 5$ Volume-PendulumOscillatory motion-MonocotGets compressed easily-BacteriaFibrous root- M^3 Cholera-Cotton, wool | 26. 27. 28. 29. 30. | Identify the desert plant from the following: Cactus, Hydrilla, Mango and Rose Define the term "Habitat". How do the birds catch their prey? Name the locomotory organ of an amoeba What are the different types of | | |

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- Complete the Analogy : a) Iodine : Goitre :: Iron : 11. Cholera: Bacteria:: Small Pox: b) 12. Define the term "Balanced diet". 13. Write any two viral diseases. 14. What is a computer? 15. Name any four input devices. Answer any 3 questions in detail : $5 \times 3 = 15$ Classify different types of motion with examples. In a glass containing some water, tamarind juice and sugar is added and stirred well. Is this a mixture - can you tell why? Will this solution be sweet? or sour? or both sweet and sour? 20 38. Draw a plant and label the parts. Describe the various features which help camel dwell well in the desert. Match the following : Vitamin A **Rickets** a) Vitamin B Night blindness b) Vitamin C Sterility c) Vitamin D Beri Beri d) Vitamin E Scurvy e) *** Answer 1. measuring tape d) 22. 2. d) m/s 3. solid-liquid b) 4. liquid-liquid c) 5. d) Charles Babbage 6. 0.5 7. Non - contact force
 - 8. liquids and gases
 - 9. dicotyledonous
 - 10. viral (virus)

III.

- M³ Volume
 - Oscillatory motion - Pendulum
- Gets compressed easily Cotton, wool

Fibrous root

- Monocot
- Cholera Bacteria
- IV.
- 16. International System of Units.
- 17. Kilogram.
- 18. The comparison of an unknown quantity with some known quantity is known as measurement.
- 19. a) True.
 - False. Robots will not replace human b) in future.

| .0. | | | | | | |
|--------------|---------|-------|---|------------------------|-----------------|----|
| Distance (m) | 0 | 4 | | 12 | | 20 |
| Time(s) | 0 | 2 | 4 | | 8 | 10 |
| (i) Dista | nce / ' | Time | = | $\frac{4}{2} \times 4$ | $=\frac{16}{2}$ | |
| (ii) Dista | nce / ' | Time | = | $\frac{4}{2} \times 8$ | $=\frac{32}{2}$ | |
| (iii) Timo | / Dig | anco | = | 16 <u>1ø</u> ∽ | 12 – | 12 |
| (III) TIIIle | | lance | _ | 2ø^ | 12 | 2 |

Forces are push or pull by an animate or 21. inanimate agency.

6

- False. Particles of solid cannot move a) freely (or) Particles of liquid are free to move.
 - b) False. Air is a mixture of gases.
- 23. a) Flexibility.
 - b) Liquid.
- 24. We separate mixtures:
 - (i) To remove impurities or harmful components (eg: stones from rice).

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31.

32.

33.

34.

35.

V.

36.

37.

39.

40.

I.

II.

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- (ii) To separate useful component from other components (eg: petrol from petroleum).
- (iii) To obtain a substance in highly pure form (eg: gold from gold mines).
- 25. Fixation, Absorption, Conduction, Transpiration.
- 26. Desert plant Cactus.
- 27. A dwelling place of an animal, plant or other organism, to live and reproduce is called habitat.
- 28. The birds catch their prey with the help of a pair of clawed feet.
- 29. The locomotory organ of Amoeba is pseudopodia.
- 30. i) Sponges (Porifera)
 - ii) Comb jellies (Ctenophora)
 - iii) Hydras, jellyfishes, sea anemones, and corals (*Cnidaria*)
 - iv) Starfishes, sea urchins, sea cucumbers (*Echinodermata*)
 - v) Flatworms (*Platyhelminthes*)
 - vi) Round or threadworms (Nematoda)
 - vii) Earthworms and leeches (Annelida)
 - viii) Insects and arachnids (Arthropoda)
 - ix) Snails and octopuses (Mollusca)
- 31. a) Anaemia.
 - b) Virus.
- 32. A diet which contains sufficient amount of various nutrients to ensure good health is called as Balanced diet.
- 33. Common cold, small pox, polio are the viral diseases.
- 34. Computer is an electronic device that process the data and information according to our needs. We can save the data and convert it into information.
- 35. Keyboard, Mouse, Scanner and Web camera, etc.

- 36. 1. Based on Path :
 - Linear motion Moving in a straight line, like a person walking on a straight path, free fall. Ex.: Parade of the soldiers.
 - Curvilinear motion Moving ahead but changing direction, like a throwing ball. Ex.: Paper flight moving.
 - iii) Circular motion Moving in a circle.Ex: Swirling stone tied to the rope.
 - iv) Rotatory motion The movement of a body about its own axis. Ex : Rotating top.
 - v) Oscillatory motion Coming back to the same position after a fi xed time interval. Ex : A pendulum.
 - vi) Zigzag (irregular) motion like the motion of a bee or people walking in a crowded street. Ex.: Motion of a bee.
 - 2. Based on Duration :
 - i) Periodic motion Motion repated in equal intervals of time is called as periodic motion. Ex.: Motion of a bob of simple Pendulum.
 - ii) Non periodic motion Motion is not in uniform interval. Ex.: Swaying of the branches of a tree.
 - 3. Based on Speed :
 - Uniform motion If an object covers uniform distances in uniform intervals then the motion of the object is called Uniform Motion. Ex.: Hour hand of a clock.
 - ii) Non uniform motion The speed was not same all through the journey time. That is the speed was non-uniform. This motion is said to be non-uniform motion. Ex.: Motion of a train, as it leaves a station.
- 37. Yes. It is a mixture -It has more than one kind of particle, i.e. Tamarind, Water and Sugar are mixed together. This solution will be sweet and sour.

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- 39. i) The camel has long legs which help it to keep its body away from the hot sand in the desert.
 - ii) A camel can drink large amount of water (when it is available) and store it in the body.
 - iii) It passes small amount of urine. It does not sweat. It loses very little water from its body. So it can live for many days without drinking water.

- iv) A camel's hump has fat stored in it. In case of emergency a camel can break down stored fat for nourshment.
- v) It has large and flat padded feet. So it walks easily on sand.
- vi) Camel has long eye lashes and hairs to protect its eyes and ears from the blowing dust.
- vii) It can keep its nostrils closed to avoid dust.
- 40. a) Vitamin A Night blindness
 - b) Vitamin B Beri Beri
 - c) Vitamin C Scurvy
 - d) Vitamin D Rickets
 - e) Vitamin E Sterility

* * *

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HEAT

LEARNING OBJECTIVES

- □ To list out the sources of heat
- □ To define heat
- □ To distinguish hot and cold objects
- □ To define temperature
- □ To differentiate heat and temperature
- **D** To understand the conditions for thermal equilibrium
- **D** To understand why thermal expansion take place in solids
- **D** To list out the practical applications of thermal expansion in day to day life



I. Choose the appropriate answer:

1. When an object is heated, the molecules that make up the object

- (a) begin to move faster
- (b) lose energy
- (c) become heavier
- (d) become lighter
 - [Ans : (a) begin to move faster]

- 2. The unit of heat is
 - (a) newton
 - (c) volt

(b) joule(d) celsius

[Ans : (b) joule]

[Ans : kelvin] 🛞

Unit

- 3. One litre of water at 30°C is mixed with one litre of water at 50°C. The temperature of the mixture will be
 - (a) 80°C (c) 20°C

- (b) More than 50°C but less than 80°C
- (d) around 40°C [Ans : (d) around 40°C]

4. An iron ball at 50°C is dropped in a mug containing water at 50°C. The heat will

- (a) flow from iron ball to water.
- (b) not flow from iron ball to water or from water to iron ball.
- (c) flow from water to iron ball.
- (d) increase the temperature of both.

[Ans : (b) not flow from iron ball to water or from water to iron ball.]

II. Fill up the blanks:

1. Heat flows from a _____ body to a _____ body.

[Ans : higher temperature, lower temperature]

- 2. The hotness of the object is determined by its _____ [Ans : temperature]
- **3.** The SI unit of temperature is _____.

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|-------------|--|--|------------------------------------|-------------------|-------------------------------|--|---------------------|
| 4. 5. | Solids on head o | ating and be in the state of | on contract of therm | ooli al | ng. [Ans : if there i [| expand, contr s no transfer of Ans : equilibri | act] heat um] |
| III. | True or False. If F | alse, give th | e corre | ct s | statement: | | |
| 1. Ans : | Heat is a kind of energy True | gy that flows from | om a hot | bod | ly to a cold body | 7. | |
| 2. Ans : | Steam is formed when True | heat is release | d from v | vate | r. | | |
| 3. Ans : | Thermal expansion is False. Thermal expanse | always a nuisar sion is always <mark>b</mark> | nce. eneficia | l. | | | |
| 4. Ans : | Borosilicate glass do r True | not expand muc | h on bei | ng h | neated. | | |
| 5. Ans : | The unit of heat and te False. The unit of heat | emperature are t t and temperatu | the same re are <mark>di</mark> | e. ffer | ent. | | |
| IV. | Give reasons for t | he following | : | | | | |
| 1. Ans : | An ordinary glass bottle cracks when boiling water is poured into it, but a borosilicate glass bottle does not. The borosilicate glass is phrex glass. They do not expand much on being heated and therefore they do not crack | | | | | | |
| 2. Ans : | The electric wire which sag in summer become straight in winter. In summer the electric wire is expanded by high temperature. So it sags in summer. In winter the electric wire is contracted by low temperature. Hence it becomes straight in winter. | | | | | | |
| 3. Ans : | Rivet is heated before fixing in hole to join two metal plates.In order to make the other end of the rivet to form a new "rivet-head" by hammering, the rivet is heated. It becomes malleable when the rivet is in red-hot condition. | | | | | | |
| V. | Match the followi | ng: | | | | | |
| | 1 Heat | 0°C | Ans : | 1. | Heat | ioule | |
| | 2. Temperature | 100°C | | 2. | Temperature | kelvin | |
| | 3. Thermal | kelvin | | 3. | Thermal | No heat flow | |

2. Ice cube : 0°C :: Boiling water :_

Ans: kelvin

VI.

1.

Ans : 100°C

3. Total Kinetic Energy of molecules: Heat :: Average Kinetic Energy : _____

No heat flow

joule

Ans : Temperature

Equilibrium

5. Boiling water

Heat : Joule :: Temperature :_

4. Ice cube

Analogy:

Equilibrium

Boiling water

0°C

100°C

 \otimes

 \otimes

4. Ice cube

5.

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VII. Give very short answer:

1. Make a list of electrical equipments at home which we get heat from.

Ans : Water heater, Iron box, Electric kettle, Micro oven.

2. What is temperature?

Ans : The measurement of warmness or coldness of a substance is known as its temperature.

3. What is thermal expansion?

Ans : The expansion of a substance on heating is called the thermal expansion.

4. What do you understand by thermal equilibrium?

Ans : When two objects in thermal contact, no longer affect each other's temperature, there exists Thermal equilibrium.

VIII. Give short answer:

1. What difference do you think heating the solid will make in their molecules?

Ans : Heat expands solids. The molecules in the solid move faster, spread apart and occupy more space.

2. Distinguish between heat and temperature.

Ans: .

| S.No. | Heat | Temperature | | | |
|-------|--|--|--|--|--|
| 1. | Heat not only depends on the temperature of the substance but also depends on how many molecules are there in the object. | Temperature is related to how fast the atoms or molecules move or vibrate within the substance | | | |
| 2. | Heat measures the total Kinetic Energy of the molecules in the substance. | Temperature measures the average kinetic energy of molecules. | | | |
| 3. | SI Unit : Joule | SI Unit : Kelvin | | | |
| 4. | Unit: Joules, Calories | Unit: Fahrenheit, Celsius, Kelvin | | | |
| 5. | It has the ability to do work | It can be used to measure the degree of heat | | | |

IX. Answer in detail:

1. Explain thermal expansion with suitable examples.

Ans : Thermal expansion:

The expansion of a substance on heating is called, the thermal expansion of that substance.

Fitting the iron rim on the wooden wheel

- i. The diameter of the iron ring is slightly less than that of the wooden wheel.
- ii. So, it cannot be easily slipped on from the rim of wooden wheel.
- iii. The iron ring is, therefore, first heated to a higher temperature so that it expands in size and the hot ring is then easily slipped over to the rim of the wooden wheel.
- iv. Cold water is now poured on the iron ring so that it contracts in size and holds the wooden wheel tightly.

 (\mathbb{X})



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Rivetting

- i. Rivets are used to join two steel plates together.
- ii. Hot rivet is driven through the hole in the plates.
- iii. One end of the rivet is hammered to form a new rivet head.
- iv. When cooled, the rivet will contract and hold the two plates tightly together.

Cracking of a thick glass tumbler

- i. Glass is a poor conductor of heat.
- ii. When hot liquid is poured into the tumbler, the inner surface of the tumbler becomes hot and expands while the outer surface remains at the room temperature and does not expand.
- iii. Due to this unequal expansion, the tumbler cracks.

X. Questions based on Higher Order Thinking Skills:

- 1. When a window is accidentally left open on a winter night, will you feel uncomfortable because the cold is getting in, or because the heat is escaping from the room?
- Ans: 1. Heat moves to cold. i.e. Heat energy flows from higher temperature to lower temperature.
 - 2. Hot air rises upwards.

Thinking about these two rules of nature will help us see how air moves in and around our house and how that relates to cooling or heating efficiency.

In the **winter**, suppose it is 36 degree Celsius inside our house and 22 degree Celsius outside. If we open a window, the heat will escape from the room. Like water, heat constantly seeks equilibrium; heat moves to cold until everything is the same temperature. As the heat is escaping from the room, then the cold air is getting into the house through tiny gaps around doors.

Therefore, we feel uncomfortable because the **heat is escaping from the room**, based on the rule that **heat energy flows from higher temperature to lower temperature**.

2. Suppose your normal body temperature were lower than what it is. How would the sensation of hot and cold change?

Ans : If the normal body temperature, (37°C or 98.6°F) is lower than what it is, then it is called hypothermia.

In such a case, the body feels **cold sensation**. When we are too cold, our blood vessels narrow. This reduces blood flow to our skin to save body heat. We may start to **shiver**. When the muscles tremble this way, **it helps to make more heat**.

Hypothermia can be serious one or even deadly. Low body temperature usually happens from being out in cold weather. But it may also be caused by alcohol or drug use, going into shock, or certain disorders such as diabetes or low thyroid.

A low body temperature may occur with an infection. This is most common in newborns, older adults, or people who are frail. A very bad infection may also cause an abnormal low body temperature.

- 3. If you heat a circular disk with a hole, what change do you expect in the diameter of the hole? Remember that the effect of heating increases the separation between any pair of particles.
- **Ans :** Many of us "expect" that diameter of hole will decrease, because circular disk is free to expand in all directions as well. Note that expansion of metal due to heating is not

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like gas spreading out wherever space is available. Correct way to think about it, is as follows: Hole size is irrelevant in this case. So we can think that hole is very large. If we carve hole so large such that it's radius is slightly less than that of circular disk itself, then we will have a ring. It is obvious that radius of ring will increase, as atoms have more energy so there oscillation amplitude will increase. As diameter of ring increases, diameter of hole will also increase.

For example, if you want to insert one hallow pipe inside another hallow pipe of same diameter, just heat any one and insert the second one into heated pipe. This explains answer in easy way. So it says that diameter will increase with increasing temperature.

Z Intext Activities

→ Activity 1

Take three bowls. Pour very cold water in the first bowl. (you can also add ice cube for cooling). Place luke warm water in the second. Half fill the third with hot water (-not hot enough to burn!) Set them in a row on the table, with the lukewarm water in the center. Place your right hand in the cold water, and your left hand in the hot water. Keep

them in for a few minutes. Then take them out, shake off the water and put both into the middle bowl. How do they feel?

Ans : I feel that my right hand's coldness is changed into warm condition, because my right hand's temperature is increased.

I feel that my left hand's heat is decreased and it is also in warm condition. Here, my left hand's temperature is decreased.

→ Activity 2

The Temperature of Boiling Water.

Take water in a vessel and place the vessel on a stove. Fix the thermometer as shown in figure (Caution: The thermometer should not touch the vessel in which the water is being heated. Otherwise the thermometer will be broken at high temperature.) All students have to read the temperature of the water and note the reading on the blackboard. Do you notice that the temperature is raising?

What is the temperature of water when it is boiling?

Ans : The temperature of water when boiling is 100°C.

Does the temperature of the boiling water rise further after that?

Ans : No. the temperature of the boiling water does not rise further after 100°C.

Guess and Write:

(Check your assumption with the help of a thermometer.) Approximate temperature of the tea when you drink _____

Approximate temperature of cool lemon juice when you drink

Ans : Approximate temperature of the tea when you drink 70°C. Approximate temperature of cool lemon juice when you drink 20°C

Is Neela correct?

Beaker A and B has water at 80°C. Then pour the water of A and B to an empty beaker C. Now, What is the temperature of the water in the beaker C? Neela says it will be 160°C.

heated pipe. This explai with increasing temperature



SCIENCE - TERM - II





What is your opinion? Does Neela say correctly? Make a guess and verify it experimentally.

Ans : My opinion is that the temperature will not change. Approximately it will be 80°C only. Neela's answer is wrong.

Beaker A and Beaker B has water at 80°C. So both beaker has 80°C temperature. Two beakers are in thermal equilibrium. So heat is not transfered to other objects.

→ Activity 3

Take one litre water in a pan, and heat it on a stove. Calculate the time taken to start boiling. (i.e. the time taken to thermometer reading goes up to 100°C). Take five litre water in another pan and heat it on the same stove. Calculate the time taken by the water to start boiling.



In which pan the water starts to boil earlier?

One litre water

□ Five litre water.

Ans : One litre water

Both, however, show a temperature of 100°C at the boiling point. Five litre water takes more time to boil i.e. more heat is needed to boil the larger amount of water. So, five litre boiling water has more heat energy than one litre water. Place an open can of lukewarm water in each pan. Observe their temperature to find out which can gets hotter.

In which can water shows quick rise in temperature?

□ Can in One litre boiled water

□ Can in five litre boiled water.

Ans : Can in five litre boiled water.

You can see that, five litre water pan will raise the can of water to a higher temperature. Though, both pans of boiling water have the temperature of 100° C the five litre water can give off more heat energy than one litre water. Because it has more heat energy, and gives more energy to the water in the can. Which has more heat energy in each pair? Put \checkmark mark.



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The temperature determines the direction of flow of heat.

- 1. You are holding a hot cup of coffee. would the Heat energy transfer from
 - (a) Your body to the coffee, or
 - (b) The coffee to your body?
- **Ans :** (b) The coffee to your body
- 2. You are standing outside on a summer day. It is 40°C outside (note that normal body temperature is 37°C). Would the Heat energy transfer from.
 - (a) Your body to the air particles, or
 - (b) The air particles to your body?
- **Ans :** (b) The air particles to your body
- 3. You are standing outside on a winter day. It is 23°C outside. Would the heat energy transfer from:
 - (a) Your body to the air particles, or
 - (b) The air particles to your body?
- **Ans :** (a) Your body to the air particles

→ Activity 4

Hammer a nail into a tin can. Ease the nail out. Put it in again to make sure that the hole is large enough for the nail. Then, holding the nail with a pair of pliers, scissors or forceps, heat the nail over a candle, in hot water, or over the stove. Try to put it into the hole in the can.

I see that:__

Ans : I will see that, now it is hard to put the nail into the hole. Heat expands solids. The molecules in the solid move faster, spread apart and occupy more space.

→ Activity 5

Linear Expansion

Take a bulb, dry cell, candle, cycle spoke, coin (or broad - headed nail) and two wooden blocks.

Place one end of the cycle spoke on a wooden block and connect an electric wire to it. Put a stone over the spoke to hold it firmly in place on the wooden block, as shown in Figure . The spoke should be parallel to the ground. Place

the second wooden block under the free end of the spoke. Wrap some electric wire around the coin (or nail) and place it on the block. You may put a stone over the coin to hold it in place.

Connect a bulb and dry cell to the free ends of the wires connected to the coin and the spoke and make the circuit shown in the figure.

When the tip of the free end of the spoke touches the coin, the circuit is completed and the bulb lights up. Check to ensure this. If the bulb does not light up, it means the circuit is not complete, so check your connections properly. (Note: We will learn about electric circuit elaborately in electricity lesson.) Now slide a page of your book between the coin and spoke and then slide it out. That way you would get a gap between the coin and spoke equal to the thickness of the sheet of paper.

(i) Does the bulb light up? If it does not, what could be the reason? _

You saw that the bulb does not light up when the spoke does not touch the coin. Now light the candle and heat the spoke with it.







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|-------------|---|--|--|--|--|--|
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| | (ii) Did the bulb light up after the spoke was heated for some time? (iii) If it did, then explain how the spoke touched the coin after it was heated. (iv) Why does the bulb go off some time after the candle is taken away from the spoke? (v) What happens to the length of the spoke when it is heated or cooled? | | | | | |
| Ans | (i) The bulbs is not light up, because the coin and the spoke do not touch it. The circuit is not completed. | | | | | |
| | (ii) Yes, the bulb is light up, because the spoke is heated the circuit is completed.(iii) When the spoke is heated, it will be expanded. Here, linear expansion takes place. So it touched the coin. | | | | | |
| | (iv) After removing the candle, the spoke does not get the heat. The spoke is returned to its original state. So it does not touch the coin once again and the bulb goes off. | | | | | |
| | (v) The length of the spoke is expanded when the spoke is heated. | | | | | |
| - / 1 | Cubical Expansion | | | | | |
| | Take a metal ring and metal ball of such size that the ball just passes through the ring. | | | | | |
| | Heat the ball and check whether it passes through the ring. | | | | | |
| | □ Not passed through | | | | | |
| Ans : | ✓ Not passed through | | | | | |
| | Now let the ball cool down, and check whether it passes | | | | | |
| | □ Passed through | | | | | |
| | □ Not passed through | | | | | |
| Ans : | passed through | | | | | |
| | Solids expand due to heat and come back to the original state if heat is removed. | | | | | |
| Give | Reasons for the following | | | | | |
| 1. Ans : | Gaps are left in between rails while laying a railway track. In summer days, the temperature rises and the rails expand. So, in order to allow expansion at the joints of the rails, a small gap is left in between the rails, while laying a railway track. If such a gap is not left at the joints of the rails, the track will get deformed due to thermal expansion. It will cause derailment of trains. | | | | | |
| 2. Ans : | Gaps are left in between two joints of a concrete bridge. The gaps in the concrete bridges are knows as expansion joints, Expansion joints are basically gaps in the bridge that allow the bridge to expand (during summer) and contract (during winter). Without these gaps, the bridge will fall apart. | | | | | |
| | The photographs below show an expansion joint at the end of a bridge in winter and in summer. Which season is shown in each picture? Explain how do you know? | | | | | |
| Ans : | with higher temperature during summer and the gap is minimized in between the joints. So, summer season is shown in Picture B. | | | | | |

During winter, the components (concrete and steel) **contract** due to **lower temperature**. Therefore the **gap is at maximum** in between the joints. So, **winter** season is shown in **Picture A**.

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Numerical problems

I put a kettle containing 1 litre of cold water on the gas stove, and it takes 5 minutes to reach the boiling point. My friend puts on a small electric kettle, containing ¹/₂ litre of cold water, and it takes 5 minutes to get up to boiling point. Which gives more heat in 5 minutes?
 a. the gas supply; or

b. the electricity supply? Can you say how many times as much?

Ans : The gas supply, Two times as much.

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2. One calorie heat energy is needed to raise the temperature of the water from 30°C to 31°C. How much heat energy is needed to raise the temperature of the water from 30°C to 35°C.

Ans : For 1°C change in temperature, heat energy needed = 1 Calorie

 \therefore For 5°C change in temperature heat energy needed = 5 Calories.

Additional Questions

I. Choose the appropriate answer: 1. We reduce the heat by adding _____ while preparing fruit juice. (b) lime (a) sugar (c) ice cubes (d) salt [Ans : (c) ice cubes] One day in 1922, the air temperature was measured at 59°C in the shade in 2. Libya (a) America (b) Africa (c) Antarctica (d) Europe [Ans : (b) Africa] Our normal body temperature is 3. (a) 34°C (b) 36°C (c) 35°C (d) 37°C [Ans : (d) 37°C] The temperature determines the direction flow of 4. (a) heat energy (b) kinetic energy (c) potential energy (d) light energy [Ans : (a) heat energy] 5. exists when two objects in thermal contact no longer affect each other's temperature. (a) Thermal expansion (b) Thermal equilibrium (c) average temperature (d) coolness [Ans: (b) Thermal equilibrium] Π. Fill in the blanks: 1. We feel heat on our body when the shines. [Ans : Sun] energy can be generated by the burning of fuels like coal, wood, charcoal, 2. [Ans : Heat] gasoline etc. When flows through a conductor, heat energy is produced. 3. [Ans : Electric current] 4. is a form of energy. [Ans : Heat] 5. determines the direction of flow of heat. [Ans : Temperature] 6. The coldest temperature in the world was measured in the continent. [Ans : Antarctic] 7. Temperature measures the kinetic energy of molecules. [Ans : average]

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III. True or False. If False, give the correct statement:

- **1.** The sun give us light and heat.
- Ans : True
- 2. We can absorb heat by rubbing two surfaces of some substances .
- Ans : False. We can generate heat by rubbing two surfaces of some substances.
- 3. In the past people used to rub two wooden pieces together to light fire.
- Ans : False. In the past people used to rub two stones together to light fire.
- 4. When we cool the object the temperature of the object will be increased.
- **Ans :** False. When we **heat** the object the temperature of the object will be increased.
- **5.** Two objects are said to be in thermal contact if they can exchange heat energy. **Ans :** True.
- 6. The expansion in volume is called linear expansion.
- **Ans :** False. The expansion in **length** is called linear expansion.

IV. Match the following:

| 1. | Source of heat | a) | heat energy |
|----------|--|-------------------|-----------------|
| 2. | Electric current | b) | calorie |
| 3. | Gasoline | c) | 37°C |
| 4. | Unit of heat | d) | Electric kettle |
| 5. | Human body temperature | e) | sun |
| 4. 5. | Unit of heat Human body temperature | (c) (d) (e) | Electric kettle |

Ans : 1 - e, 2 - d, 3 - a, 4 - b, 5 - c.

V. Analogy:

- 1. Movement of molecules : Heat. Heat energy :_____
- Ans : calorie
- 2. Expansion is length : Linear expansion. Expansion in volume :
- Ans : cubical expansion
- 3. Ordinary glass : Glass tumbler. Pyrex glass :_____

Ans: Laboratory glassware.

VI. Give short answer:

1. How can heat energy be generated?

Ans : Heat energy can be generated by the burning of fuels like wood, Kerosene, Coal, charcoal, gasoline/petrol, oil, etc.

2. Define - heat.

Ans : Heat is an energy that raises the temperature of a thing by causing the molecules in that thing to move faster.

3. What are the units of heat used?

Ans : SI unit of heat is Joule. The unit calorie is also used.

4. What are the measuring unit of temperature?

Ans : SI unit of temperature is kelvin. Celsius and Fahrenheit are the other units used.

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5. **Define - Calorie.**

Ans : The amount of heat needed to raise one gram of water by one degree Centigrade.

6. What is thermal expansion?

Ans: The expansion of a substance on heating is called the thermal expansion of that substance.

7. Differentiate linear expansion and cubical expansion.

Ans :

| 1.The expansion is in length.The expansion is in volume | |
|--|-----|
| | |
| 2. Ex. : Expansion of railway track rod. Ex. : Expansion of metal ba | 11. |

8. How solids are expanded on heating?

Ans: The molecules in the substance move faster when heating, spread apart and occupy more space. So substances expand when heated.

9. How heat energy is transferred?

Ans : Heat energy flows from higher temperature to lower temperature.

10. What type of glassware is used in laboratories? Why?

Ans: Pyrex glass is used in Laboratory, because pyrex glass (Borosilicate glass) do not expand much on being heated and therefore they do not crack.

VII. Answer in detail.

List and describe the sources of heat. 1.

- Ans: (i) Sun: It is the primary source of light and it gives us light and heat.
 - (ii) **Combustion:** Heat energy can be generated by the burning of fuels like wood, Kerosene, Coal, Charcoal, Petrol etc.
 - (iii) Friction: We can generate heat by rubbing two surfaces of some substances. In the past people used to rub two stones together to light fire.
 - (iv) Electricity: When Electric current flows through a conductor, heat energy is produced. Ex. : Iron box, Electric kettle.

UNIT TEST

* * *

Time : 60 min.

I. Choose the correct answer. When an object is heated, the molecules that make up the object 1.

- (a) begin to move faster (b) loose energy
- (d) become lighter (c) become heavier
- Our normal body temperature is _ 2. (b) 36°C (c) 35°C (a)34°C
- 3. Unit of heat is _____

(a)newton (b) joule (c) volt 4.

- exists when two objects in thermal contact no longer affect each other's temperature.
 - (a) Thermal expansion
 - (c) Average temperature
- (b) Thermal equilibrium
- (d) Coolness

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(d) 37°C

(d) celsius

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- $(4 \times 1 = 4)$

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| | E:11 | in the blanks | | | $\frac{1}{(2 \times 1 - 2)}$ | | | |
| 11. 5. | Fill The | hotness of the object is deter | mine | d by its | $(3 \times 1 = 3)$ | | | |
| 6. | | energy can be generat | ted by | the burning of fuels like coal, w | vood, charcoal, | | | |
| | gaso | line etc. | | | | | | |
| 7. | The | SI unit of temperature is | | | | | | |
| III. | Fine | d whether the following | sent | tences are true or false. If f | alse correct | | | |
| 8. | We d | statement. can absorb heat by rubbing ty | vo su | rfaces of some substances. | $(3 \times 1 - 3)$ | | | |
| 9. | Stea | m is formed when heat is rele | eased | from water. | | | | |
| 10. | Whe | n we cool the object the tem | perat | ure of the object will be increase | ed. | | | |
| IV. 11 | Ans Give | wer any five only. | | (; | $5 \times 2 = 10$ | | | |
| | Rive | t is heated before fixing in h | ole to | join two metal plates. | | | | |
| 12. | Wha | t is thermal expansion? | | | | | | |
| 13. | a) H | eat : joule : Temperature : | | _, b) Ice cube : 0°C : Boiling w | vater : | | | |
| 14. | | Ching. Thermal equilibrium | a) | Electric kettle | 7 | | | |
| | (ii) | Source of heat | b) | Laboratory glasswares | - | | | |
| | (iii) | Electric current | c) | No heat flow |] | | | |
| | (iv) | Pyrex glass | d) | Sun | | | | |
| 15. | Defin | ne - Calorie. | 1.1. | untoning? When? | | | | |
| 10. 17. | Diffe | erentiate linear expansion and | d cub | ical expansion. | | | | |
| V. | Wri | te in detail. (Only one) | | I | $(1 \times 5 = 5)$ | | | |
| 18. | List | and describe the sources of h | ieat. | | · · · · | | | |
| 19. | Expl | ain thermal expansion with s | suitab | ole examples. | | | | |
| | Answer Key | | | | | | | |
| I. | 1. | (a) begin to move faster, | | 2. (d) 37°C, | | | | |
| ** | 3. (b) joule, 4. (b) Thermal equilibrium. | | | | | | | |
| II. | 5) Temperature 6) Heat 7) kelvin. | | | | | | | |
| 111. | 8) Refer Sura's Guide Page No. 102; Q. No. III - 2. 9) Refer Sura's Guide Page No. 94: O. No. III - 2. | | | | | | | |
| | 10) Refer Sura's Guide Page No. 102; Q. No. III - 4. | | | | | | | |
| IV. | . 11) Refer Sura's Guide Page No. 94; Q. No. IV - 3. | | | | | | | |
| | 12) | Refer Sura's Guide Page No | . 95; | Q. No. VII - 3. | | | | |
| | 13) | Refer Sura's Guide Page No | . 94; | Q. No. VI - 1, 2. | | | | |
| | 14) | (1). C, (11). C, (111). a, (1V). Refer Sura's Guide Page No. | 103 | · O No VI 5 | | | | |
| | 16) Refer Sura's Guide Page No. 103, Q. No. VI 5. | | | | | | | |
| | 17) | Refer Sura's Guide Page No | . 103 | ; Q. No. VI - 7. | | | | |
| V. 18) Refer Sura's Guide Page No. 103; Q. No. VII - 1. | | | | | | | | |
| | 19) Refer Sura's Guide Page No. 95; Q. No. IX - 1. | | | | | | | |

Sura's O Science - (FY) - Term - II O 6th Std O Unit 7 O Parts of Computer

13. What is the use of Wi-Fi?

Ans : Net connectivity can be obtained using the WiFi without any connecting cables. Any data from anywhere can be shared using WiFi.

IV. Answer in detail:

- **1.** What are the types of connecting cables? Describe them.
- Ans : Types of Cables
 - Video Graphics Array (VGA)
 - * High Definition Multimedia Interface (HDMI)
 - Universal Serial Bus (USB)
 - ✤ Data cable
 - Power Cord
 - ✤ Mic cable

Time : 60 min.

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- ✤ Ethernet cable
- 1. VGA cable It is used to connect the computer monitor with the CPU.
- 2. USB cable /cord Devices like Printer, Pendrive, Scanner, Mouse, Keyboard, web camera, and Mobile phone devices are connected with the computer using USB cord or cable.
- **3. HDMI cable** HDMI cable transmits high quality and high bandwidth streams of audio and video. It connects monitor, projector with the computer.
- 4. Data cable Data cable transmits data and it is used to connect tablet, mobile phones to the CPU for data transfer.
- 5. Audio jack The audio jack is used to connect the speaker to the computer.
- **6. Power cord** Power cord temporarily connects an appliance to the main electricity supply.
- 7. Mic cable To connect the Mic to the CPU, Mic wire/cord is used.
- 8. Ethernet Ethernet cable helps to establish internet connectivity.

UNIT TEST

 $\star\star\star\star$

| I. | Choose the co | orrect answer. | | | $(4 \times 1 = 4)$ | |
|----|--|-----------------------|------------------------|--------|--------------------|--|
| 1. | Which one of the | following is an examp | ple for wireless conne | ctions | 2 | |
| | (a) Wi-Fi | (b) Electric wires | (c) VGA | (d) | USB | |
| 2. | Pen dirve is | device. | | | | |
| | (a) output | (b) Input | (c) Storge | (d) | Connecting | |
| 3. | Theis used to move the pointer in a computer screen. | | | | | |
| | (a) Pendrive | (b) Microphone | (c) Mouse | (d) | Scanner | |
| 4. | The data is measured in units which is called as | | | | | |
| | (a) micron | (b) meter | (c) millimeter | (d) | Bit | |
| | | | | | | |

Marks: 25

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II. Fill in the blanks.

- 5. The data is processed in the _____
- 6. The output unit converts, command received by the computer in the form of _____
- 7. The Computer system which has ______ monitor, emits less heat.
- 8. To connect the Mic to the CPU ______ is used.

III. Answer any six only.

- 9. Name the parts of a computer.
- **10.** Bring out any two differences between input and output devices.

11. Matching.

| 1. | VGA | a) | Input device |
|----|-----------|----|---------------------|
| 2. | Bluetooth | b) | Connecting cable |
| 3. | Printer | c) | Wireless connection |
| 4. | Keyboard | d) | Output device |

- **12.** What are the two type of keys in keyboard?
- **13.** Give the uses of right and left buttons of mouse.
- 14. Define memory unit.
- **15.** Give some examples of output device.

IV. Answer any one of the following:

- **16.** a) How is a Computer classified?
 - b) What is the use of blue tooth.
 - c) Give two examples of wireless connection.
- 17. What are the types of connecting cables? Describe them.

Answer Key

| I. | 1. | (a) Wi-Fi, | 2. (c) Storge, | 3. (c) Mouse, | 4. (d) Bit. | | | | | |
|------|-----|--|--|---------------|------------------|--|--|--|--|--|
| II. | 5) | CPU | 6) binary signals | 7) TFT | 8) mic wire/cord | | | | | |
| III. | 9) | Refer Sura's Guide Page No. 170; Q. No. III - 1. | | | | | | | | |
| | 10) | Refer Sura's Gu | Refer Sura's Guide Page No. 170; Q. No. III - 2. | | | | | | | |
| | 11) | (1). b, (2). c, (3). d, (4). a | | | | | | | | |
| | 12) | Refer Sura's Guide Page No. 172; Q. No. III - 2. | | | | | | | | |
| | 13) | Refer Sura's Guide Page No. 172; Q. No. III - 3. | | | | | | | | |
| | 14) | Refer Sura's Guide Page No. 172; Q. No. III - 5. | | | | | | | | |
| | 15) | Refer Sura's Gu | ide Page No. 172; Q. | No. III - 6. | | | | | | |
| W | 16) | a) Defer Sure's | Guida Paga No. 172. | O No III 8 | | | | | | |

- 7. 16) a) Refer Sura's Guide Page No. 172; Q. No. III 8
 - b) Refer Sura's Guide Page No. 172; Q. No. III 12
 - c) Refer Sura's Guide Page No. 172; Q. No. III 11
 - 17) Refer Sura's Guide Page No. 173; Q. No. IV 1.

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 $(1 \times 5 = 5)$

 $(\mathbf{6}\times\mathbf{2}=\mathbf{12})$

 $(4 \times 1 = 4)$

| 6 Tim | COMMON SECOND TER STD e : 2.00 hours | M SUMMAT Standard - V SCIENCE | IVE EXAMINATION - 2019 Reg. No. Marks : 60 |
|---|---|---|---|
| I. | Choose the correct answer : 5> | $\times 1 = 5$ IV. | Answer any 15 questions : $15 \times 2 = 30$ |
| 1. 2. | The unit of heat is a) Newton b) Joule c) Volt d) Celsius Formation of curd from milk is a) an reversible change | . 16. | Say true or false : a) Steam is formed when heat is released from water. b) The unit of heat and temperature are the same. |
| | b) a fast changec) an irreversible changed) a desirable change | 17. | Complete the given analogy : a) Heat : Joule :: Temperature b) Icecube : 0°C :: Boiling water |
| 3 . 4 . | is the percentage of nitro air. a) 78% b) 21% c) 0.03% d) 1% The 'control centre' of the eukaryo | ogen in 18. 19. | Make a list of electrical equipments at home which we get heat from. Arrange the sequence : A CELL A DEVICE ELECTRICAL ENERGY IS CALLED IN TO |
| 5. | is a) cell wall b) nucleus c) vacuoles d) chloropla Pendrive is device. | st 20. | CHEMICALENERGYTHAT CONVERTSCircle the odd one out :Switch, Bulb, Battery, Generator. |
| II. | a) output b) input c) storage d) connectin Fill in the blanks : 5> | $\begin{array}{c c} x_{1} = 5 \\ x_{1} = 5 \end{array}$ | Draw the circuit diagram for series connection. |
| 6. 7. | The SI unit of temperature is are the materials which electric current to pass through the | 22. | Complete the given analogy. Dissolution of glucose : reversible change : Digestion of food : change. |
| 8. | Magnet attracts iron needle. This is _ change. [a reversible / an irreversib | 23. | Circle the odd one out : a) Growth of a child, blinking of eye rusting, germination of a seed. |
| 9. 10. | The part of the skeleton that prote brain is gas turns lime water milk | y. | b) Glowing of a bulb, lighting of a candle, breaking of a coffee mug curdling of milk. |
| III. 11. 12. 13. 14. 15. | Match the following :5 ×Temperature-No heat :Thermal Equilibrium-ChlorophIce cube-KelvinFood producer-NucleusControl center-0°C | ×1= 5 flow lasts 24. 25. | What is a solution? Say true or false. a) Inhaled air contains a large amount of carbon - di - oxide. b) Whales come up to the water surface to breathe in oxygen. |

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26. What is atmosphere?

- 27. Fill in the blanks : who am I?
 - I take part in food production of a a) cell. Who am I?
 - I am like a police man, who am I? b)
- 28. Arrange in correct sequence :
 - Elephant, Cow, Bacteria, Mango, a) Rose plant
 - b) Hen'egg, Ostrich's egg, Insect's egg.
- **29**. Give any three examples of eukaryotic cell.
- **30**. Identify any four parts of the plant cell.



- 31. Arrange in correct sequence : Stomach \rightarrow Large intestine \rightarrow Oesophagus \rightarrow Pharynx \rightarrow Mouth \rightarrow Small intestine \rightarrow Rectum \rightarrow Anus
- 32. Write any two functions of digestive system.
- 33. Name the five important sense organs.
- **34**. Name the parts of a computer.
- 35. Write the equation of photosynthesis.
- V. Answer any three (3) Question in $5 \times 3 = 15$ detail :
- Table the different components of an **36**. electronic circuit and their respective symbols.
- 37. Give one example for each case that happens around you.
 - a) Slow and fast change.
 - Physical and chemical change. b)
 - Reversible and irreversible change. c)

- 38. Match the following :
 - Moving air - Photosynthesis a) b) Layer in which we live - Troposphere - Wind Stratosphere c)

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- Oxygen - Ozone layer d)
- Carbon-di-oxide Combustion e)
- 39. Draw a neat labelled diagram of a prokaryotic cell.
- **40**. Answer the following questions.
 - Which organ removes extra salts and a) water from the blood?
 - Where is the urine stored? b)
 - What is the tubes through which urine c) is excreted out the body?
 - d) What are the tubes that transfer urinary bladder called?

& & &

Answers

- 1. b) Joule
 - 2. c) an irreversible change
 - 3. 78% a)
 - 4. b) nucleus
 - 5. c) storage
- II. 6. kelvin
 - conductors 7.
 - 8. a reversible
 - 9. skull
 - 10. Carbon-di-oxide

III. 11.

14.

I.

- Kelvin

- 0°C

- 12. Thermal Equilibrium - No heat flow
- 13. Ice cube

Temperature

- Chloroplasts

- Nucleus

Food producer 15. Control center

Common Second Term Summative Examination - 2019

III.

- **16.** a) False. Ice is formed when heat is released from water.
 - b) False. The unit of heat and temperature are different.
- **17.** a) Kelvin
 - b) 100°C
- **18.** Water heater, Iron box, Electric kettle, Micro oven.
- **19.** A DEVICE THAT CONVERTS

 CHEMICAL ENERGY
 INTO

 ELECTRICAL ENERGY
 IS CALLED

 A CELL
- **20.** Generator. Switch, Bulb, Battery are the components used to make simple circuit. Generator is used to generate electricity.

21.



- **22.** irreversible change
- **23.** a) Rusting

Reason : Rusting is undesirable change.

b) Breaking of a coffee mug

Reason : Breaking of a coffee mug is undesirable change. Other three are desirable changes.

24. When a solute is dissolved in a solvent, it forms a solution.

Solute + solvent \rightarrow solution.

- **25.** a) False. Inhale air contains a large amount of Oxygen.
 - b) True

- **26.** Our Earth is surrounded by a huge envelope of air called the atmosphere. It is made up of five layers. They are
 - (i) Troposphere
 - (ii) Stratosphere
 - (iii) Mesosphere
 - (iv) Ionosphere
 - (v) Exosphere
- **27.** a) Chloroplast
 - b) Cell wall
- **28.** a) Bacteria, Mango, Rose plant, Cow, Elephant
 - b) Insect's egg, Hen egg, Ostrich's egg

29. Plant cell, animal cell, fungi and algae cell.



Plant cell

- **31.** Mouth \rightarrow Pharynx \rightarrow Oesophagus \rightarrow Stomach \rightarrow Small intestine \rightarrow Large intestine \rightarrow Rectum \rightarrow Anus.
- **32.** The functions of digestive system are
 - (i) It is involved in the conversion of complex food substances into simple forms.
 - (ii) It absorbs the digested food.
- **33.** The five important sense organs are eyes, ears, nose, tongue and skin.
- **34.** Input unit (keyboard, mouse, scanner), Central Processing Unit (CPU), Output unit (monitor, printer, speaker) are the parts of computer.
- **35.** Carbon di oxide + water Sunlight Chlorophyll Food + Oxygen,

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Sura's O Science (FY) - Term - II O 6th Std

| V. | | | | 37. | | | |
|-----------|---------------------|---------------------------|---|--|--|-------------------------|--|
| 36. | | | | S.No. | Changes | | Examples |
| S. No. | Electric component | Figure | Symbol | a) | Slow change | - | growth of nail and hair |
| 1. | Electric cell | 2)+) Cell | + | b) | Fast change Physical | - | burning of a paper drying of cloth |
| 2. | Battery | (1)+ (1)+ (1)+ Battery | + | | Chemical change | - | rusting of iron |
| 3. | Switch- open | 1 | Open | c) | Reversible change | - | melting of ice |
| 4. | Switch- closed | an an | Closed | | Irreversible change | - | change of milk into curd. |
| 5. | Electric bulb | | _م (not glowing) کشر (Glowing) | 38. a) b c c d d a | Moving ai Layer in which we Stratosphe Oxygen Carbon-di- | r live re -oxi | - Wind e - Troposphere - Ozone layer - Combustion ide - Photosynthesis |
| 6. | Connecting wires | \approx | | Out | er and | 10 10 | |
| | | | | Inn Memb 40. a) | er prane Prokar Kidney rer from the b | yot nov | Flagellum tic cell ves extra salts and water tid. |

- b) Urine is stored in urinary bladder.
- c) Urine is excreted out of the body through urethra.
- d) Ureter transfers urine from the kidneys to the urinary bladder.
