



Questions

1) Write the scientific term:

1. The fixed point of a rigid bar. [.....]
2. A rigid bar rotates on a fixed point & affects by a force & resistance [.....]
3. Levers that have the fixed point between the force & the resistance . [.....]
4. Levers that have the force between the resistance & the fixed point. [.....]
5. Levers that have the resistance between the force & the fixed point. [.....]
6. Levers that always conserve the effort . [.....]
7. Levers that don't conserve the effort . [.....]
8. Levers that sometimes conserve the effort. [.....]
9. The scientist who described lever. [.....]
10. The exerted force by a person to equilibrate the resistance force. [.....]
11. The distance from fulcrum to effort force . [.....]
12. The distance from fulcrum to resistance. [.....]
13. A force is resulted from the body that want to move it. [.....]
14. The simple machines act as effort saving. [.....]



2) Complete the following:

1. Levers which make tasks perform more easily by means of,
.....
2. The crowbar is considered aclass lever , but the manual broom
is aclass lever .
3.&are examples of the first class lever.
4.&are examples of the second class lever.
5. &are examples of the third class lever.
6. The law of levers states that
7. The type of levers that always conserves effort is
8. There is a conservation of effort for the first class levers if the
..... is larger than
9. The force & the resistance are equal in levers if
10. The nutcracker is an example of thelevers .
11. The most popular levers in our daily life is
12. lever is used to increase the force, while lever to
increase distance.
13. Force X its arm = ×
14. A simple machine consists of a bar that makes tasks perform more easily
is called
15. The lever is a that rotates on a fixed point called fulcrum.



3) Give reason for:

1. The second class levers conserve effort .
2. The third class levers do not conserve effort.
3. The force & the resistance can be equal only in the first class levers.
4. Some of the levers are important to man although they do not conserve effort.
5. The force doesn't equal the resistance in the 2nd class lever.
6. Doctors use tweezers in surgeries.
7. nut cracker is used to increase the force, while manual broom to increase the distance.
8. seesaw is 1st class lever, while wheel barrow is 2nd class lever.
9. sometimes the 1st class lever saves effort.

4) Problems:

- 1) A force of 50 Newton affects a lever of the 2nd class its force arm 20 cm calculate the resistance given that the arm of the resistance = 5 cm
- 2) A 2nd class lever of force 100 Newton its force arm of length is 25 cm the resistance of 500 Newton calculate the resistance arm.
- 3) Graduated ruler of length 1 m was hung from the middle, then a load of 200 gm. hung 10 cm from one of its ends, where can you hang a load of 400 gm. from its center to be balanced ?
- 4) The length of the force arm is 5 cm, length of the arm of resistance is 15 cm. If the resistance has a value of 300 newton and affecting force is 900 newton Is this lever balanced?



5) Write the scientific term:

1. Means of converting the electric energy to lighting.
[.....]
2. The flow of electric charges (electrons) through a material conducting electricity.
[.....]
3. The scientist who invented the light bulb. [.....]
4. A way in which the light bulbs are connected one after another , and the light intensity of the bulbs decreases with the increase in their number.
[.....]
5. The way by which the bulbs are connected by branching routes and the lighting of the lamps is not affected with the increase in their number.
[.....]
6. A coiled thin wire made of tungsten in light bulbs.
[.....]
7. It is a closed and continuous path through which the electric current will pass making a complete cycle. [.....]
8. A way of connection with which the lamps and machines are connected in houses. [.....]
9. A material that covers the inner tube surface of fluorescent lamp.
[.....]

6) Give reasons for each of the following:

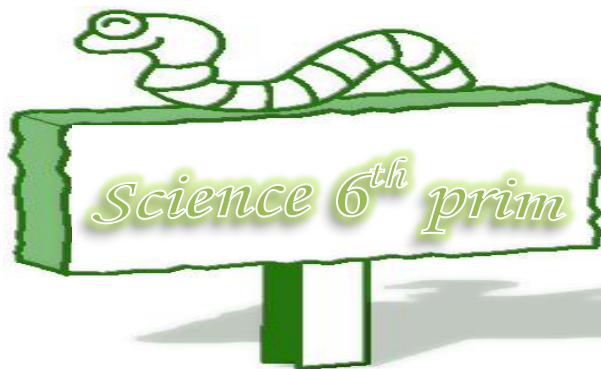
1. There are two pieces of lead in the light bulb.
2. The light bulbs are connected in parallel in the house.
3. The filament of the light bulb is made of tungsten.



4. The presence of inert gas (argon) inside the light bulbs.
5. The presence of two copper wires in the light bulb.
6. The presence of glass bulb in electric bulb.
7. The electric circuits are made of electric conductors.
8. The electric wires are covered with insulating materials.

7) Complete the following:

1. Some of the types of electric lamps areand
2. The filament of the light bulb is made ofand that is because it has a high
3. The fluorescent lamp containsgas and little of
4. The light bulb consists of,and
5.andare two ways for connecting electricity.
6. The simple electric circuit consists of,and ...
.....
7. In the case of connecting the lamps inthe lighting of the lamps decreases with increasing their number.
8. In the case of connecting the lamps in parallel connection the lighting of the lampswith increasing their number.
9. The electric lamp converts electric energy into energy .
10. The electric lamps are connected in the house in
11. When the electric lamp is connected in parallel with others the light intensity



8) Compare between each of the following :

1. The light bulb & fluorescent lamp.
2. Parallel connection & series connection

1) Write the scientific term:

1. One of the dangers of the electricity that occurs when human body is a part of a closed circuit. [.....]
2. Fire occurs as a result of the increase in the temperature of the electric machine. [.....]
3. One of the dangers of the electricity causing the damage of the tissues of the body. [.....]
4. Materials that allow the electric current to pass through them. [.....]
5. Materials not allowing the electric current to pass through them. [.....]

2) Correct the underlined words:

1. Wood is considered a good conductor of electricity .
2. The electric fire occurs due to the passage of the electric current through the human body.
3. Fires resulted from electricity are extinguished by water.

3) What happens if :

1. The spark resulting from the electric fire touches any part of your body.
2. Touching a naked wire , while touching the ground.
3. The electric heater is too close to furniture or carpets.



4. The electric fires are put out by water.
5. You insert a metal bar in an electric socket.
6. A man touches uncovered wire carrying electric current.
7. There would not be levers.
8. The force arm is longer than resistance arm.
9. The tungsten filament of the light bulb is replaced with copper.
10. The absence of an inert gas in the light bulb.
11. Connecting all light bulbs in series in the house.
12. Electricity is not handled cautiously.
13. Opening the electric circuit by using the electric switch.

4) Complete the following statements:

1. and are some of the causes of the burns resulting from electricity.
2. The leads to destroying the tissue of the body.
3. and are good conductors of electricity.
4. and are electric insulators.
5. The electric shock occurs as a result of passing through the human body.

5) Give reasons for :

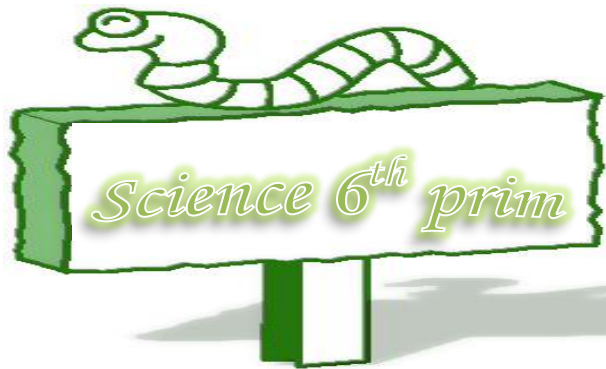
1. Water is not used to put out electric fires.
2. Pushing the injured by non - conducting thing
3. Don't place metallic object inside the socket.
4. Not placing flammable materials close to electric machines.
5. The human body is a good conductor of electricity.



6. Avoiding the usage of water in putting off fires resulted from electricity.
7. Avoid operating more than one machine in the same socket.

6) Choose :

1. The 1st class lever differs from that of the 2nd class lever in
 - a) the absence of the acted force
 - b) the presence of fixed point to rest on.
 - c) the position of fulcrum
2. Which of the following is a 2nd class lever?
 - a) sweet holder
 - b) wheel barrow
 - c) see saw
3. The force is between the resistance and fulcrum in
 - a) nut crackers
 - b) scissors
 - c) sweet holder
4. Which gas of the following gases is found in the fluorescent lamp but not in the electric bulb.
 - a) neon
 - b) Argon
 - c) mercury vapor
5. Tungsten is preferred to use in electric lamps because of
 - a) its bad conductivity
 - b) its low melting point
 - c) its high melting point
6. When an electric lamp which connected in series with other burns.
 - a) the light intensity decreases
 - b) the light intensity increases
 - c) all lamps turn off



7. From the examples of good electric conductors substances is ...
 - a) wood
 - b) plastic
 - c) copper
8. is considered from 3rd class lever.
 - a) fish hook
 - b) see saw
 - c) nutcracker
9. force arm is sometimes equal to resistance arm in lever.
 - a) first
 - b) second
 - c) third
 - d) first and third
10. The filament of the light bulb is made of
 - a) iron
 - b) copper
 - c) tungsten
 - d) aluminum
11. All the following materials allow the flow of the electric current except
 - a) copper
 - b) rubber
 - c) iron
 - d) aluminum
12. All the following gases are used in the electric lamps except
 - a) argon
 - b) neon
 - c) xenon
 - d) atmospheric air
13. When the electric lamp is connected in parallel with others, the light intensity
 - a) decreases
 - b) increases
 - c) vanishes
 - d) doesn't change
14. Which lever saves more effort?
 - a) scissors
 - b) nutcrackers
 - c) fish hook
 - d) sweet holder
15. All the following are functions for levers except
 - a) increasing force
 - b) decreasing speed
 - c) increasing distance
 - d) saving effort



7) What's meant by each of the following :

1. electric shock
2. bad conductor of electricity
3. fulcrum
4. lever
5. good conductor of electricity
6. simple electric circuit

8) Mention some precautions to deal with the electricity

9) Put (√) or (×) and correct the wrong :

1. If the arm of force is smaller than the arm of the resistance, then the lever conserves the effort. ()
2. The filament of the light bulb is made of carbon. ()
3. The electric lamp contains hydrogen gas. ()
4. The electric lamps are connected in the house in series. ()
5. Plastic is a good conductor of electricity. ()
6. The 3rd class levers save effort. ()
7. The glass bulb of the light bulb contains atmospheric air. ()
8. The spiral base of the light bulb glows due to passing the electric current through it. ()
9. Electric insulators allow the flow of electric current through them. ()



10. Electric shock occurs as a result of passage of the electric current to the human body. ()
11. If the injured with an electric shock can't breathe, start immediately artificial respiration. ()
12. The swelling of light bulb contains oxygen gas. ()

Complete :

1. eclipse occurs when comes between the sun and earth.
2. eclipse occurs when the moon comes in an orbit higher than the earth.
3. eclipse occurs when the earth in the shadow area of the moon.
4. eclipse occurs when the earth in the semi - shaded area of the moon.
5. We shouldn't look directly to the sun as it emits & that may cause
6. is the dark inner shadow of the moon.
7. is the semi - shaded area of the moon.
8. revolve around the earth in orbit.
9. Lunar eclipse occurs when between sun &
10. lunar eclipse occurs when the whole moon enter the shaded area of the earth.



11. eclipse occurs when the part of the moon enter the umbra area of the earth.
12. lunar eclipse occurs when the whole moon enter the umbra bra region.
13. Lunar eclipse phenomenon occurs in the of lunar month & a year.
14. The colour of the moon turned to in the beginning of lunar eclipse.
15. The duration of the solar eclipse doesn't exceed whereas the duration of lunar eclipse lasts more than
16. The moon returns back to same point where the lunar or solar eclipse occurred after and this is called
17. are devices that collects light to form magnified photos of celestial bodies.
18. The scientist is the first one who made which is used in the vision of celestial bodies such as stars and planets.
19. places where a astronomers work & where are kept are called
20. The most famous modern telescope is that revolve around the earth in orbit of km higher than sea's surface.



21. The 1st satellite was launched in & it is called
22. are groups of millions of stars.
23. The galaxy that we live in it is called it has shape and arms.
24. , & are small rocky planets.
25. , & are huge gaseous planets.

Give reasons for:

1. We can not see the sun completely during the total solar eclipse.
2. The types of the solar eclipse differ due to the movement of the moon in front of the sun.
3. We should not look at the sun by the naked eye.
Or : We must use some instruments to look at the solar eclipse.
4. An annular eclipse occurs when the moon comes in an orbit higher to earth.
5. No annular lunar eclipse is formed like the annular solar eclipse.
6. Placing telescopes in space rather than on the earth's surface is recommended.
7. Nowadays, man spreads space stations & sends satellites outside the earth.



8. The phenomena of solar & lunar eclipse are regularly repeated & can be predicted.
9. The phenomenon of solar & lunar eclipse are considered an application of the umbra phenomenon.
10. We must use telescope to study stars accurately.
11. The lunar eclipse occurs in the middle of the lunar month.
12. The lunar eclipse doesn't require precautions to observe it.
13. The moon is colored in red at the start of the total lunar eclipse.
14. Since the past , Man was concerned with observing stars & planets.
15. In the past , exploring the Arab month's crescent was through climbing on top of mountains and minarets.
16. The Arabs have a great history in space monitoring and exploration.
17. Space monitoring and exploration got improved due to the development in making telescope.
18. Occurrence of solar eclipse.
19. The observatories have dome shape ceilings that are opened at night.
20. The moon blocks the sunlight from reaching the earth when it comes between the sun and the earth.
21. The distance between the moon and the earth varies during the moon's rotation around the earth.
22. Satellites are provided with cameras and telescope.



23. Lenses and mirrors are used in making telescopes.

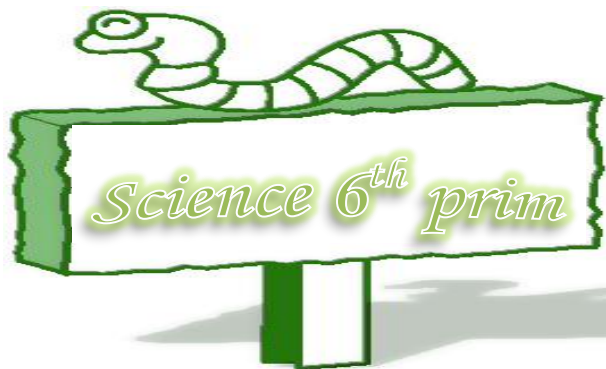
24. Occurrence of lunar eclipse.

What would happen if:

1. The whole moon enters the cone umbra area.
2. The whole Earth enters in the extension of the cone umbra area.
3. Someone looks to the sun directly with the naked eye for a long time.

Complete :

1. Stomata are wide spreading on of plant leaves.
2. root hair has age.
3. root hair absorbs most water by
4. root hair wall is
5. root hairs secrete substance which help in water absorption.
6. Plant stomata are surrounded by cells.
7. Plant loses water in form of water vapour through by
8. follows the epidermis layer , while follows the cortex layer.
9. Any plant consists of root system &
10. is the last layer in the structure of root.



11. in plant allows only some salts to pass through according to the plants need.

12. The plant takes from the air and water from soil within the presence of light , then plant form its food by process.

Give reasons for:

1. The root hair secretes sticky material.
2. In the plant , the root hair can absorb water from the soil.
3. Presence of holes in the lower surface of plant leaves.
4. Each stoma is surrounded by two guard cells.
5. Presence of a cellular membrane in the root hair.
6. The age of a root capillary does not exceed a few days.
7. The concentration of the solution inside its vacuole is larger than concentration of soil solution.
8. The root system in plant is extended through the soil.
9. The root hairs have thin wall.

Write the scientific term:

1. A phenomenon which occurs when the earth , the moon & sun are nearly in one straight line with the moon in the middle.

[.....]

2. A dark inner shadow in which total solar eclipse appears.

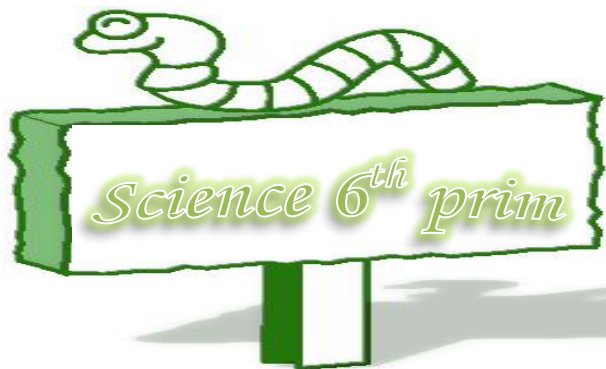
[.....]



3. A faint outer shadow in which partial solar eclipse appears.
[.....]
4. A type of eclipse in which we can't see the sun completely & it is formed in shadow area of moon.
[.....]
5. A type of solar eclipse in which we can see a part of sun & it is formed in penumbra area of the moon.
[.....]
6. A type of solar eclipse in which the sun appears as lighting ring & it is formed when the moon is a higher orbit from the earth.
[.....]
7. A phenomenon occurs when the sun, earth & moon are nearly on one straight line with the earth in the middle hiding the sunlight from the moon.
[.....]
8. It is the lunar eclipse which occurs when the whole moon enters the shadow area (umbra) of the earth.
[.....]
9. It is the lunar eclipse which occurs when a part of the moon enters the shadow area (umbra) of the earth.
[.....]
10. It is the device which is used to form magnified photos for distant objects such as celestial bodies.
[.....]



11. They are groups of millions of stars forming beams of light in the middle of extreme darkness in space. [.....]
12. The most famous space monitoring telescope. [.....]
13. The 1st scientist who made an astronomical telescope. [.....]
14. The 1st satellite that was launched in an orbit around the earth. [.....]
15. The 1st scientist who saw the moon's mountains through a telescope. [.....]
16. The group of planets that contains Mercury , Venus , earth and Mars. [.....]
17. The group of planets that contains jupiter , saturn , uranus and Neptune. [.....]
18. The telescope that will replace hubble telescope. [.....]
19. Structure in plant , water passes through it from root to stem to leaves. [.....]
20. Biological process through which plants lose water inform of water vapour. [.....]
21. A structure extends from plant skin and absorbs water. [.....]



22. Two cells inside leaf stoma. [.....]
23. Transmission of water molecule through semi - permeable membrane from area of high concentration of water to area of low concentration of water. [.....]
24. They control opening & closing of plant stomata. [.....]
25. Holes wide spread on the lower surface of the plant structure. [.....]
26. Structure that allow only some salts to pass through according to the plant's need. [.....]
27. It is a process by which the cell membrane of the root hair allows some types of salts to pass according to the plants need. [.....]
28. It is a biological process through which green plants form its food from raw materials in their environment. [.....]
29. Cells in the root which regulate the crossing of water into xylem. [.....]
30. The process by which the plant obtains energy. [.....]
31. The layer where root hairs extends from. [.....]



32. The cycle in which moon returns back to same point where the lunar or solar eclipse occurred after 18 years & 11.3 days.

[.....]

33. Plant loses water in the form of water vapor.

[.....]

34. A part of the plant that penetrates through the soil particles and fixes , the plant.

[.....]

What would happen if:

1. The absence of stomata in the plant leaves.
2. The plant carries out transpiration process inside the jar.
3. The absence of guard cells which surround the stoma.
4. There is no osmosis feature in the plant.
5. The root hair doesn't secrete sticky substance.
6. The concentration of the solution decreases inside the sap vacuole.



Answers

1) Write the scientific term:

1. The fixed point of a rigid bar. [fulcrum]
2. A rigid bar rotates on a fixed point & affected by a force & resistance . [lever]
3. Levers that have the fixed point between the force & the resistance . [1st class lever]
4. Levers that have the force between the resistance & the fixed point. [3rd class lever]
5. Levers that have the resistance between the force & the fixed point. [2nd class lever]
6. Lever that always conserve the effort . [2nd class lever]
7. Levers that don't conserve the effort . [3rd class lever]
8. Levers that sometimes conserve the effort. [1st class lever]
9. The scientist who described lever. [Archmides]
10. The exerted force by a person to equilibrate the resistance force. [effort force]
11. The distance from fulcrum to effort force. [force arm]
12. The distance from fulcrum to resistance. [resistance arm]
13. A force is resulted from the body that want to move it. [resistance force]
14. The simple machines act as effort saving. [2nd class levers]



2) Complete the following:

1. Levers which make tasks perform more easily by means of ... increasing force , distance or speed , avoid dangers
2. The crowbar is considered a ... 1st ... class lever , but the manual broom is a ... 3rd ... class lever .
3. ... Scissors ... & ... Crowbar ... are examples of the first class lever.
4. ... wheel barrow ... & ... nutcracker ... are examples of the second class lever.
5. ... Fish hook ... & ... tweezer ... are examples of the third class lever.
6. The law of levers states that ... force X its arm = Resistance X its arm
7. The type of levers that always conserves effort is ... 2nd class lever...
8. There is a conservation of effort for the first class levers if the ... arm of force ... is larger than ... arm of resistance... .
9. The force & the resistance are equal in levers if ... arm of force equals arm of resistance.... .
10. The nutcracker is an example of the ... 2nd class... levers .
11. The most popular levers in our daily life is 1st class lever...
12. ...crow bar... lever is used to increase the force, while ...manual broom... lever to increase distance.
13. Force X its arm = ... resistance ... × ... its arm ...
14. A simple machine consists of a bar that makes tasks perform more easily is called ...lever...
15. The lever is a ...rigid bar... that rotates on a fixed point called fulcrum.



3) Give reason for:

1. The second class levers conserve effort .

- Because arm of force is longer than arm of resistance so the force is smaller than the resistance.

2. The third class levers do not conserve effort.

- Because arm of resistance is larger than arm of force so the force is greater than the resistance.

3. The force & the resistance can be equal only in the first class levers.

- Because fulcrum is between force & resistance

4. Some of the levers are important to man although they do not conserve effort.

- As they have another benefits as avoid danger , accuracy in performance , increasing speed or distance.

5. The force doesn't equal the resistance in the 2nd class lever.

- Because arm of force is always longer than arm of resistance so force is always smaller than the resistance

6. Doctors use tweezers in surgeries.

- to pick up small objects and be more accurate in performance.

7. nut cracker is used to increase the force, while manual broom to increase the distance.

- Because nutcrackers use small force to make great effort, while manual broom by moving small distance from the upper part , it moves objects for a long distance.



8. seesaw is 1st class lever, while wheel barrow is 2nd class lever.

- Because the seesaw has the fulcrum between force and resistance, while in wheel barrow, the resistance is in the middle.

9. sometimes the 1st class lever saves effort.

- Because sometimes, the arm of force is longer, so my force is smaller and I save my effort.

4) Problems:

1) A force of 50 Newton affects a lever of the 2nd class its force arm 20 cm calculate the resistance given that the arm of the resistance = 5 cm

Answer:

Force X its arm = Resistance X its arm

$$50 \times 20 = ? \times 5$$

$$\text{The resistance} = \frac{50 \times 20}{5} = 200 \text{ Newton}$$

2) A 2nd class lever of force 100 Newton its force arm of length is 25 cm the resistance of 500 Newton calculate the resistance arm.

Answer :

Graduate ruler

Force X its arm = Resistance X its arm

$$100 \times 25 = 500 \times ?$$

$$\text{The resistance arm} = \frac{100 \times 25}{500} = 5 \text{ cm}$$



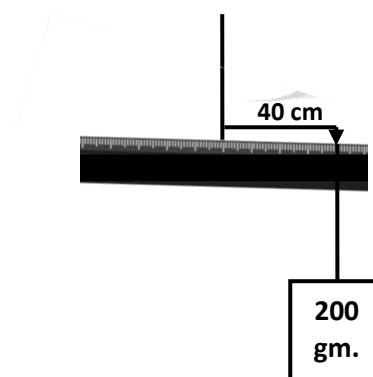
3) Graduated ruler of length 1 m was hung from the middle, then a load of 200 gm. hung 10 cm from one of its ends, where can you hang a load of 400 gm. from its center to be balanced ?

3) Force = 400 gm. = 4 N

Resistance = 200 gm. = 2 N

Force X its arm = Resistance X its arm

Force arm = $\frac{2 \times 40}{4} = 20 \text{ cm.}$



4) The length of the force arm is 5 cm, length of the arm of resistance is 15 cm. If the resistance has a value of 300 newton and affecting force is 900 newton Is this lever balanced?

4) Force X its arm = 900 N X 5 cm = 4500

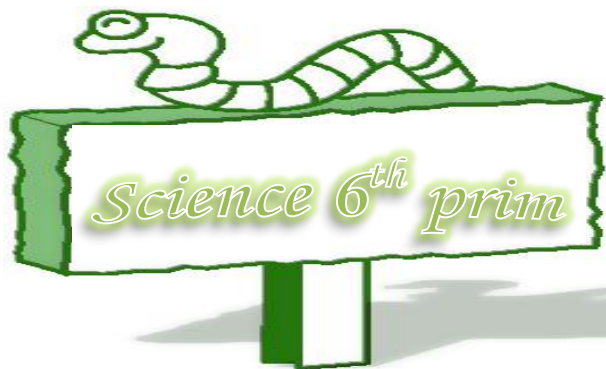
Resistance X its arm = 300 N X 15 cm. = 4500

Because $F \times \text{its arm} = R \times \text{its arm}$

So this lever is balanced.

1) Write the scientific term:

1. Means of converting the electric energy to light. [Electric lamps]
2. The flow of electric charges (electrons) through a material conducting electricity. [Electric current]
3. The scientist who invented the light bulb. [Thomas Alpha Edison]
4. A way in which the light bulbs are connected one after another , and the light intensity of the bulbs decreases with the increase in their number. [Series connection]



5. The way by which the bulbs are connected by branching routes and the lighting of the lamps is not affected with the increase in their number.

[Parallel connection]

6. A coiled thin wire made of tungsten in light bulbs. [filament]

7. It is a closed and continuous path through which the electric current will pass making a complete cycle. [Electric circuit]

8. A way of connection with which the lamps and machines are connected in houses. [Parallel connection]

9. A material that covers the inner tube surface of fluorescent lamp.

[Phosphoric material]

2) Give reason for each of the following:

1. There are two pieces of lead in the light bulb.

-To connect the bulb with the electric circuit.

2. The light bulbs are connected in parallel in the house.

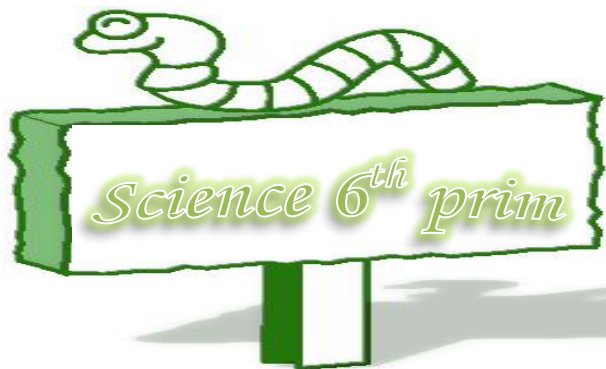
-To reach the burnt bulb and replace it without cutting off the other bulbs and by increasing number of lamps, the lighting of lamps remain as it is.

3. The filament of the light bulb is made of tungsten.

-Because it has a high melting point to protect it from melting also it glows and emits light when the electric current passes through it.

4. The presence of inert gas (argon) inside the light bulbs.

-To prevent air from reaching the filament thus protects it from burning and to increase the life of the filament.



5. The presence of two copper wires in the light bulb.

- to allow the electricity to pass from the base to the filament.

6. The presence of glass bulb in electric bulb.

-To prevent entering the atmospheric air to filament and not burn it.

7. The electric circuits are made of electric conductors.

- Because electric conductors allow the electric charges to pass through.

8. The electric wires are covered with insulating materials.

- Because the electric insulators don't allow the electric charges from flowing to the hand.

3) Complete the following:

1. Some of the types of electric lamps are ... light bulb ... and ... fluorescent lamps ...

2. The filament of the light bulb is made of ... tungsten ... and that is because it has a high ... melting point ...

3. The flourescent lamp contains ... inert argon gas and little of ... mercury ...

4. The light bulb consists of ... tungsten filament ... , ... base ... and ... glass bulb...

5. ... series ... and ... parallel connection ... are two ways for connecting electricity.

6. The simple electric circuit consists of ... battery ... , ... lamp ... and ... connecting wires... .

7. In the case of connecting the lamps in ... series connection ... the lighting of the lamps decreases with increasing their number.



8. In the case of connecting the lamps in parallel connection the lighting of the lamps ... remains as it is ... with increasing their number.
9. The electric lamp converts electric energy into ... light ... energy .
10. The electric lamps are connected in the house in ... parallel... .
11. When the electric lamp connected in parallel with others the light intensity ... doesn't change... .

4) Compare between each of the following :

1. The light bulb & fluorescent lamp.

Points of comparison	Light bulb	Flourescent lamp
1. The filament	Thin coiled tungsten wire	Two filaments of tungsten wire
2. The base	1- Spiral base with two pieces of lead . 2- two side nails base with two pieces of lead for connection.	two points of connection at each tip.
3. The glass bulb	Filled with inert gas (argon)	Filled with inert gas argon & little mercury +

2. Parallel connection & series connection:

Points of comparison	Series connection	Parallel connection
Connection of electric bulbs	One after another	In branching routes
Number of routes	One route	More than one route
Cutting one route or the bulb is turned off	The current doesn't flow & all the bulbs are turned off.	The current moves through the other routes
Intensity of lighting	Decreases on increasing the number of bulbs	Remains as it is on increasing the number of bulbs.



1) Write scientific term :

1. Electric shock
2. Electric fires
3. Electric burns
4. Electric conductors
5. Electric insulators

2) Correct

1. Iron
2. The electric shock
3. Sand

3) What happen if:

1. It causes electric burns.
2. It causes electric shock
3. When the temperature of the heater increases , it may burn the furniture that causes fire.
4. The fire will increases and harm the rescuers as water is good conductor of electricity.
5. It causes electric shock
6. It causes an electric shock
7. We can't increase force, speed and distance - Doctors can't pick up small objects.
8. Force is smaller than resistance and we save effort.



9. The filament will be melted.
10. The filament will be burnt.
11. If one lamp is turned off, all lamps will turn off.
12. We will infect with electric shock, electric fires and burns.
13. The electric current doesn't flow through the electric circuit.

4) Complete :

1. Your body touches directly a spark coming from source of electric current
- your body touches electric machine generates heat
2. electric burn
3. iron - copper
4. wood - plastic
5. electric current

5) Give reasons for:

1. Because water is a good conductor of electricity .
2. Because the electric insulating material (wood) prevent the transfer of electricity from the person to your body.
3. To avoid electric shock
4. To avoid electric fires
5. Because the human body contains 70% of water which is an electric conductor.
6. Because water is an electric conductor , so it increases the fire.
7. To avoid overloading on wires and occurring electric fire.



6) Choose:

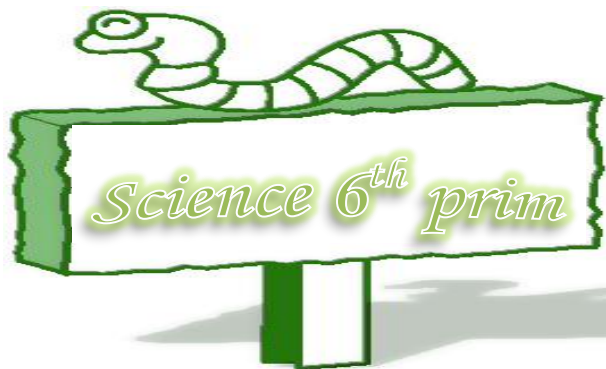
- | | | | |
|---------|---------|---------|---------|
| 1. (c) | 2. (b) | 3. (c) | 4. (c) |
| 5. (c) | 6. (c) | 7. (c) | 8. (a) |
| 9. (a) | 10. (c) | 11. (b) | 12. (d) |
| 13. (d) | 14. (b) | 15. (b) | |

7) What meant by:

1. Passing the electric current through the body.
2. Materials don't allow electric current flow through them.
3. Fixed point where lever rotates around.
4. Rigid bar rotates around a fixed point and is affected by force and resistance.
5. material allow electric current to flow through.
6. A closed path where electric current flow through and consists of (battery - lamp - electric wires).

8) Precaution to deal with electricity:

1. Don't operate lots of electrical devices in the same socket.
2. Don't insert any metal in the electrical socket.
3. Don't put off the electric fire with water.
4. Keep away any electrical machine produces heat from furnitures.
5. Don't touch any electrical fires.
6. Don't touch any electric wires when your hands are wet.



9) Put (√) or (×) and correct the wrong :

- | | | |
|---------------------|----------------------------|--------------------------------|
| 1. (×) longer | 2. (×) tungsten | 3. (×) argon gas |
| 4. (×) parallel | 5. (×) copper | 6. (×) 2 nd class |
| 7. (×) argon gas | 8. (×) tungsten filament | |
| 9. (×) conductors | 10. (√) | 11. (√) |
| 12. (×) argon | | |

Complete :

- | | |
|--|--------------------|
| 1. solar - moon | 2. Annular solar |
| 3. total solar | 4. Partial solar |
| 5. ultraviolet - infrared rays - blindness | |
| 6. umbra | 7. Penumbra |
| 8. moon - oval (elliptical) | 9. Earth - moon |
| 10. total | 11. Partial lunar |
| 12. total | 13. Middle - twice |
| 14. red - total | |
| 15. 7 minutes & 40 seconds - two hours. | |
| 16. 18 years - 11 days - celus of the moon | |
| 17. telescopes | |
| 18. Galilio - astronomical telescope | |
| 19. telescopes - observatories | |



20. Hubble telescope - 593

21. 1957 - sputnik

22. galaxies

23. milky way galaxy - spiral - four

24. mercury - venus - earth - mars

25. Jupiter - Saturn - Uranus - neptune

Give reasons for:

1. We can not see the sun completely during the total solar eclipse.

Because moon hides all the sunlight from the earth as it's size seems equal to the sun.

2. The types of the solar eclipse differ due to the movement of the moon in front of the sun.

Due to the difference in the part of sun that the moon hides during its rotation around the earth.

3. We should not look at the sun by the naked eye.

Because the sun emits harmful rays such as ultraviolet rays & infrared rays which causes blindness within few minutes.

4. An annular eclipse occurs when the moon comes in an orbit higher to earth.

Because the moon size appears smaller to that of the sun so , the sun appears as a lighted ring.



5. No annular lunar eclipse is formed like the annular solar eclipse.

Because the size of earth is bigger than that of moon so , the earth always blocks all the sunlight when it comes between the sun and the moon in one straight line.

6. Placing telescopes in space rather than on the earth's surface is recommended.

To get clear vision for space & celestial bodies.

7. Nowadays, man spreads space stations & sends satellites outside the earth.

To receive more clear photos for celestial bodies & earth's surface.

8. The phenomena of solar & lunar eclipse are regularly repeated & can be predicted.

Because it is possible to predict the times of the rotation of the moon & the earth in their orbits around the sun.

9. The phenomenon of solar & lunar eclipse are considered an application of the umbra phenomenon.

Because in solar eclipse the moon blocks sun light forming its shadow on Earth , while in lunar eclipse the earth blocks sunlight forming its shadow on moon.

10. We must use telescope to study stars accurately.

Because it forms magnified photos for distant bodies such as stars.



11. The lunar eclipse occurs in the middle of the lunar month.

Because in the middle of the lunar month the earth lies between the sun & the moon.

12. The lunar eclipse doesn't require precautions to observe it.

Because it doesn't harm the eye during observing it.

13. The moon is coloured in red at the start of the total lunar eclipse.

Because the earth doesn't absorb red rays coming from the sun so , it falls on the moon.

14. Since the past , Man was concerned with observing stars & planets.

To find suitable reasons for the astronomical phenomena that he observed in the sky.

15. In the past , exploring the Arab month's crescent was through climbing on top of mountains and minarets.

Because at the top of mountains , the vision and atmosphere are clear.

16. The Arabs have a great history in space monitoring and exploration.

Al Hassan Ibn Al - Haytham discovered that the vision occurs when light falls on objects and then reflects on eyes.

17. Space monitoring and exploration got improved due to the development in making telescope.

Because Galileo's telescope is developed to modern telescope with camera that is carried on satellite to take photos and clear vision for stars - planets - Galaxies.



18. Occurance of solar eclipse.

Because solar eclipse occurs when the moon lies between the sun and the earth in one straight line.

19. The observatories have dome shape ceilings that are opened at night.

To expose and direct the telescope towards any part of the sky.

20. The moon blocks the sunlight from reaching the earth when it comes between the sun and the earth.

Because the moon is a dark body that doesn't allow the sunlight to pass through.

21. The distance between the moon and the earth varies during the moon's rotation around the earth.

Because the moon rotates around the earth in oval orbit.

22. Satellites are provided with cameras and telescope.

To study stars and galaxies from their location outside the earth's atmosphere and send photos for them.

23. Lenses and mirrors are used in making telescopes.

Because they can collect different light rays (electro magnetic waves).

24. Occurance of lunar eclipse.

Because lunar eclipse occurs when the earth lies between the sun& moon in one straight line.



What happens:

1. Total lunar eclipse occurs.
2. Annular solar eclipse occurs.
3. The retina will be harmed and blindness may occur.

Complete :

- | | |
|--|-------------------|
| 1. lower surface | 2. Short |
| 3. osmosis | 4. Thin |
| 5. sticky (viscous) | 6. Two guard |
| 7. stomata - transpiration | 8. Cortex - xylem |
| 9. shoot system | 10. Pith |
| 11. plasma (semi- permeable) membrane | |
| 12. CO_2 - photosynthesis | |

Give reasons for:

1. The root hair secretes sticky material.

To help root hairs to penetrate the soil particles and draw water around it that make absorption easily.

2. In the plant , the root hair can absorb water from the soil.

As root hair * has thin wall that allow the penetration of water & minerals.

* has large number to increase absorption area.



* secretes sticky material to allow the penetration of root hairs inside soil more easily & draw water around it that make absorption more easily.

* has large vacuole with high concentration of salt
→ that allow transmission of water from soil to root hair by osmosis.

3. Presence of holes in the lower surface of plant leaves.

To allow the loss of excess water by transpiration process.

4. Each stoma is surrounded by two guard cells.

To control opening & closing the stoma.

5. Presence of a cellular membrane in the root hair.

It controls passing of some types of salts according to the plant's need.

6. The age of a root capillary does not exceed a few days.

Because the epidermal cells are lost from time to time by the resistance of soil particles during expansion of root.

7. The concentration of the solution inside its vacuole is larger than concentration of soil solution.

To allow transmission of water by osmosis from area with high concentration of water (soil) to area with low concentration of water (root hair) by osmosis.



8. The root system in plant is extended through the soil.

To search for water & minerals then absorbs them & fix the plant in the soil & to increase surface area of absorption.

9. The root hairs have thin wall.

To allow the penetration of water and salts through it.

Write the scientific term:

1. A phenomenon which occurs when the earth , the moon & sun are nearly in one straight line with the moon in the middle.

[solar eclipse]

2. A dark inner shadow in which total solar eclipse appears.

[umbra]

3. A faint outer shadow in which partial solar eclipse appears.

[penumbra]

4. A type of eclipse in which we can't see the sun completely & it is formed in shadow area of moon.

[total solar eclipse]

5. A type of solar eclipse in which we can see a part of sun & it is formed in penumbra area of the moon.

[partial solar eclipse]

6. A type of solar eclipse in which sun appears as lighting ring & it is formed when the moon is a higher orbit from the earth.

[Annular solar eclipse]



7. A phenomenon occurs when the sun , earth & moon are nearly on one straight line with the earth in the middle hiding the sunlight from the moon. [lunar eclipse]
8. It is the lunar eclipse which occurs when the whole moon enters the shadow area (umbra) of the earth. [total lunar eclipse]
9. It is the lunar eclipse which occurs when a part of the moon enters the shadow area (umbra) of the earth. [partial lunar eclipse]
10. It is the device which is used to form magnified photos for distant objects such as celestial bodies. [telescope]
11. They are groups of millions of stars forming beams of light in the middle of extreme darkness in space. [Galaxies]
12. The most famous space monitoring telescope. [Hubble telescope]
13. The 1st scientist who made an astronomical telescope. [Galileo]
14. The 1st satellite that was launched in an orbit around the earth. [sputnik]
15. The 1st scientist who saw the moon's mountains through a telescope. [Galileo]
16. The group of planets that contains Mercury , Venus , earth and Mars. [small rocky planets]



17. The group of planets that contains jupiter , saturn , vranus and Neptune.
[huge gaseaus planets]
18. The telescope that will replace hubble telescope.
[james web telescope]
19. Structure in plant , water passes through it from root to stem to leaves.
[xylem]
20. Biological process through which plants lose water inform of water vapour.
[transpiration]
21. A structure extends from plant skin & absorbs water.
[root hairs]
22. Two cells inside leaf stoma.
[guard cells]
23. Transmission of water molecule through semi - permeable membrane from area of high concentration of water to area of low concentration of water.
[osmosis]
24. They control opening & closing of plant stomata.
[guard cells]
25. Holes wide spread on the lower surface of the plant structure.
[stomata]
26. Structure that allow only some salts to pass through according to the plant need.
[semi - permeable membrane]



27. It is a process by which the cell membrane of the root hair allows some types of salts to pass according to the plants need.

[selective permeability]

28. It is a biological process through which green plants form its food from raw materials in their environment.

[photosynthesis process]

29. Cells in the root which regulate the crossing of water into xylem.

[endodermis]

30. The process by which the plant obtains energy.

[respiration]

31. The layer where root hairs extends from. [epidermis]

32. The cycle in which moon returns back to same point where the lunar or solar eclipse occurred after 18 years & 11.3 days.

[celus cycle of moon]

33. Plant loses water in the form of water vapor.

[Transpiration]

34. A part of the plant that penetrates through the soil particles and fixes the plant.

[Root system]



What would happen if:

1. The plant cannot make transpiration process to get rid of excess water.
2. Water vapour is condensed into water drops on the jar.
3. The stoma cannot be opened or closed and die.
4. Water cannot transport from the soil to the root hairs.
5. The root hairs cannot penetrate the soil particles and can't facilitate the absorption of water.
6. Water will pass from the vacuole of root to the soil by osmosis and the plant will die.

Good luck