7TH SCINCE III TERM FULL GUIDE

1.LIGHT

I. Choose the correct option

1. Light travels only in a . It is because of this property that are formed
a. curved line, shadows
b. straight line, shadows
c. straight line, reflection
d. curved line and then straight line, shadows

2. Light that hits a mirror gets
a. Transmitted
b. Reflected
c. Absorbed
d. Refracted

3. Surface reflects the light well.
a. water
b. compact disc
c. mirror
d. stone

4. Light is a form of
a. matter
b. energy
c. medium
d. particle

5. You can see your image in polished floors, but not in wooden table because

a. regular reflection takes place in wooden table and irregular reflection in polished floor
b. regular reflection takes place in polished floor and irregular reflection in wooden table
c. regular reflection takes place in both polished floor and wooden table
d. irregular reflection takes place in both polished floor and wooden table

6. Choose the translucent substance from the following

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a. glass
b. wood
c. water
d. Clouds

7. Reflection occurs , when the light
a. about to reach a surface
b. approaches a surface
c. passes through a surface
d. None of these

8. Which of the following is the best reflector of light?
a. plastic plate
b. plane mirror
c. wall
d. paper

9. Sivarajan placed a meter stick in the playground at 7.00 am in the morning. How will the shadow of the stick at noon look in comparison to the one in the morning
a. There will be no shadow
b. The shadow will be longer and on the opposite side as the sun
c. The shadow will be shorter and on the same side as the sun
d. The shadow will be shorter

10. The image formed by a pinhole camera is in-verted because,
a. light travels in straight lines
b. light rays become laterally inverted as they pass through a pinhole camera
c. light rays pass through the pinhole
d. light rays get reflected

11. Which of the following facts explain how shadows are formed?
A. Light travels in straight lines
B. Opaque bodies do not allow light to pass through them
C. Reflection occurs at a smooth surfaces like mirrors
D. Lateral inversion happens
a. both A and B
b. both A and D
c. both B and C
d. only A

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II. Fill in the blanks

1. A plane mirror produces a _____ image (**virtual and erect**)
2. A ____ reflection helps us to see the objects (**regular)**
3. The light ray gets____ when it falls on any polished surface. (**reflected**)
4. Sunlight is a blend of ____ colors (**seven**)
5. The splitting of white light in to seven colors is called _____(**dispersion.)**
6. The moon ____ sun light (**reflects)**
7. The sunlight can be split into its constituent colors using_____ (**prism).**
8. Reflection of light from rough surface is called ____ (**irregular**) reflection

III. Write true or false

1. The image of right hand in a plane mirror looks like a left hand (**True)**
2. Rainbow is formed by dispersion of which light by water drops **(True)**
3. The image formed by the plane mirror is laterally inverted, hence the image seen through the periscope is also laterally in-verted **(False**)

The image formed by the plane mirror is laterally inverted, hence the image seen through the periscope is **erect.** This is because in periscope, image is reflected by two mirrors.

4. We see planets because they reflect light from the sun **(True)**
5. We see a book because it reflects the light that falls on its surface **(True)**
6. The image formed in a pinhole camera is always inverted **(True)**
7. The image formed in a pinhole camera is always the same size as the object **(False.)**
8. The image formed in a plane mirror is upside down **(False.**)

The image formed in a plane mirror is **erect.**

9. A plane mirror is opaque **(True)**
10. A shadow is formed on the same side of the object as the source of light. (**False)**

A shadow is formed on the **opposite** side of the object as the source of light.

11. we are able to see things around us with the help of regular reflection **(True)**
12. After passing through a prism, white light splits into a band of seven colours **(True)**

IV. Match the following

Rectilinear propagation -	Primary source of light
Plane Mirror -	Non-luminous object
Fire fly -	Periscope
The Moon -	Pinhole camera
Wide light source -	Spectrum of light
Regular reflection -	luminous object
The sun -	Penumbra

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Band of seven colors - Glossy surface

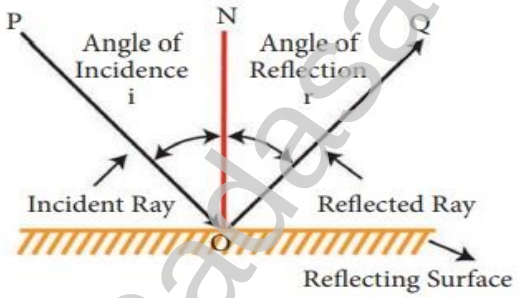
Answer:

1. Rectilinear propagation- **Pinhole camera**
2. Plane Mirror- **Periscope**
3. Fire fly- **Luminous object**
4. The Moon- **Non-luminous object**
5. Wide light source- **Penumbra**
6. Regular reflection- **Glossy surface**
7. The sun - **Primary source of light**
8. Band of seven colors - **Spectrum of light**

V. **Answer the following questions in short**

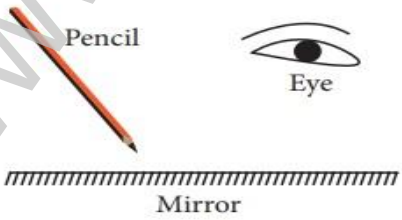
1. With the help of a diagram, state the laws of reflection

Laws of reflection



- The angle of incidence is always equal to the angle of reflection $\angle i = \angle x$
- The incident ray, the reflected ray and the normal at the point of incidence lie on the same plane.

2. Figure shows a pencil placed above a mirror



a. Draw its image formed by the mirror
b. Show how light rays from the object are reflected at the mirror to form the image for the eye.

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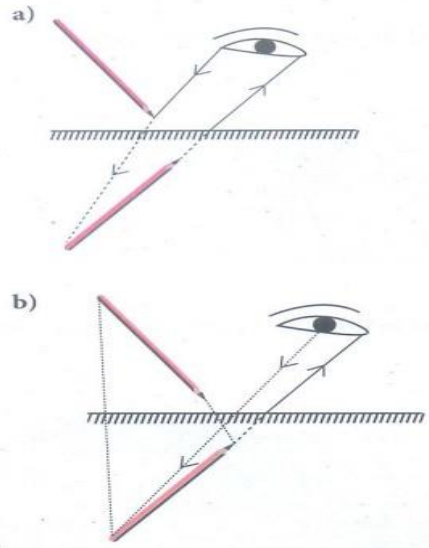

3. A person is looking at the image of a tree in a mirror placed 3.5 m in front of him. Given that the tree is at 0.5 m behind his eyes. Find the distance between the image of the tree and his eyes. What are needed to see an object?

Distance between the person and the mirror = 3.5 m
Distance between the person and tree (object) = 0.5 m.
The image formed in the mirror = 4 m
The distance between the image of the tree and his eyes = 4 + 3.5 = 7.5 m
Things needed to see an object : Source of light , Object , Eyes

4. What are luminous objects?

All objects which emit light energy by themselves are called luminous objects. Ex.: Sun, electric bulb.

5. Is the moon a luminous object?

No, the moon is non-luminous. The reason is that moon does not produce its own light. Instead, it reflects the light of the sun falling on it.

6. What are the three types of materials based on the absorption of light?

- Transparent Material
- Translucent Material
- Opaque Material

7. What are the parts of shadow?

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(i) Umbra **(ii)** Penumbra

8. What are the properties of shadow?

Properties of shadow

- ✓ All objects do not form shadows. Only opaque objects form shadows.
- ✓ Shadows will be formed in the opposite side of light source.
- ✓ It cannot be determined the characteristics of an object by its shadow.
- ✓ The shadow will be always darker, whatever may be the color of light rays.
- ✓ Light source, opaque object are shadow all are in a straight line.
- ✓ The size of shadow depends upon the distance between light source and object and the distance between object and the screen.

9. What is plane mirror?

A plane mirror is a mirror with a flat reflective surface. A plane mirror makes an image of objects in front of it.

10. What is prism?

A prism is an object made up of a transparent material, like glass or plastic that has at least two flat surfaces that form an acute angle (less than 90°).

11. What do you mean by visible light?

Visible light is a spectrum of a number of waves with different wavelength range from 400nm to 700nm (1 nm.= 10^{-9} meter) each wave has a definite wavelength represents a particular **colour.**

12. Write the items given here in the correct column
(Stars, brick walls, plants, mirror, planets, electric light bulb, candle)

Sources of Light : **Stars, Electric light bulb, Candle**

Objects that reflect light : **Brick walls, Plants, Mirror , Planets**

13. A boy of height 1m 45 cm is standing in front of a long mirror at a distance of 2 m. From this information, fill up the following sentences:

a. The distance between the boy and his image is___ **(4m.)**

b The height of the image is**___(same.)**

c. When the boy moves 1m forward, the distance between her and her image **is___(2m**.)

14. Draw a diagram of a pin hole camera showing the rays of light passing between the Object and its image

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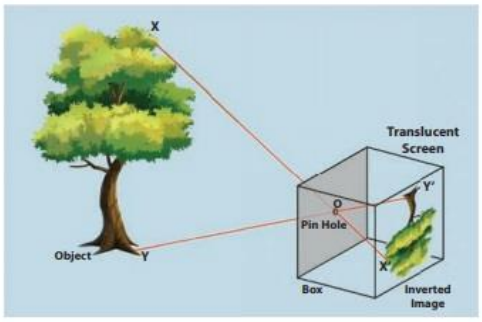


15. Why is the writing on the front of an ambulance back to front as shown in the picture?

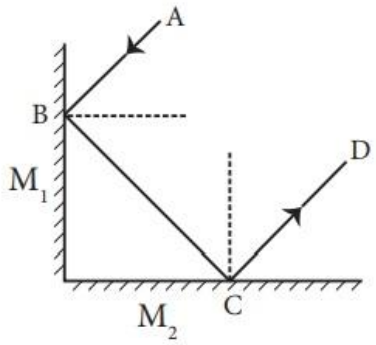
- ✓ This is due to lateral inversion.
- ✓ The phenomenon due to which the left side of an object appears to be right side of the object in its image in a reflecting medium (_mirror).
- ✓ So that drivers see the word the right way around in their rear-view mirror.

16. Explain with examples, why some capital letters look the same in a mirror but others are reversed.

Any letter that has a bilateral symmetry will have its mirror image the same as that of the object.

Example: **A | A , H | H**

17. Two plane _mirrors M1 and M2 are placed perpendicular with each other, as shown in figure. The ray AB makes an angle 39 ° with the plane mirror M1, then



1. The reflected rays are , _____ ,_____ **(BC, CD)**
2. The incident rays are , ___ ,___ **(AB , BC)**

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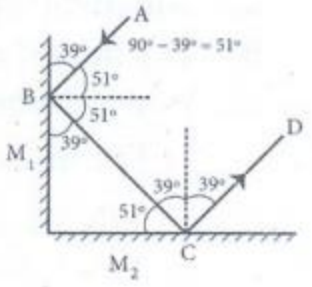
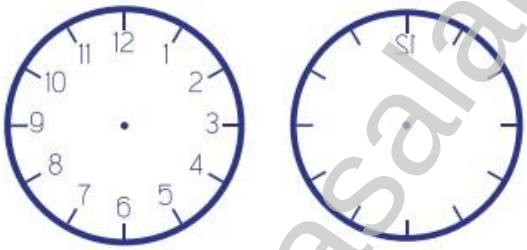
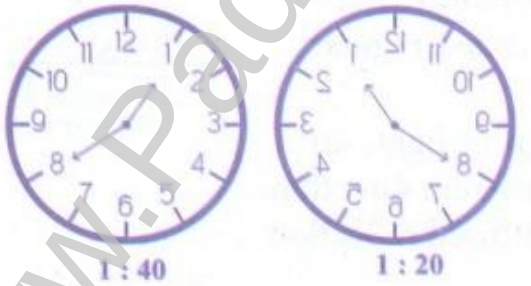
3. What is the angle of incident corresponding to the ray BC? . **(∟i =39°)**
4. What is the angle of reflection corresponding to the ray CD?. **(∟r =39°)**



18. Rajan was playing with the mirror images of a clock. He looked at the clock in his room. It was showing 1:40. Draw the position of the hands on the real clock and on its mirror reflection. Write below the picture what time each picture is showing.



Answer:



19. What is reflection of light?

The bouncing back of light from a reflecting surface of an object is called as reflection of light.

20. If a ray of light is falling on a plane mirror at an angle of 500 is formed, what will be the angle of reflection?

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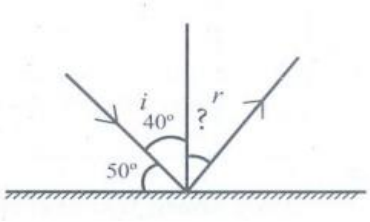

Angle of incidence = $\angle i = 90° - 50°$, $\angle i = 40°$

According to laws of reflection, = $\angle i = \angle r$,

Angle of incidence = Angle of reflection

$\angle i = 40°$, $\therefore \angle r = 40°$, Angle of reflection $\angle r = 40°$

21. What do you mean by lateral inversion?

The phenomenon due to which left hand side of object appears as right hand side and vice versa is called lateral inversion.

22. How do you obtain a spectrum of light?

When white light is made to fall on the surface of a prism, it disperses and we obtain a spectrum of light.

23. Why do we see white color in Newton's disc, when we rotate it very fast?

When the disc turned quickly, the retina receives the sensation of the spectrum simultaneously and disc appears white.

24. What is a shadow? What things are necessary for the formation of a shadow?

- ✓ Shadows are formed because light travels in straight lines.
- ✓ Shadow is always against, opposite side of light source.
- ✓ Shadow is formed by opaque objects that stop high from propagating.
- ✓ Things necessary for the formation of shadow: **source of light, opaque object**.

VI. Answer the following questions in detail

1. What are regular and irregular reflection? Explain with the help of diagrams

Regular reflection : When a parallel beam of light on striking some smooth and polished surface is reflected as a parallel beam of light, such a reflection is called regular reflection.

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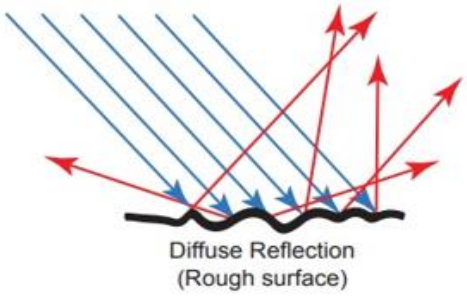

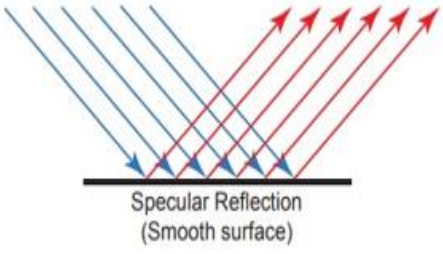

Irregular reflection : When a parallel beam of light, on striking some rough surface, is reflected in different directions, then such a reflection is called irregular or diffused reflection.

2. What are the difference between luminous and non-luminous objects? Give two examples of each.

Luminous Objects

- All objects which emit light energy by themselves are called luminous objects.
- Ex : Sun, stars torch light burning candle etc.

Non -Luminous Objects

- All objects which do not emit light energy of their own, but reflect the light energy falling on them and hence, become visible are called non- luminous object.
- Ex : Metals, trees, houses, stones, moon etc.

3. Write about two everyday situations that tell you that light travels in a straight line.

- Formation of shadow: Shadows are formed when some light rays continue its travel in straight lines while other rays are stopped by an object.
- When there is a small hole in a room, light travels only in a straight line.

4. Differentiate between a reflection and a shadow

Reflection

- When light falls on a surface, the direction of ray is changed. This change in direction is known as reflection of light.
- Eg.: You see your reflection in a pool of water or mirror.

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➢

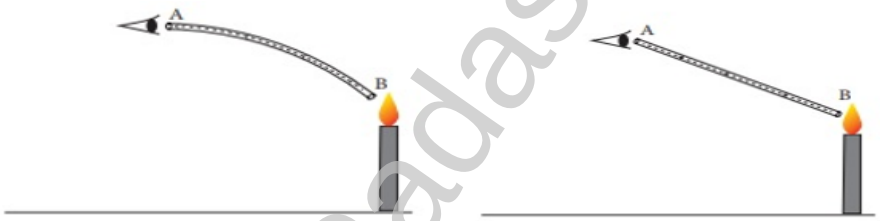
Shadow

- Shadow is an image formed by obstruction of light.
- Eg. : If you place your hand in front of a candle, you will see the image of the hand on the wall. This image will show only the outline of the object placed in front of the light source.

5. What are the characteristics of an image formed in a plane mirror?

- Image formed in a plane mirror is upright.
- Image formed in a plane mirror is virtual
- The image is of the same size as the object
- The distance of the image from the plane mirror is equal to the distance of the object from the mirror.
- Image is laterally inverted.

6. Describe the pictures.



- ✓ When the tube is bent, we cannot see the source of light.
- ✓ When the tube is held straight we can see the flame. The two pictures verify that light travels in straight lines. This is known as rectilinear propagation of light.

7. Define the following terms

a. Incident ray, b. Reflected ray, c. Normal, d. Angle of incidence

Incident ray: The ray of light that falls on the surface of the reflection materials.

Reflected ray: The ray of light that comes from the point when the incident ray falls on the reflection material.

Normal: The perpendicular line drawn from the point of incidence to the plane of reflecting surface is called normal.

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Angle of incidence: The angle formed between the incident ray PO and the normal 'ON' is angle of incidence.

8. Compare the images formed by plane mirror with that by pinhole camera

Difference between the images formed in Pinhole camera and Plane mirror :

Images formed by Pin hole camera

- ✓ The image is real.
- ✓ The image may not be equal to the size of the object
- ✓ The image is inverted

Images formed in Plane mirror

- ✓ The image is virtual
- ✓ The image is equal to the size of the object
- ✓ The image is erect

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2.UNIVERSE AND SPACE

I. Choose the correct answers

1. The moon takes _____ days to complete one revolution around the Earth

a. 25
b. 26
c. 27
d. 28

2. If the Moon is appeaing in the sky today near the star Karthikai , the position of the Mon after 27 days is near the star

a. Bharani
b. Karthikai
c. Rohini
d. Asvini

3. Telescope was invented by

a. Han Lippershey
b. Galilio
c. Nicolus Coppernicus
d. Ptolomy

4. The galaxy containing young and hot stars is

a. elliptical galaxy
b. irregular galaxy
c. cluster
d. spiral galaxy

5. With the launch of this satellite, ISRO became capable of launching 4 ton heavy satellites.

a. GSAT- 13
b. GSAT- 14
c. GSAT- 17
d. Way par GSAT- 19

II. Fill in the blanks.

1. Waxing of moon means_____(**growing or expanding.)**
2. Heliocentric model is proposed by____ (**Nicolus copernicus.)**
3._____ is the prevailing model of Evolution of the Universe (**The Big Bang Theory)**
4. _____ is a large constellation which covers a large part of the sky.(**Ursa Major**)
5._____ is the first satellite launched by India (**Aryabhatta)**

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III. True or False – If False give the correct answer

1. On a full moon day, when the Sun is setting in the west, moon rises in the West. **False.**
On a full Moon day, when the Sun is setting in the west, Moon rises in the **East**.
2. The word crescent refers to the phases where the moon is less than half illuminated. **True.**
3. Galilio accepted the Geo-centric model. **False.**
Galilio **did not** accepted the Geo-centric model.
4. Our Milky Way galaxy is identified as an elliptical galaxy. **False.**
Our Milky Way galaxy is identified as an **spiral** galaxy.
5. The planet Venus in our solar system doesn't have a moon. **True.**

IV Match the following

1. Rohini - GSLV-Mark III
2. GSAT-14 - GSLV Mark III M1
3. GSAT-19 - SLV-3
4. Chandrayaan-2 - PSLV-XL C25
5. Mangalyaan - GSLV-D5

Answer:
1. Rohini : SLV-3
2. GSAT-14 : GSLV-D5
3. GSAT-19 : GSLV Mark III DI
4. Chandrayaan-2 : GSLV-Mark III
5. Mangalyaan : PSLV-XL C25

V Analogy

1. Older stars : elliptical galaxies : : younger stars : ___ (**Irregular galaxies**).
2. Nearest galaxy : Andromeda : : Nearest star : ____ (**Alpha Centauri**).

VI Very short answer

1. The word ____refers to the phases where the moon is less than half illuminated
(**cresent** / gibbous)
2._____ and____ planets never appear in the mid-night sky.(**Mercury, Venus.)**
3. Number of days taken by the Mars to orbit around the Sun.(**687 days)**
4. In which phase does the size of the planet Venus is small?
When it was in Gibbous phase
5. The only evidence of the big bang theory is ____(**CMB**)
called Cosmic Microwave Background.
6. The galaxy which contains abundant amount of gas and dust is ___(**Spiral galaxy)**

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7. Which country launched the world's first artificial launch vehicle?

Russia (sputnik-1)

VII Short Answer Questions

1. What is epicyclic model?
   - ✓ To explain the puzzling phenomena astronomers in early times proposed a change in the simple geocentric model. This is called as epicycle model.
   - ✓ A small circle whose centre is on the circumference of a larger circle, in ptolemic astronomy.
   - ✓ It was seen as the basis of revolution of the seven plants, given a fixed central Earth.

2. Name the four different types of galaxies.

(i) Spiral galaxy (ii) Elliptical galaxy (iii) Irregular galaxy (iv) Barred spiral galaxy

3. What is constellation?

A constellation is a recognizable pattern of stars in the night sky when viewed from the Earth.

4. Give the expansions of PSLV and GSLV
   - ➢ PSLV : Polar Satellite Launch Vehicle.
   - ➢ GSLV : Geosynchronous Satellite Launch Vehicle.

VIII Answer in Detail

1. Explain the waxing and waning phases in Venus
   - ➢ As the Venus went around the epicycle, as shown in the diagram Venus would exhibit phases.
   - ➢ Also at times the planet would be nearer, making the apparent size grow bigger and at times far making the apparent size smaller.

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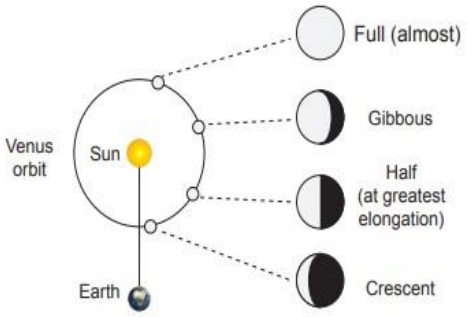
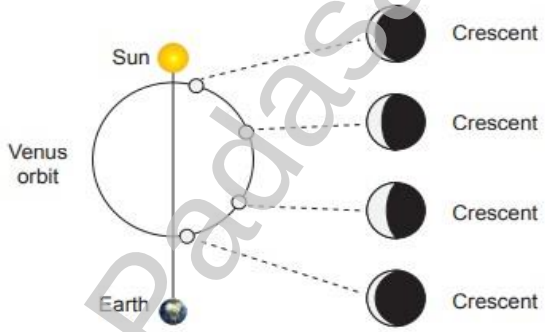


- If the Venus was going around the Sun, and its orbit is inside that of Earth, Venus would appear always near the Sun in the sky.
- It can never be seen in the midnight sky. Two when it is near the Earth, it would be brighter and bigger compared to when it is on the other side of the Sun.
- Thirdly only if the Venus is revolving around the Sun, it can exhibit gibbous phase, and the size of the gibbous phase smaller than the crescent phase.
- If the Venus was revolving around the Earth, we can never see the gibbous phase of the Venus and it would be seen only if it is orbiting the Sun.



2. Write short notes on constellations.

- A constellation is a recognizable pattern of stars in the night sky when viewed from the Earth.
- International Astronomical Union has classified 88 constellations to cover the entire celestial sphere.
- Many of the old constellations have Greek or Latin names and are often named after mythological characters.
- Ursa Major (Saptha Rishi Mandalam) is a large constellation and it covers a large part of the sky.
- The most striking feature of this constellation is a group of seven bright stars known as big dipper (seven Sages in Indian astronomy).
- Ursa Minor in Lattin means ‘the little bear’ it lies in the northern sky.

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- The Pole star - Polaris (Dhrua) lies within this constellation.
- The main group, 'little dipper', consists of seven stars and is quite similar to that found in Ursa Major.

IX. HOT Question

Neelan and Mala are having a conversation about our Universe. Neelan is telling our earth will be the only planet in the entire Universe to have a life with. But, Mala is opposing his view by citing certain points. What would be the argument of Mala. Do you support Mala? Justify your stand.

I would like to support Neelan, because Life is possible only on the Earth due to presence of water, oxygen, various gases and suitable temperature, which enables us to live.

Mala opposed Neelan's view based on the following points :

- Like the Sun, there might be billions of other stars with their own planets revolving around them.
- Thus there are many chances of any planet getting the suitable conditions for supporting life.

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3.POLYMER CHEMISTRY

I. Choose the correct answers

1. The first man-made fibre is _____
a. Nylon
b. Polyester
c. Rayon
d. Cotton

2. Which of the following is the strongest?_____
a. Rayon
b. Nylon
c. Acrylic
d. Polyester

3. When you place a natural fibre in a flame it_____
a. melts
b. burns
c. gets nothing
d. explodes

4. A synthetic fibre which has similar properties to wool is _____
a. Nylon
b. Polyester
c. Acrylic
d. PVC

5. A good application of plastic is the use of_____
a. Blood bags
b. Plastic cutlery
c. Plastic straws
d. Plastic carry bag

6. _____ is a non-biodegradable material
a. Paper
b. A plastic bottle
c. Cotton cloth
d. Wool

7. PET is the acronym for _____
a. Polyester

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b. Polyester and terylene
c. Polyethylene terephthalate
d. Polyetheneterylene

II. Fill in The Blanks

1.____ is an example of polyester fabric.(**Raincoat**)
2. _____ are used to identify different types of plastics.(**Resin codes**)
3. A ___is a long chain made up of many repeated small units called nomers.(**polymer)**
4. A natural fibre is called____ **(plant fibre)**
5. A natural fibre obtained by boiling cocoons is called____**(silk.)**

III. True or False

1. A lot of plastic pollutes our environment. **True.**
2. Refuse (avoid) is the best way to manage plastic. **True.**
3. It is good to wear clothes made of synthetic fibres while cooking. **False.**
It is good to wear clothes made of **natural** fibres while cooking.
4. Degradable plastics break down into tiny pieces called microplastics. **True.**
5. Cotton is a natural polymer. **True.**

IV. Match the Following

A		**B**
Nylon	-	Thermoplastic
PVC	-	Thermosetting plastic
Bakelite	-	Fibre
Teflon	-	Wood pulp
Rayon	-	Non-stick cookwares

Answer:

A		**B**
1. Nylon	**:**	**Fibre**
2. PVC	**:**	**Thermoplastic**
3. Bakelite	**:**	**Thermosetting plastic**
4. Teflon	**:**	**Non-stick cookwares**
5. Rayon	**:**	**Wood pulp**

V. Arrange in Correct Sequence

1. Mix water, starch, vinegar and glycerin in a cooking pot.
2. Let the article cool for 24 hours before we use it.
3. Shape material to form a cup or bowl.

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4. Continuously mix on medium heat until the liquid turns clear
5. When the liquid begins to bubble it is ready to be taken off the stove.
6. Spread the gel onto aluminium foil and cool.

Answer:

1. Mix water, starch, vinegar and glycerin in a cooking pot.
4. Continuously mix on medium heat until the liquid turns clear.
5. When the liquid begins to bubble it is ready to be taken off the stove.
6. Spread the gel onto aluminium foil and cool.
3. Shape material to form a cup or bowl.
2. Let the article cool for 24 hours before we use it.

VI. Analogy

1. Cotton: natural : Polyester: ____**(Synthetic)**
2. PLA spoon : compostable : Plastic spoon : ____**(Disposable)**
3. Nylon :melts on heating : Silk : ____**(Burns on heating)**

VII. Assertion and Reason

1. A: Vegetable peels buried in the soil disappear within two weeks.
R: Vegetable peels are compostable.
[(a) Both A and R are true and R is the correct explanation of A]
2. A: It takes a very long time for nylon clothes to breakdown into microfibers but cotton clothes need only six months to decompose.
R: Nylon made out of petrochemicals is non-biodegradable and cotton cloth is biodegradable.
[(a) Both A and R are true and R is the correct explanation of A]
3. A: It is good to avoid plastics.
R: Plastics end up polluting the environment.
[(a) Both A and R are true and R is the correct explanation of A]

VIII. Crossword

Across

1. Fibre that is used as synthetic wool.
2. A plastic used for making water bottles.
3. A long chain made of small repeatingmonomers.
4. Another name for this semi-synthetic fibre is artificial silk.

Down

5. A type of fibre that is naturally obtained from a cocoon.
6. A synthetic fibre classified as polyester.
7. A polymer used for making rope.

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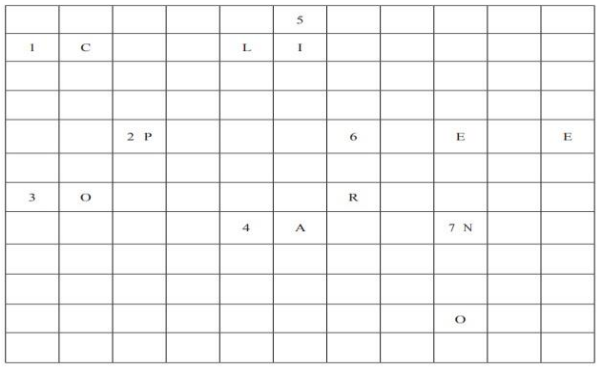

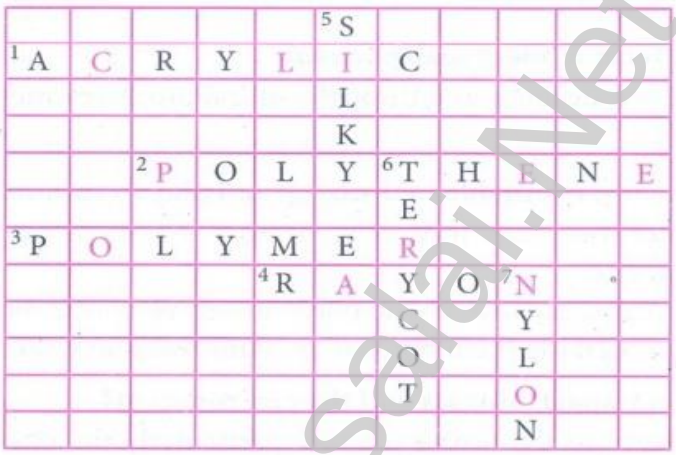

IX. Very Short Answer

1. What is the chemical name of the polymers that make up cotton?

   Cellulose.

2. What gives plastic different qualities and characteristics?

   Different chemicals (additives) are added to plastic to give them various qualities and characteristics.

3. It is not advisable to burn plastic and synthetic fabrics. Why?

   Burning of plastics and synthetic fabrics is not a good solution, as we end up wasting non-renewable resources and produce super toxic chemicals that are difficult to store or dispose safely.

4. A bucket made of plastic does not rust like a bucket made of iron. Why?

   - The reason is due to their chemical composition.
   - The bucket is made of plastic which does not react with the oxygen and humidity present in air.
   - While the iron reacts with the oxygen, air corrodes to form rust.

5. Why is it better to avoid the use of plastic products?

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- Plastics do not decompose by natural processes and action of bacteria and are therefore not biodegradable.
- A lot of the plastic produced globally is designed to be used only once and thrown away, creating a large amount of plastic waste.
- Plastic waste ends up being recycled, incinerated, landfilled, dumped or ends up littering our environment.
- So, it is better to avoid the use of plastic products.

6. Give two examples of thermosetting plastics.

Bakelite, Melamine.

7. What is the 5 R principle?

Plastic disposal is the 5 R principle, Refuse, Reduce, Reuse, Recycle and Recover.

X. Short Answer

1. What does the term biodegradable mean?

A material that gets decomposed through natural processes and action by bacteria is called biodegradable.

2. What kind of fabric is suitable to dress-up and play in the summer?

- In summer it is better to wear clothing that is made out of cotton materials rather than synthetic.
- This is because most synthetic fibres absorb very little moisture and do not allow air circulation making them hot and uncomfortable to wear.

3. How do plastics impact animals and the environment?

- The increase in the use of plastics, particularly the one-time use and throw away plasticshas serious impacts on the environment, animals and our health.
- We have seen garbage dumps with different plastics. One big problem with plastics is that they do not decompose or biodegrade.
- This leads to large amounts of waste that will not disappear and end up accumulating and polluting the environment.
- Many animals confuse plastic for food and eat it by accident. When leftover food is thrown away it is often packed in plastic. Animals smell the leftover food and eat the plastic by accident.

XI. Long Answer

1. List the advantages and disadvantages of synthetic fibres.

Advantages of synthetic fibres

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- ✓ Do not wrinkle easily and they keep their colour and brightness for a much longer time than natural fibres such as cotton.
- ✓ Using synthetic fibres such as nylon, is that they are stronger than many natural fibres such as silk or wool.
- ✓ These fibres are strong and elastic which gives it the properties to bounce.

Disadvantages of synthetic fibres

- ✓ synthetic fibres such as polyester is that they are not heat resistant and catch fire easily.
- ✓ Most synthetic fibres absorb very little moisture and do not allow air circulation making them hot and uncomfortable to wear.
- ✓ Synthetic fibres are made out of petrochemicals and last in the environment for a very long time. It break down into very small pieces called microplastics which cause pollution to soil and water bodies such as rivers, lakes and oceans.

2. Suggest safe methods of disposing plastics.

Refuse (Avoid):

- ✓ The best thing to do is to avoid using plastic products.
- ✓ One-time use throw away plastics can often be avoided.

Reduce : Reducing the amount of plastic we use is important.

Reuse : If possible products made of plastics can be used again and again.

Recycle:

- ✓ It is better to recycle plastic waste.
- ✓ Separating plastic waste (based on the resin code) and making sure it gets recycled is good as it turns waste materials into something new.
- ✓ Then it will not be thrown away in landfills, open dumps or ending up as litter in the environment.

Recover (Compost and Incinerate):

Solid waste can be converted into resources such as electricity and compost through thermal and biological means.=\]

XII. HOTS

1. The Tamil Nadu Government has banned the use of one-time use throwaway plastics. Why do you think this is important?

It is important to reduce the negative consequences of plastics on the environment.

2. A plastic bag dumped in the soil stays without breaking down for 500 years. If a new generation starts in every 30 years, how many generations would it take to see the plastic bag finally broken down?

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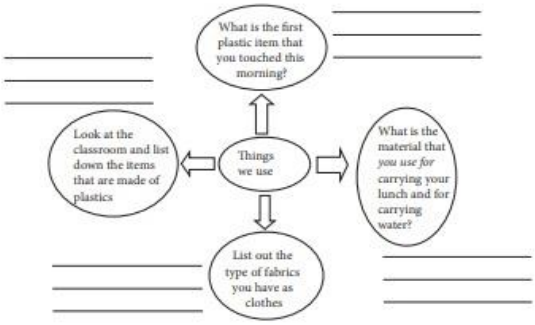
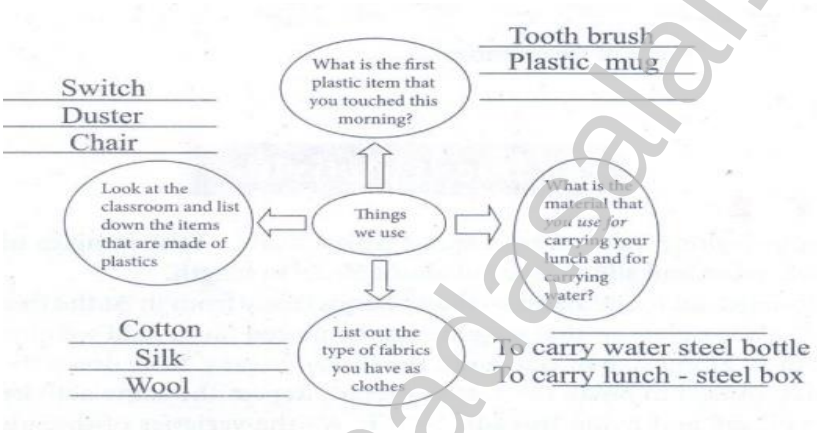
It would take 16 to 17 generations to see the plastic bag finally broken down.

XIII. i) Fill in the blanks



Answer:



ii. Look at the following picture and explain what is happening.

A lot of one-time use plastic such as polythene bags and food packaging that are thrown away are responsible for littering the environment and clogging drains. Standing water breeds mosquitoes that can spread diseases such as malaria dengue and chickungunya and also lead to flooding.

iii. Read the following information and convert them into a graph to compare the countries and the amount of plastic they use.

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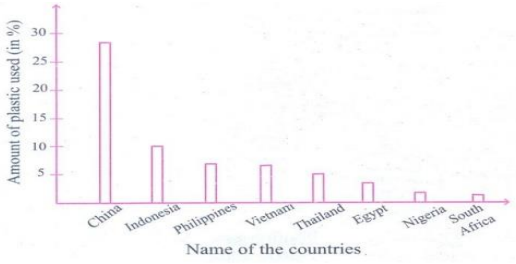
China contributes the highest share - that is around 28%, of the total plastic used globally. Indonesia uses 10%, both the Philippines and Vietnam use 6% each; Thailand uses 3.2%, Egypt 3%, Nigeria 2.7% and South Africa 2%.

Answer:



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4.CHEMISTRY IN EVERYDAY LIFE

I. Choose the correct answers

1. A drug effective in the treatment of pneumonia, and bronchitis, is _____
a. Streptomycin
b. Chloramphenicol
c. Penicillin
d. Sulphaguanidine

2. Aspirin is _____
a. Antibiotic
b. Antipyretic
c. Sedative
d. Psychedelic

3. _____ are that neutralize stomach acid.
a. Antacid
b. Antipyretic
c. Analgesic
d. Antihistanics

4. The lowest temperature at which a substance catch the fire is called its _____
a. Boiling point
b. Melting point
c. Critical temperature
d. Ignition temperature.

5. Which is the hottest part in the flame of candle _____
a. Blue
b. Yellow
c. Black
d. Way part

II. Fill in the blanks.

1. Penicillin was first discovered by _____ (**Alexander Fleming**)
2. World ORS Day is___ (**July 29)**
3. Combustion is a chemical reaction in which and substance react with___ (**oxidizing agent**)
4. In the presence of water, the ignition temperature of paper is___ (**not reached**)
5. Fire produced by oil cannot be controlled by___ (**water**)

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III True or False

1. Antibiotics does work for viruses like cold and - **False.**

Antibiotics **does not** work for viruses like cold and **flu**.

2. Analgesics are the substances that lower the temperature during fever. - **False**.

Antipyretic are the substances that lower the temperature during fever.

3. All fuels form flame. - **False.**

All fuels **do not** form flame.

4. Oxygen is necessary for combustion **- True.**

5. Burning wood and coal causes pollution of air. **- True.**

IV Match the following

1. Antipyretic -	reduce pain
2. Analgesic -	reduce body temperature
3. Antacid –	spontaneous combustion
4. Phosphorus -	ORS Solution
5. Carbon–di-oxide -	leads to respiratory problem.

Answer:

1. Antipyretic	-	Reduce body temperature
2. Analgesic	-	Reduce pain
3. Antacid	-	ORS Solution
4. Phosphorus	-	Spontaneous combustion
5. Carbon-di-oxide	-	Leads to respiratory problem.

V Analogy

1. Inner zone of flame : : ____(**Black**), outer zone of flame : : ___ (**Blue**)

2. Tincture : : ___ (**Antiseptic**) , cistamine : : ____ (**Chemical messenger**.)

VI Very short answer

1. First viral disease detected in human being was **___ (Yellow fever /** dengue fever**)**

2 :-----, :-----, :-----are called green house gases **(CO_2, Methane, CFC.)**

3. Name a substance which can be used as an antiseptic as well as disinfectant?

Garlic, Turmeric, Aloe vera.

4. What are the main constituents of dettol?

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Mixture of chloroxylenol and terpineol

5. Name the unit in which the calorific value of a fuel is expressed?

KJ/Kg.

6. How many types of combustion are there?

- **Rapid combustion**
- **Spontaneous combustion**
- Explosion

7. What are the essential requirements for producing fire?

Fuel, Heat and Oxygen.

VII Short Answer Questions

1. Why should not medicines be taken without consulting doctors?

One should not take medicines without consulting doctors because if a wrong medicine is accidently eaten for a disease, it may not cure the disease but actually can have harmful side effects to the body.

2. Why do antiseptics differ from disinfectants? Give one example of each.

Antiseptic

- All antiseptic are disinfectants.
- It can be applied on the live tissue
- E.g. skin / Mucous

Disinfectants

- All disinfectants are not antiseptic
- It can be apply on in animate object
- E.g. Surface, lab working tables, floor.

3. What is ignition temperature?

The minimum temperature at which a substance catches fire and burns is called its ignition temperature.

4. If 4.5kg of fuel is completely burnt and amount of heat produced stands measured at 1, 80,000 KJ what is the calorific value**.**

Amount of fuel = 4.5 kg

Heat produced = 1,80,000 KJ

Calorific Value = Heat produced /Amount of fuel

= 1,80,000 / 4 .5 = 40,000

= 40,000 KJ / Kg.

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VIII Answer in Detail

1. Explain briefly about antibiotic and analgesic?

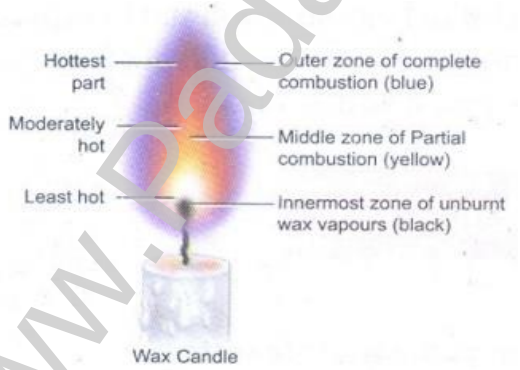
Antibiotics:

- Many micro organisms and plants synthesize chemicals which are toxic in nature to protect them from invading organisms.
- Those biosynthesized chemicals can be isolated from the plants/micro organisms and was used as medicines against infectious diseases, these substances were called as antibiotics.
- Ex: Chloramphenicols, tetracyclines, Penicillin derivatives, cephalosporin's and their derivatives.
- The world's first antibiotic penicillin was discovered by Dr. Alexander Fleming.

Analgesics:

- Analgesics or pain killers that react like the pain-suppressing chemicals released by the body.
- They suppress the feeling of 'pain'.
- This analgesics drug selectively relieves pain by acting either in CNS (Central Nerves System) or on peripheral pain mechanism, without significantly altering consciousness.

2. Make labeled diagram of a candle flame.



Structure of a Candle flame

IX Picture based question

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Arul and Aakash were doing an experiment in which water was to be heated in a beaker. Arul kept the beaker near the wick in the yellow part of candle flame. Aakash kept the beaker in the outer most part to the flame. Whose water will get heated in a shorter time?

The water heated by Akash will get heated in a shorter time because he kept his beaker near the hottest (non luminous) zone of the flame. But Arul kept the beaker in the luminous zone which is moderately hot. So, it will take longer time.

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5.ANIMALS IN DAILY LIFE

I. Choose the correct answers

1. _____ is the daily essential product which is obtained from cattle.
a. Egg
b. Milk
c. Both of them
d. None of them

2. Eggs are rich in _____.
a. Protein
b. Carbo hydrate
c. Fat
d. Acid

3. Which parts of the goat and sheep is used for manufacturing clothes.
a. Leg
b. Hand
c. Hair
d. Head

4. The cultivation and production of _silk is known as . _____
a. Horticulture
b. Floriculture
c. Agriculture
d. Sericulture

5. Sorter's Disease is otherwise known as
a. Asthma
b. Anthrax
c. Typhoid
d. Cholera

II. Fill in the blanks.

1. Proteins and ____**(calcium)** is rich in milk.
2._____**(Honey)** is extracted from bee hives.
3. Anthrax is caused by ____**(Bacillus anthracis).**
4. ____**(Silk)** is the strongest natural fibre.
5. Peace silk was produced in the year ____**(1992).**

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III. True or False – If False give the correct answer

1. Animals are the greatest gift of nature. **True**.
2. Horse hair is used as bristles in small painting brushes. **True**.
3. Wool is the fibre derived from the silk worm. : **False.**
Silk is the fibre derived from the silk worm.
4. Ahimsa silk is otherwise known as Mulberry silk. **False.**
Ahimsa silk is otherwise known as peace silk.
5. Pencillin is the best medicine for curing Anthrax. **True.**

IV. Match the following
1. Cocoons - Meat
2. Peace silk - Poultry
3. Broilers - Silk worm
4. Sweet Liquid - Andhra pradesh
5. Goat - Honey

Answer:
1. Cocoons - Silk worm
2. Peace silk - Andhra pradesh
3. Broilers - Poultry
4. Sweet Liquid - Honey
5. Goat - Meat

V. Analogy
1. Water : pipe : Electric current : : ____**(Wire)**
2. Copper : conductor : wood : : _____**(Non conductor)**
3. Length : metre scale : current : :____**(Ampere)**
4. Milli ampere: micro ampere: 10-3A : : ____ **($I0^{-6}$ A).**

VI. Very short answer

1. Write about any two dairy products.
(i) Paneer, (ii) Cheese

2. What are the two types of fibres that are obtained from animals?
(i) Wool , (ii) silk fibre

3. What is shearing?

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The fleece of the sheep is removed from its body. This is called shearing.

4. Write the symptoms of Anthrax

The symptoms are fever, cough and shortness of breathe, similar to a typical pneumonia. Sometimes it may leads to nausea, vomiting and diarrhoea.

5. Define – Sericulture

Sericulture or silk farming is the cultivation of silk worm to produce silk.

6. How should we treat animals?

- ✓ We must love and protect animals.
- ✓ We should safeguard them and treat them with care.

7. Who invented the Ahimsa silk?

Kusuma Rajaiah, a Government officer from Andhra Pradesh proposed Ahimsa way of silk production for the making _silks without killing the silkworms.

VII. Short Answer Questions

1. What are the characteristics of wool? Give any three.

- ✓ It is resistant to heat, water, wear and tear.
- ✓ It absorbs moisture.
- ✓ Wool insulates against cold. So wool is a good insulator.
- ✓ It does not wrinkle easily.

2. Write about any three uses of _silk.

- ➢ Silk has natural beauty and elegance.
- ➢ It gives comfort in warm weather and warmth during colder months.
- ➢ It is used in the manufacture of classical and high fashion clothes, modern dresses particularly silk sarees, the elegant of beautiful dresses.
- ➢ It is also used in household for making wall hangings, curtains, rugs and carpets.
- ➢ It'is also being used in the manufacture of surgical threads for sutures.

3. What are the common diseases that are found in Poultry?

Salmonellosis (diarrhoea) - Caused by bacteria
Ranikhat disease, (Fowl pox) - Caused by virus
Aspergilleses - Caused by fungus

VIII. Answer in Detail

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Write about Ahimsa Silk.

- It is also known as Peace silk.
- In 1992, Kusuma Rajaiah, a Government officer from Andhra Pradesh state of India proposed ahimsa way of silk production for the making silks without killing the silkworm.
- It involves a humane method specifically letting the worms to hatch and then using the vacant cocoons.
- Traditional silk manufacturing methods involve boiling the cocoons of the silk worms and then sorting out the threads, which is used later in silk production.
- It has been supported by many people who are interested in the welfare of animals
-

.2. Write about the hazards of silk industry.

- ✓ Generally, the workers in silk industry affected with arthritis is they stand for a long time reeling the silk into yarn.
- ✓ They also develop back pain and visionary problem and skin injuries.
- ✓ Some time they may suffer from respiratory problem like asthma and bronchitis due to poor ventilated area of their work.
- ✓

1. **What are the major steps involved in this wool factory ?.**

The processing of wool involves five major steps.

- They are as follows **Shearing, Grading (or) Sorting, Washing (or) Scouting, Carding** and **Spinning.**
- **Shearing**:- The fleece of the sheep is removed from its body. This is called shearing.
- **Grading (or) Sorting**:- The fleece from the same sheep may be different from different parts of the body. It is sorted out into separate piles of similar nature. This is known as Grading (or) Sorting.
- **Washing (or) Scouting**:- The sheared skin is washed thoroughly with soap (or) detergents to remove dirt, dust and grease.
- **Carding**:- The dried wool is carefully removed. These fibres then passed through the rollers which are covered with fine sheet of thin wire teeth. This process arranges the wool into a flat sheet called a web.
- **Spinning:-** The web is drawn into narrow strand and then passed through spinning machines. The spinning machines twist the strands into yarn. The yarn is wound to form balls of wool. This yarn is either weaved into fabric (or) retained for knitting.

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4. **Write the uses of the wool.**

- Wool is a multifunctional fibre with a range of diameters that makes it suitable for clothing, household fabrics and technical textiles.
- Two third of wool is used in the manufacture of garments including sweaters, dresses, coats and active sportswear.
- Blended with other natural (or) synthetic fibres wool used as adds drape and crease resistance blankets, anti-static and noise absorbing carpels.

IX. HOTS

1. Silk fiber is used to manufacture parachute. Why?

- Silk is the strongest natural fibre.
- It is thin light in weight, strong.
- It is easly to peak and unfold.
- It is also fire resistant.
- It is dries quickly.
- It is also resistant to abrasion and chemicals.

2. Honey is recommended for all. Why? What is its significance.

- ✓ Honey has high levels of sugar.
- ✓ It has antiseptic and antibacterial properties.
- ✓ It can prevent cancer, heart diseases reduce ulcer and digestive problems.
- ✓ It also soothes coughs and sore throats.
- ✓ Hence it is recommended for all.

X. Assertion and Reasoning

1. Assertion : Wool is the fibre derived from the fur of animals.
Reason : Animals like goat, Yak, Alpaca and rabbit yields wool.
a. Both Assertion and reasoning is correct
b. Assertion is correct but reason in wrong
c. Assertion is wrong but reason is correct
d. Assertion and Reason are incorrect

(a) Both Assertion and reasoning is correct]

2. Assertion : Pencillin or ciprofloxacin
Reason : These medicines cures cow pox.
a. Assertion is correct Reason is wrong
b. Assertion is wrong reason is correct
c. Assertion is wrong reason is also wrong
d. Assertion is correct and reason is correct.

(d) Assertion is correct and reason is correct.]

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6.VISUAL COMMUNICATION

I. Choose the correct answer.

1. The Keyboard shortcut is used to copy the selected text
a. Ctrl+c
b. Ctrl+v
c. Ctrl+x
d. Ctrl+A

2. The Keyboard shortcut is used to cut the selected text
a. Ctrl+ c
b. Ctrl+v
c. Ctrl+x
d. Ctrl+A

3. How many types of page orientation are there in Libre office Writer?
a. 1
b. 2
c. 3
d. 4

4. If the ruler is not displayed in the screen, _____ option is clicked.
a. View → ruler
b. view → task
c. file → save
d. edit → paste

5. The menu is used to save the document
a. File → open
b. file → print
c. file → save
d. file → close

II. Answer the following Questions.

1. What is the use for Text document software?

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- ✓ A text file is used to store standard and structured textual data or information that is human readable .
- ✓ It is defined in several different formats, including the most popular ASCII for cross.
- ✓ Platform usage and **ANSI** for windows - based operating platforms.

2. What is selecting text?

Selecting is the process of highlighting text or picking an object. For example, a user may select text to copy, cut or move that text to an alternate location or select a file they want to view.

3. How to close a document?

Close the current document by selecting File → Close command on the menu bar or click the Close icon if it is visible on the Standard toolbar.

4. What is right alignment?

Right alignment is text or page formatting that aligns text along the right side of a page or containing element.

5. How to open an existing document?

- ➢ Click the Open File button on the menu bar.
- ➢ Choose File → Open command from the menu bar.
- ➢ Press **CTRL+O** keys on the keyboard. Each of the above method will show the Open dialog box. Choose the file and click the Open button.

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