Qw
22.07.2021

CH-2. (Q1A)

A. Objective Questions

1. True or false

a) S.I unit of temperature is fahrenheit. ans- False

b) Every measurment involves two things - a number and a unit. True (ans)

c) Mass is the measure of quantity of matter ans- True

d) The S.I unit of time is hour. ans- False

e) The area can be expressed as the product of lengths of the two sides. ans- True

2. Fill in the blanks.

a) The S.I unit of length is metre. Of time is second. Of mass is kilogram.

b) °C is the unit of temperature.

c) 1 metric tonne = 1000 kg.

d) The zero mark in Celsius thermometer is the melting point of ice.

e) The thermometer used to measure the human body temperature is called the clinical thermometer.

f) The normal temperature of human body is 37 °C or 98.6 °F.

g) The mass of an object is measured with the help of a beam balance.

3. Match the following columns-

| Column A | Column B |
|---|---|
| a) length of a | |
| (iv) housing plot | i) Clock |

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(xl) b) Breadth of a book  ii) Beam balance

(xii) c) Mass of an apple  iii) Thermometer

(xiii) d) Period of time for study  iv) Measuring Tape

(xiv) e) Temperature of a body  v) Graph paper

(v) f) Surface area of a leaf  vi) Metre ruler

4. Select the correct

a) The symbol of degree celsius is:
ans- i) °C

b) 10mm is equal to: ans- i) 1 cm

c) The amount of surface occupied by an object is called its - ans- i) Volumn

d) A metre ruler is graduated in: ans- ii) mm

e) A thermometer is graduated in : ans-
ii) °C

B. Short / Long Answer Questions.

1. What is measurment ? How is a measurment expressed ?
ans- Measurment is a comparision of an unkown quantity with a known fixed quantity of the same kind.
The value obtained on measuring a quantity is called its magnitude. The magnitude of a quantity is expressed as numbers in its unit.

2. State two characteristics of unit.
ans- Two characteristics of a unit are
1. It should be of convenient size.
2. It must be universally accepted, i.e. Its value must remain same at all places and at all times.

3. Name four basic measurments in our daily life.
ans- In our daily life we measure the following four basic physical quantities.

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1. Length
2. Mass
3. Time
4. Temperature

4. What are the S.I units of (i) mass (ii) length (iii) time and (iv) temperature? Write their names and symbols.

ans S.I units are as follows

| | Quantity | S.I unit | Symbol of S.I unit |
|---|---|---|---|
| (i) | Mass | kilogram | kg |
| (ii) | Length | metre | m |
| (iii) | Time | Second | S |
| (iv) | Temperature | Kelvin | K |

5. Define one metre, the S.I unit of length. State its one multiple and one sub-multiple.

ans- One metre is defined as the distance travelled by light in air in $\frac{1}{299,792,458}$ of a second.

Multiple of metre = Kilometre
Submultiple of metre = Centimetre

6. Convert the following quantities as indicated:

(a) 12 inch = 1 ft

(b) 1 ft = 30.48 cm

(c) 20 cm = 0.2 m

(d) 4.2 m = 420 cm

(e) 0.2 km = 200 m

(f) 0.2 cm = 2 mm

(g) 1 yard = 0.91 m

100 cm | 1 cm

c) $\therefore 1\text{cm} = \frac{1}{100}\text{ m}$

$\therefore 20\text{cm} = \frac{1}{100} \times 20\text{m} = 0.2\text{m}$

d) 1 m = 100 cm

$4.2\text{m} = 100 \times 4.2\text{ cm}$

$= 100 \times \frac{42}{10}\text{ cm} = 420\text{m}$

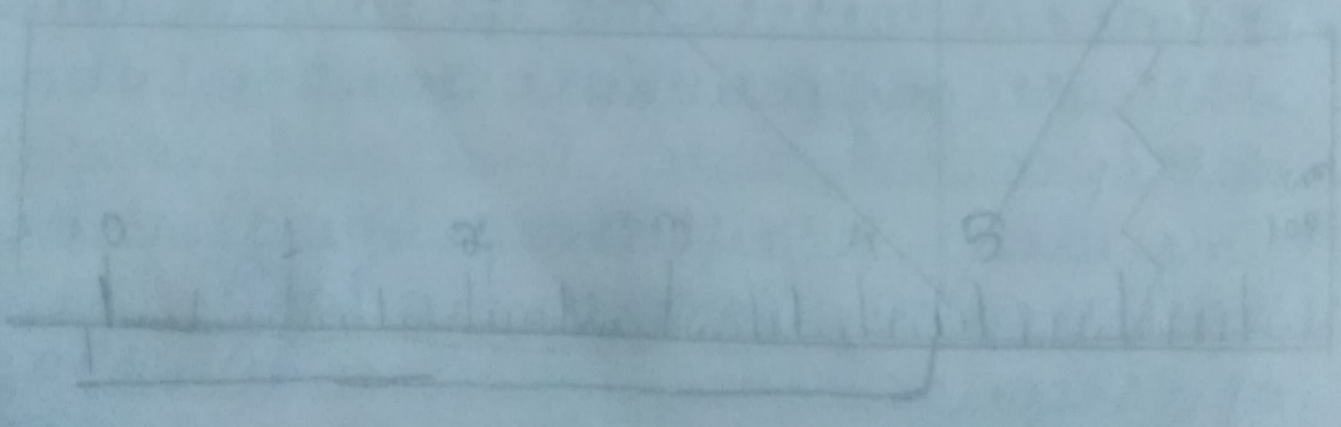
7. (a) Describe in steps how would you measure the length of a pencil using metre rule. Draw a digram if necessary.

Ans

Correct Position (4.3 cm) (B)

Wrong Position (4.2 cm) (A)

Wrong Position (4.4 cm) (C)



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To measure the length of a pencil using a metre ruler, place metre ruler with its marking close to the object but PQ be a pencil.

The end P of the pencil coincides with zero mark on the ruler. The end Q of the pencil is read by keeping the eye at the position 'B' vertically above the end Q. So the length of pencil is 4.3 cm.

(c) Explain with an example how you will use the the metre rulers in part (a) if the ends of ruler are broken.

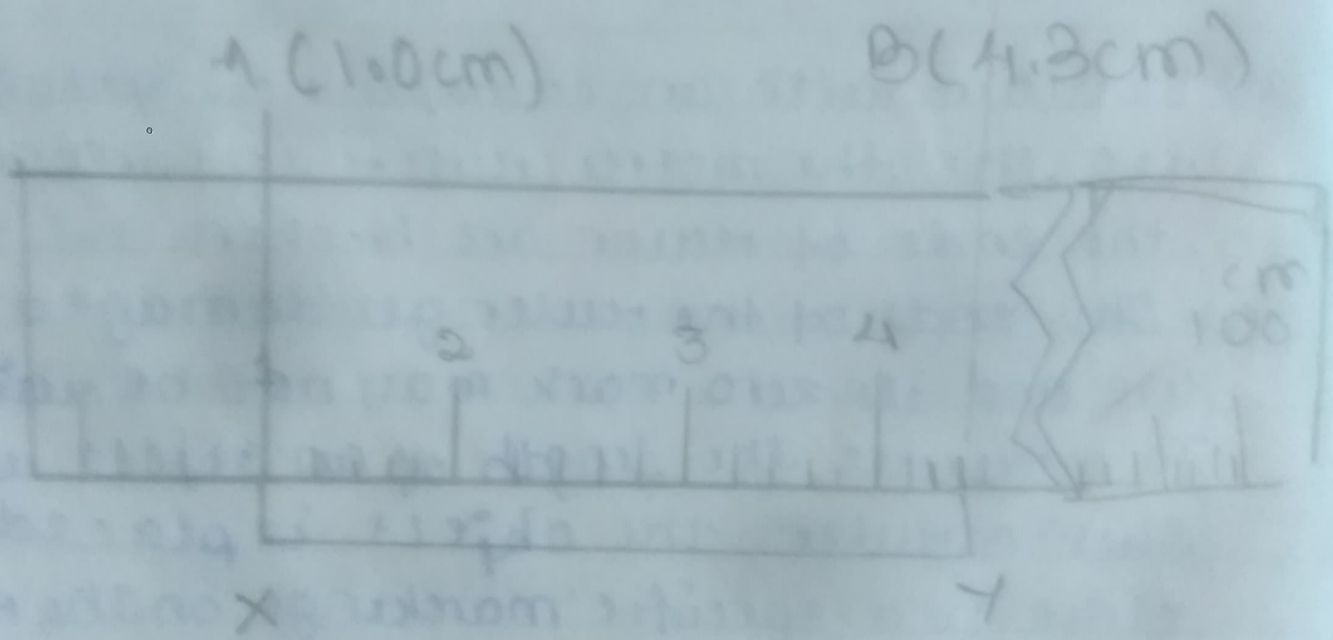
ans. The ends of the ruler get damaged with use and its zero mark may not be visible. To measure the length of an object using such a ruler, the object is placed close to a specific markings on the ruler and positions of both ends of the object are read on the ruler.

The difference of the two reading gives the length of the object. In fig the readings on rulers at the end X is 1.0 cm and at the end Y is 4.3 cm. So the length of the rod XY is 4.3 - 1.0 = 3.3 cm

8. Name the device which you will use to measure the perimeter of your play ground. Describe in steps how will use it.

Ans. We will use a measuring tape to measure the perimeter of our playground. To measure the length of ~~the~~ playground the tape is spread along the length of the curved area.

Q7 (b) Diagram




Q.9. The digram ~~below~~ shows a stick ~~of~~ placed a metre RULER. The length of the stick is measured keeping the eye at positions A, B and C.

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ans Write the length of stick PQ as observed.

(c) For each position of the eye. Are they all same?

ans Length of stick PQ from
Position A = 3.4 cm
Position B = 3.2 cm
Position C = 3.00 cm
No they are not same.

b) Which is the correct position of the eye? Write the correct length of the sticks.

ans 'B' is the correct position of the eye. Correct length of the stick PQ = 3.2 cm

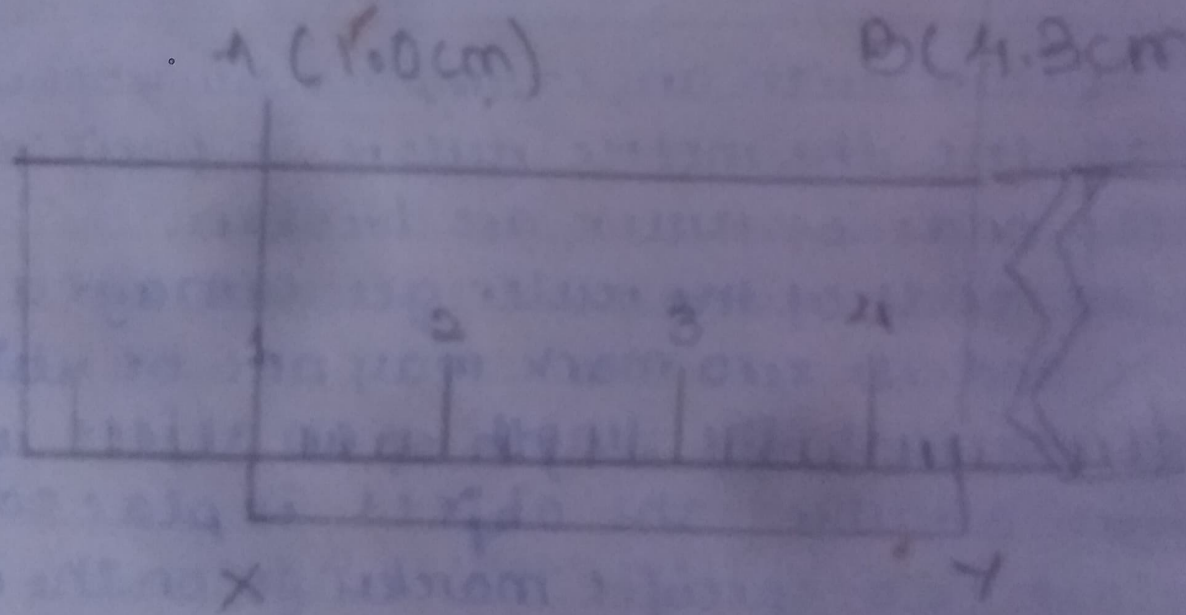
10. Define mass. State its (1) S.I (2) C.G.S and (3) units. How are they related?

ans The mass of a body is the quantity of matter contained in it. The S.I unit of mass is kilogram. In short form, it is written as kg.
In C.G.S system, the unit of mass is gram. (Symbol g).
In F.P.S system, the unit of pound. (Symbol lb)

8. Name the device which you will use to measure the perimeter of your play ground. Describe in steps how will use it.

One we will use a measuring tape to measure the perimeter of our playground. To measure the length of playground the tape is spread along the length of the curve area.

Q7 (b) Diagram




Q.9. The diagram below shows a student using a metre RULER. The length of the thick thread keeping the eye at positions A & B

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f) $5mg = 5 \times 10^{-6} kg$

$5 mg = \frac{5}{1000} g$ or $5 \times 10^{-3} g$

$= \frac{5}{1000} g$ or $5 \times 10^{3} g = \frac{5}{1000 \times 1000}$ or

$5 \times 10^{-6} kg$

12. Name the instrument which is commonly used to measure the mass of a body? State how it is used.

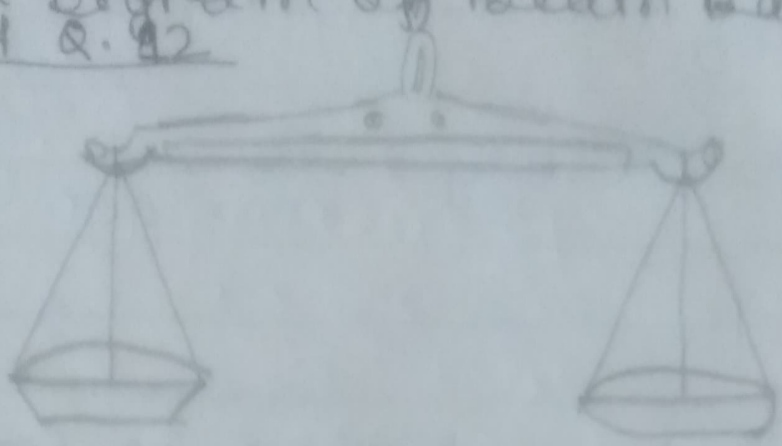
ans Instrument commonly used to measure the mass of a body, is the beam balance. When we hold up the balance, we observe that when there is nothing on either pan the beam is horizontal. The body who mass is measured is placed on the left pan. The standard weight are put on the right pan. They are so adjusted that beam is again horizontal on holding it up. The total of the standard weights gives the mass of the body. (Diagram on next Pg)

Q13. Define One kilogram, the S.I Unit of mass. How is it related to i) quintal ii) Metric tonne and iii) Gram?

ans- The mass of 1l of water at 4°c is taken 1 kilogram.

1 quintal = 100kg
1 metric ton = 10 quintal = 1000kg

Q.12 Digram of Beam Balance.
Part of Q.12



Left pan Right pan

Q.14. Name and define the S.I unit of time. How is related to i) Minute ii) Hours iii) Day and iv) year?

ans- The S.I unit of time is second. In short One second is the time interval between the two consecutive ticks we hear from pendulum wall clock.

1 min = 60 sec
1 h = 60 min = 3600 s
1 day = 24 h = 86400 s
1 year = 365 days = $3.15 \times 10^{7}$ s

Q.15. Name two devices used to measure the short time interval of an event.
ans- Two devices used to measure the time interval of an event are-
1. Stop watch
2. Stop clock.

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Q16. Express in Second i) 3 min 15 sec and ii) 5 hour 2 min 5 sec.

ans. i) 3 min = 15s

1 min = 60s

3 min 15s = 60 × 3 + 15

= 180 + 15

= 195 second

ii) 1 minute = 60 sec

2 min = 2 × 600 = 120 s

1 h = 3600 s

5 hour 3600 × 5 = 18000 s

5 hour 2 min 5s

= 18000 + 120 + 5 = 18125 s

17 What does the temperature measure?

ans. Temperature measures the degrees of coldness and hotness of a body.

18. Name the i) S.I unit and ii) one common unit of temperature. write their symbols also.

ans - S.I unit of temperature is Kelvin (K)

Common unit of temperature is degree centigrade (°C)

Q19. Name the instrument used for measuring the temperature of a person.

ans - The temperature is measured with a thermometer.

20. Write the temperature of i) melting ice and ii) boiling water.

ans - The temperature of
1. melting ice = 0°C
2. boiling water = 100°C

Q21. What is a clinical thermometer. State its special features.

ans - Doctors use a special thermometer called the clinical thermometer for measuring the temperature of the patient body. This thermometer has the marking from 35°C to 42°C. It has a slight bend or kink in the stem just above the bulb. The kink is called the constriction. This constriction prevent the mercury from falling back all by itself. The temperature of a healthy person is 37°C. This temperature is marked by a red arrow.

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22. What is the normal temperature of a human body? How is it indicated in a clinical thermometer?

ans- Normal temperature of a human body is 37°C or 98.6°F.

To measure the temperature of a patient body, its bulb is kept either below the tongue or under the arm's pit of the patient for about a minute. Then the thermometre is taken out and its reading is noted. When the temperature of patient's body is above 37°C, he is said to suffer with fever.

23 Can a clinical thermometer be used to measure the temperature of boiling water? Given reason for your answer.

ans- No, a clinical thermometer cannot be use to measure the temperature of boiling water.

The reasons are -

1. It has a very small range
2. It can break on cooling and on excess heating.

24 Explain the 'Area of a surface'.

ans- The total surface occupied by an object

is called its area or surface area.

25. Name the S.I unit of Area and define it.

ans- The S.I unit of area is square metre or metre$^2$ which in short form is written as $m^2$.

26. How are the units i) Square yard ii) hectare iii) $km^2$ iv) $cm^2$ v) $mm^2$ related to the S.I unit of Area?

ans- (i) Square yard: One square yard is the area of a square of each side 0.836 metre

1 square yard = 1 yard × 1 yard

= 0.9144 × 0.9144 m

= 0.836 $m^2$ (or 0.84 $m^2$ nearly)

(ii) hectare = One hectare is the area of a square of each side 100 metre, Then,

1 hectare = 100 metre × 100 metre = 10000 metre$^2$

(or $10^4 m^2$)

(iii) $km^2$ = One square kilometer is the area of a square of each side 1 kilometre. Then,

$1 km^2 = 1 km \times 1 km = 1000 m \times 1000 m = 10^6 m^2$

27. Explain how you will measure the area of i) a square b) a leaf.

Ans- The area of a square can be calculated by using the following formula -

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5. Area of a square side 1
= side x side
= 1 x 1 = $L^2$

The area of a leaf is obtained by using graph paper. A graph paper has small squares of each side 1mm. The area of each big square is 1cm².
Procedure: Place the leaf on the graph paper. Draw its outline on the paper and remove it. Now count the number of complete squares. To this add the number of incomplete squares which are half or more than half. Ignore the squares which are less than half. Then

Approximate area = (No. of complete squares + no. of half or more than half of incomplete squares) x area of one square.

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