General Science Part 1 Notes, Questions with Answers

1. The World of Plants

1) **Physics** is the branch of science that deals with measurement, motion, sound, light, electricity, electronics etc.

   Chemistry deals with the study of materials, their characteristics (metallic, non-metallic, taste, odour, acidic, basic etc.) and uses.

   The study of the micro-organisms, plants and animals is called **Biology**.

   The branch of Biology that deals with herbs, shrubs, climbers and trees is called Botany and the study of animals is known as **Zoology**.

2) **Medicinal plants:** Plants are used not only as food, but also as medicines to cure many diseases. These medicines are obtained from plants. The plants that have medicinal properties are known as herbal plants.

3) 50,000 to 75,000 tons of mango pulp has been exported to foreign countries from Krishnagiri district of Tamilnadu every year. This gives considerable income to the farmers. It also increases the income of the nation.

4) Nowadays, plant-based medicines are preferred throughout the world. To find out the medicinal values of plants researches are done worldwide .

   From ancient days, plants are being used to cure several diseases in our country.

   The herbal plants grow naturally in forests, mountains and hills and some are found in the road sides.

5) Uses of Herbal plants

   Pea egg plant (Thuthuvalai) = cures cold, cough

   Carry me seed (Keezhanelli) = cures jaundice

   Nee (Vembhu) = germicides, regulates body temperature and destroys intestinal worms.

Gooseberry (Nelli) = cures mouth ulcer, regulates body temperature

Holy basil (Thulasi) = cures cold, cough, fever

Country borage (Karpuravalli) = increases sweating, cures cough and fever

Sweet flag (Vasambu) = cures abdominal diseases

Turmeric (Manjal) = used as germicide and cosmetic

Veldt grape (Pirandai) = increases appetite, cures digestive problem

Ginger (Inji) = cures digestive disorders

Pepper (Milagu) = cures throat infection

6) Flowers and cosmetics

We all love beautiful flowers such as rose, lily, jasmine, etc. Flowers play a key role in the preparation of cosmetics like bathing soap, talcum powder, deodorant and perfumes.

7) SPICES

Spices are obtained from many parts of plants. By adding them to the food, the food gets good smell and colour.

Spices increase the amount of food eaten and the digestion rate. Many parts of plants such as leaves, stems and flowers are used as spices.

Some spices are also used as medicines. Dry ginger, mint and fenugreek are used as medicines for common cold, fever and stomach ache. Turmeric and clove are used as antibiotics and antiseptics.

Kerala is known as the Spice Garden of India

8) Parts of the plants used as spices

Seed = Fenugreek (Vendayam), Fennel (Sombu), Mustard (kadugu)

Underground stem = Dry ginger (Sukku) / Ginger, Turmeric (Manjal)

9) Underground stem

Ginger and turmeric are the stems of the plant found under the ground.

These stems do the function of food storage.

10) Fibre plants

The dress, the jute and the gunny bag we use are the products of fibre plants.

Our cotton dress is the gift from the cotton plant. Coir ropes are produced from the coconut fibre.

Jute fibre is obtained from the plant Jute. It is used to make gunny bags.

Apart from this, fibre plants are also used in making pillow, bed, mat and mattress. Fibres are also used to weave clothes, make nets and handicrafts.

There are many kinds of fibres. Fibres are classified based on the parts of the plants from which they are obtained.

Long, thin, strong strand obtained from plants is known as fibre.

11) Stem fibres

Plantain fibre and Jute are obtained from the stem of their plants.

12) Leaf fibres

Fibres are obtained from the leaves of Aloevera and Pineapple. These are called as leaf fibres.

13) External fibres

Fibres obtained from the outer region of the seed are known as external fibres.

eg. Cotton, Coconut, Silk cotton.

14) Plants in construction

Wood is used in building constructions and making furniture.

15) Nowadays Jute is cultivated not only for fibre, but also for some other purposes. It is used in the preparation of bio-plastics since it has 85% of cellulose. Bio-plastics are biodegradable.

Teak: Construction material, furniture

Jack fruit : Construction material, Fruits

Mango tree : construction materials, fruits

Eucalyptus tree : Oil, paper

The part of the tree that is used for various construction purposes is called wood. The dark inner region of the stem is called heartwood and the outer region is called as sapwood.

Sapwood helps to conduct water in plants. Heartwood gives strength and rigidity to the plant. It is stronger than sapwood. Mostly heartwood is not infected by fungus, termite, borers. It is hard and resistant to fungus due to the presence of gum, latex, resin and oil. It is more lustrous and is used for building purposes. Sapwood is infected by fungus and termites. Many trees grow in and around our place. Knowing about their uses will be more useful for our life.

16) GIFT OF NATURE – PLANTS

Herbs, shrubs and trees are inevitable for our life. Plants fulfil the basic needs such as food, clothing and shelter. Forests are necessary for getting rainfall. Trees purify the air.

Silk cotton tree : Matchstick, matchbox, toys, bed, pillow

Coconut tree : Thatching construction, tender coconut, coconut

Mulberry tree : Tennis racket and Hockey stick

Pine tree : Railway sleepers, ship building

Willow tree: Sports materials, Cricket bat

Babul bark tree : (Karuvelam tree) Parts of bullock cart

Sandal tree : Sandal, craft, furniture

17) 1. Thickest African tree found in Zimbabwe is Boabab tree.

2. Orange trees yield fruits for about 400 years.

3. Rafflesia produces the largest flowers. The diameter of the flower is one metre.

4. Red wood tree doesn't easily catch fire

5. From a watermelan, 6,00,000 watermelon plants can be produced and from them watermelon weighing 180 tonne can be obtained.

I. Choose the correct answer:

1. Plants with medical value are called

(a) pulses (b) scented plants

(c) **medical plants** (d) barks

2. Of the following, which is the seed part of the plant used of food.

(a) **thoor dhal** (b) veldt grape

(c) banana (d) turmeric

3. Select the food-related industry from the following:

(a) coir making (b)gardening

(c) cotton cultivation (d) **pickle-making**

4. Name the unripe fruit that we have to consume for blood purification.

(a) **gooseberry** (b) neem

(c) veldt grape (d) carry me seed

5. Name the tree used in paper industry.

(a) Teak (b) **Eucalyptus**

(c) Coconut tree (d) Sandalwood tree

6. Which of the following is the stem part of the plant used as food item?

(a) Chilli (b) Drumstick

(c) **Turmeric** (d) Thoor dhal

7. Which of the following hrbal plants is used to cures jaundice?

(a) **Keeezhanelli** (b) Thulsi

(c) Vasambu (d) Manjal

8. Which of the following is the main source of Vitamin 'C'?

(a) Manjal (b) Brinjal

(c) Vembu (d) **Nelli**

9. ..... are made from Mulberry tree.

(a) Cricket bats (b) Match sticks

(c) **Hockey sticks** (d) Railway sleepers

10. Which of the following does not catch fire easily?

(a) Sandal (b) Vembu

(c) Teak (d) **Red wood**

11. Kumbakonam is popular for.....

(a) Jasmine (b) Sugarcane

(c) **Betel leaves** (d) Mango

12. Bed and pillows are made from....

(a) Sandal tree (b) Coconut tree

(c) **Silk cotton tree** (d) Pine tree

13. The other name of Keezhanelli is....

(a) Omavalli (b) **Carry me seed**

(c) Purple fruited egg plant (d) Vembu

14. Which of the following is used to regulate the body temperature?

(a) **Nelli** (b) Vasambu

(c) Manjal (d) Pirandai

15. Which one of the following trees yields fruits for about 400 years?

(a) Mango (b) Banana

(c) Jack fruit (d) **Orange**

II. Match the following:

A.

Trees	Uses
1. Eucalyptus	a. Parts of bullock cart
2. Silk cotton	b. Railway sleepers
3. Coconut	c. Tennis racket and Hockey stick
4. Mulberry	d. Thatching, construction
5. Pine	e. Match box
6. Babul bark tree	f. Oil, papers

Ans: 1-f, 2-e,3-d, 4-c, 5-b, 6-a

B.

1. Carry me seed	a. Treatment for digestive disorder
2. Ginger	b. Abdominal diseases
3. Pepper	c. Jaundice
4. Sweet flag	d. Fever
5. Country borage	e. Throat infection

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

C.

1. Teak	a. Oil, paper
2. Silk cotton	b. Construction materials
3. Eucaluptus	c. Cricket bat
4. Pine	d. Match box
5. Willow	e. Ship building

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

D.

1. Ginger	a. Cosmetic
2. Rose	b. Tanjore
3. Paddy	c. Herbal plant
4. Jasmine	d. Zimbabwe
5. Baobab tree	e. Madurai

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

III. Fill in the blanks:

1. Carry mee seed (Keezhanelli) cures_____

Ans: Jaundice

2. Peppers cures ____

Ans: Throat infection

3. _____ are used in the preparation of cosmetics.

Ans: flowers

4. _____ used as germicide and cosmetic.

Ans: Turmeric

5. ____ State is known as Garden of Spices of India.

Ans: Kerala

6. Jute fibre is obtained from the ____ of plant.

Ans: Stem

7. The soft, outer region of the stem is called as _____.

Ans: sap wood

8. ____ wood is used for building purposes.

Ans: Heart wood

9. Fibers obtained from the outer regon of the cotton, coconut are known as __.

Ans: External fibers

10. ____ cures mouth ulcer.

Ans: Gooseberry

11._____ is used as germicide and as cosmetic.

Ans: Turmeric

12. Tennis and Hockey sticks are made from___ tree.

Ans: Mulberry

13. The thickest Baobab tree is found in _____.

Ans: Zimbabwe

14. The main source of vitamin 'C' is___

Ans: Gooseberry

15. Agriculture is a branch of _____

Ans: Science

16. _____ is used to cure cold, cough and fever.

Ans: Thulsi

17. ____ play a key role in the preparation of cosmetics.

Ans: Flowers

18. Long, thin, strong, strand obtained from plants is known as ____

Ans: fibre

19. The dark inner region of the stem is called ___

Ans: heartwood

20. _____ cures mouth ulcer, regulates body temperature .

Ans: Gooseberry

21. ____ give good smell and colour to food.

Ans: Spices

22. _____ are used as medicians for common cold, fever and stomach ache.

Ans: Holy basiland ginger

IV. Answer the following questions in one or single world.

1. What is the common name of Country borage?

Ans: Karpuravalli

2. Name the herbal plant used to increase the appetite.

Ans: Pirandai

3. What is botany?

Ans:Science that deals with study of herbs, shrubs, climbers and trees.

4. Name the tree that is used in making parts of bullock cart.

Ans: Babul bark tree

5. Which herbal plant is used to destroy intestinal worms?

Ans: Vembu

6. Which part of the plant is used in chilliand drumstick?

Ans: Unripe fruit

7. Name two plants yielding stem fibers.

Ans: Plantain and jute

8. Name a tree used for making Railway sleepers.

Ans: Pine

9. Which tree yiels fibres for making coir?

Ans: Coconut tree

V. State whether the following sentences are true or false.

1. Purple fruited pea egg plant is used as medicine for jaundice.

Ans: False. Pea egg plant is used as medicine for cold and cough and "carry me seed" is used for jaundice.

2. Ginger is the root of the plant.

Ans: False. Ginger is the stem of the plant

3. Veldt grape is a medicinal plant.

Ans: True

4. Clove is the seed of the plant.

Ans: False. Clove is the " flower bud" of the plant.

5. Slik-cotton tree is used to make match box.

Ans: True

2. Food Habits

1) Chewing Gum which contains artificial sugar and colour does not provide any nutrient.
2) Food items like noodles, contaminated roadside food with artificial flavour and chemicals, tinned and fast food are harmful to our health. Therefore it is good to avoid these food items.
3) **What are the various sources of food?**

   Food items obtained from plants and animals:

   The root, stem, leaf, flower, vegetable, fruit and seed of the plants are used as food. Different food items like milk, egg and meat are obtained from animals.

   Nutrients

The constituents of the food which are essential for the body are called nutrients. Does a food contain more than one nutrient? Do you know any food without nutrients? Why do we need nutrients?

Types of Nutrient

- Carbohydrates - Provide energy
- Proteins - Help in growth
- Fats - Provide energy
- Vitamins - Help in physiological activities
- Minerals - Act as regulators in physiological activities
- Water - Transports food, regulates body temperature.

4) All vegetables, fruits and food items contain water in different proportion.

Water content in vegetables, fruits and food items:

Name of the food	Water content
Water melon	99%
Cucumber	95%
Mushroom	92%
Milk	87%
Potato	75%
Egg	73%
A bread slice	25%

5) 1) Vitamins will be lost when vegetables and fruits are washed after cutting. Adequate amount of vitamins and minerals are present in the peels of fruits

and vegetables. We lose vitamins and minerals in cereals and pulses by washing it several times.

6) **Deficiency Diseases:**

Diseases caused due to the deficiency of nutrients in food that we eat are called deficiency diseases.

7) **Deficiency diseases and their symptoms**

Nutrient : Protein	**Diseases : Kwashiorkar**
Food source : Fish, meat, egg (albumin), milk, peas, cereals	
Deficiency disease(1) : Kwashiorkar (children from 1-5 age)	
Symptoms : retarded growth, potbelly, swollen limbs.	

Nutrient : Protein	**Diseases : Marasmus**
Food source : Fish, meat, egg (albumin), milk, peas, cereals	
Deficiency disease(2) : Marasmus	
Symptoms : Thin limbs, weak appearance, enlarged head, loss of weight, retarded physical and mental growth.	

8) **Vitamins**

Nutrient:	Food source	Deficiency disease	Symptoms
Vitamin A	Fish liver oil, egg, milk, ghee, butter, carrot, corn, yellow fruits, greens.	Night blindness	Defective vision, blindness in dim light
Vitamin B	Whole grains, pulses, unpolished rice, milk, fish, meat, peas, gram, raw vegetables	Beri-beri	Unhealthy nerve, muscle fatigue
Vitamin C	Orange, lemon, gooseberry, green chillies, tomato.	Scurvy	Bleeding gums
Vitamin D	Fish-liver oil, milk, egg. It is also synthesized by the skin with the help of sunlight.	Rickets	Weak and bow bones
Vitamin E	Vegetable oils, green vegetables, whole wheat, Mango, Apple, Greens	Infertility	Sterility and reduction of immunity
Vitamin K	Green vegetables, Tomato, Cabbage, Egg, Milk and milk products.	Haemorrhage (blood does not clot)	Loss of excessive blood even for a small wound

9) Minerals

Calcium	Milk, Fish, Wheat, Green Gram	Disintegration of bones and teeth	Weak bones and teeth.
Iron	Meat, Apple, Greens, Dates	Anaemia	Body fatigue, Giddiness.
Iodine	Milk, Iodized Salt, Prawn, Crab	Goitre	Inflammation in neck

10) Balanced Diet

A food that contains all the nutrients in the right proportion is a balanced diet. The following table shows the nutrients present in different food items.

S.No	Food category	Nutrients present
1.	Cereals: Rice, Wheat, Ragi (Finger millet) Bajra (Pearl millet), Sorghum, Corn, Barley, Rye	Carbohydrate, protein, a small amount of lipid, vitamin B, folic acid, iron, fibre.
2.	Pulses: Red gram, Black gram,Green gram, Horse gram,Bengal gram, Chick pea,Pea, Soya beans, Country beans etc.,	High protein content, a small amount of lipid, vitamin B, folic acid, iron, fibre
3.	Milk and meat products: Milk, Ghee, Curd, Yogurt,	Protein, lipid, vitamin B, calcium

	Skimmed milk,	
	Chicken, Liver, Fish, Egg, Mutton.	Protein, lipid, vitamin B
4.	Fruits and Vegetables: Mango, Guava, Tomato, Papaya, Orange, Water melon, Sweet lime, Grapes	Carotenoid, vitamin A, vitamin C, Iron, calcium
	Gooseberry, Greens, Drumstick leaves, Coriander, Lettuce, Spring onion.	A small amount of lipid, carotenoid, vitamin B_2, folic acid, calcium, iron, fibre
	Carrot, Brinjal, Lady's finger, Capsicum, Country bean, Onion, Drum-stick, Cauliflower.	Carotenoid, folic acid, calcium, Iron fibre.
5.	Ghee, Oils: Butter, Ghee, Vanaspathi, Cooking oils like	Lipid, Essential fatty acids

	Groundnut oil, Coconut oil, Gingely oil.	
6.	Sugar, Jaggery	Carbohydrate, iron.

11) Jaggery provides more benefits to the body than sugar
12) Nutrition is the mode of intake of food

Nutrition:

How do living organisms get energy from these food substances? Ingestion, digestion, absorption and assimilation are the various stages of nutrition. Organisms consume both solid and liquid food substances by various methods.

Types of nutrition

1. Autotrophic nutrition Mode of nutrition in which an organism prepares its own food is called autotrophic nutrition. E.g.: Green plants, Euglena.

They prepare their own food by photosynthesis.

2. Heterotrophic nutrition: The mode of nutrition in which an organism depends on other organisms for food as they cannot prepare their own food is called heterotrophic nutrition.

Types of Heterotrophic nutrition

Parasitic nutrition:

The mode of nutrition in which an organism depends on another living organism for its food and survival is called parasitic nutrition.

The plant Cuscuta depends on other plants for food. It is an example for parasitic nutrition.

Types of parasites:

Ectoparasites:

Organisms like headlouse, leech, etc. are found attached to the outer surface of the body of other living organisms (host) and get nourishment from the host. These are called Ectoparasites.

Endoparasites:

Roundworm lives inside the intestine of animals and human beings and derives food from it. So it is an endoparasite.

Saprophytic nutrition:

In saprophytic nutrition, the organism decomposes the dead plant and animal substances and converts them into simple molecules and absorbs them through their body wall.

E.g. Mushroom.

3. Special type of nutrition

Plants like Nepenthes, Drosera, and Utricularia are green in colour and are autotrophic. They are found in nitrogen deficient soil. They trap insects and assimilate them to get nitrogen from them. So they are called insectivorous plants.

Animals based on nutrition:

Animals that feed only on plants are called herbivores. e.g. goat, cattle.

Animals that feed on other animals are called carnivores. e.g. tiger.

Animals that feed on both plants and animals are called omnivores. e.g. crow.

13) ways to prevent heart diseases / attack.

1. To be happy.
2. To maintain the body wieght according to the height of the individual.
3. To participate in games and practice proper exercises.
4. To avoid deep fried food items.
5. To avoid tobacco products in any form.
6. To eat fruits and vegetables more.

Which is a good food?

We have to maintain our organs in a good condition to lead a healthy life for a long time. It is based on the choice of food we consume. It is important to keep our internal organs like heart, kidney, lungs, etc. healthy. Participating in games and exercises are important for this. Junk foods and fried items should be avoided. Instead, food items

containing protein and fibre, like peas, cabbage and greens should be added daily. Eating steamed fish items and brinjal rich in ascorbic acid, prevent heart diseases. We have to take equal quantities of vegetables along with our food like rice, wheat, bajra(kambu), maize, ragi etc. Fruits should also be included in our diet.

I. Fill in the blanks.

1. Disease caused due to protein deficiency is ____

Ans: Marasmus

2. Deficiency of Vitamin C causes ____.

Ans: Scurvy

3. _____ is an omnivore.

Ans: Crow

4. Milk is rich in _____ .

Ans: Calcium

5. _____ regulate the physiological activities.

Ans: Minerals

6. _____ is used to strengthen the bone.

Ans: Calcium

7. _____ is saprophytic in nutrition.

Ans: Mushroom

8. Anaemia is caused due to deficiency of ____ .

Ans: Iron

9. __ is synthesized by the skin with the help of sunlight.

Ans: Vitamin D

10. Rickets is a ___ deficiency disease.

Ans: Vitamin D

11. The constituents of food which are essential for the body are called ____

Ans: Nutrients

12. Deficiency of iron leeds to___.

Ans: Aneamia

13. The deficiency disease of Vitamin B1 is _____

Ans: Beri-beri

14. Enlarged head, loss of weight and retarded growth are the symptoms of _____.

Ans: Marasmus

15. Bleeding gums is the symptom of the disease _____.

Ans: Scurvy

16. Preparation of starch by the plants with help of sunlight, CO_2, water and chlorophyll is called_____

Ans: Photosynthesis

17. Nepenthes is an _____ plant.

Ans: insectivorous.

18. _____ and _____ rich in ascorbic acid prevent heart diseases.

Ans: Steamed fish , Brinjal

19. Cockroach is a/an _____animal.

Ans: Omnivorous.

20. The organism that decomposs the dead plant and animal substances and converts them into simple molecules and absorbs them through its body wall____.

Ans: Mushroom

21. _____ lives inside the body gut.

Ans: Roundworm

22. Animals which feed only on plants are called____.

Ans: herbivores

23. Head louse and leech are examples of_____.

Ans: ectoparasite

24. Loss of excessive blood even for a small hurt is the symptom of _____ deficiency.

Ans: Vitamin K

25. Inflammation in neck is the symptom of _____.

Ans: Goitre

II. Choose the correct answer:

1. Which one of the following energy?

(a) **Fat** (b) Vitamins

(c) Minerals (d) Water

2. Which of the following at as regulators in physiological activities?

(a) Proteins (b) Fats

(c) Carbohydrates (d) **Minerals**

3. _____ help in growth of the body.

(a) Vitamins (b) Water

(c) **Proteins** (d) Fat

4. Which of the following has the maximum water content?

(a) Bread slice (b) Milk

(c) Egg (d) **Cucumber**

5. The disease caused by deficiency of protein is_____

(a) Night-blindness (b) Beri-beri

(c) **Marasmus** (d) Rickets

6. Which one of the following is the disease caused by deficiency of Vutamin 'C'?

(a) Kwashiorkar (b) **Scurvy**

(c) Rickets (d) Bery-bery

7. Goitre is due to the deficiency of_____.

(a) Vitamin A (b) Vitamin C

(c) **Iodine** (d) Iron

8. Night-blindness is due to the deficiency of____.

(a) Iodine (b) Iron

(c) Vitamin C (d) **Vitamin A**

9. Which of the following caused by deficiency of Vitamin D?

(a) **Rickets** (b) Goitre

(c) Anaemia (d) Scurvy

10. which of the following adopts autotrophic nutrition?

(a) Cuscuta (b) Roundworm

(c) **Green plants** (d) Leech

11. Roundworm is an_____.

(a) Ectoparasite (b) **Endoparasite**

(c) Saprophyte (d) nsectivorous

12. _____ is an omnivore.

(a) Goat (b) Cattle

(c) Tiger (d) **Crow**

13. An example for an insectivorous plant is_____

(a) Hibiscus (b) **Drosera**

(c) Cuscuta (d) Green plants

14. Animals which feed only on plants are called____

(a) Omnivorous (b) **Herbivorous**

(c) Carnivorous (d) Insectivorous

III. Match the following.

A.

1. Vitamin A	a. Kwashiorkar
2. Vitamin C	b. Aneamia
3. Vitamin D	c. Night-blindness
4. Protein deficiency	d. Scurvy
5. Iron deficiency	e. Rickets

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

B.

1. Herbivorous	a. Tiger
2. Carnivorous	b. Cow
3. Omnivorous	c. Nephenthes
4. Insectivorous	d. Leech
5. Ectoparasite	e. Monkey

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

IV. Answer the following in one or two words:

1. Which nutrient acts as regulator in physiological activities?

Ans: Minerals

2. What is the deficiency disease of iodine?

Ans: Goitre

3. What is the percentage of water content in potato?

Ans: about 75%

4. Which vegetable is rich in ascorbic acid?

Ans: Brinjal

5. Name one fibre food.

Ans: Beans

6. What are the two types of parasites?

Ans: (a) Ectoparasites (b) Endoparasites

7. Which age group of children suffer from Kwashiorkar?

Ans: 1-5 years

3. Changes Around Us

1. Changes in colour, temperature, place, shape and size of the substances are considered as **changes.**

   Changes that take place in a few hours, days, months or years are

   called **slow changes**.

   The changes that take place in a short duration of time are called

   fast changes.

2. **Reversible and Irreversible Changes**

   In some changes, the substance can be brought back to its original

   state. Such changes are called **reversible change.**

   The change in which the substance cannot be converted back into its original form is called **irreversible change**.

3. **Desirable and Undesirable Changes**:

   Changes like raining, ripening of fruits, blooming of flowers, etc. are useful to us. Such useful changes are called **desirable changes**.

   Changes like spoiling of food, eruption of volcano, rusting of iron, breaking of glass are not liked by us, as they are harmful and not useful to us. Changes which are not useful to us are called **undesirable changes.**

4. **Periodic and Non-Periodic Changes**

   How many days are there between a new moon day and a full moon day?

Do the new moon and full moon occur at regular intervals? We understand that the new moon and full moon occur at regular intervals. Hence the changes that occur at regular intervals are called **periodic changes**.

Eruption of volcano, Earth quake, Land slide, Accident

We cannot predict how and when the above given changes will occur. So, the changes that do not occur at regular intervals are called **non-periodic changes**.

S.No.	Periodic changes	Non-periodic changes
1.	Occur at regular intervals.	Do not occur at regular intervals.
2.	Can be predicted (e.g.) weather.	Cannot be predicted e.g. earthquake.

5. Exothermic and Endothermic Changes

heat is liberated while in others heat is absorbed. Changes in which heat is liberated are called **exothermic changes.** E.g .burning of a matchstick, dissolution of detergent or washing soda in water.

Changes in which heat is absorbed are called **endothermic changes**. E.g. Dissolution of glucose or ammonium chloride in water.

I. Choose the correct answer:

1. Release of the compressed spring is____

(a) an irreversible change (b) **a reversible change**

(c) a non-periodic change (d) an undesirable change

2. Spoilage of food is_____

(a) a reversible change (b) a fast change

(c) **an undesirable change** (d) a periodic change

3. Dissolution of washing soda in water is_____

(a) an exothermic change (b) an irreversible change

(c) an undesirable change (d) an endothermic change

4. Which of the following changes is non-periodic?

(a) heartbeat (b) **earthwuake**

(c) occurance of day and night (d) oscillation of pendulum

5. Who was the first Indian woman travelled to the space?

(a) Marie Curie (b) Indira Nooyee

(c) **Kalpana Chawla** (d) Saira

6. Which of the following statement is correct?

(a) Our body loses weight in space (b) Ourbody gains weight in space

(c) Our eye sight becomes dull (d) All are correct

7. The time taken for a tree to turn into coal under the earth is_____.

(a) 34 years (b) 3400 years

(c) 34000 years (d) **30 crore years**

8. Which of the following is a slow change?

(a) Burning of paper (b) Brusting of crackers

(c) **Rusting of iron** (d) Glowing of electric bulb

9. Which of the following is a fast change?

(a) Growth of a child (b) **Brustin of crackers**

(c) Germination of seed (d) Curdling of milk

10. Which of the following is a reversible change?

(a) Batter into idly (b) Green vegetables into cooked food

(c) **Making of ornaments from gold** (d) Curdling of milk

11. Which of the following is an irreversible change?

(a) Evaporation of water (b) Melting of ice

(c) Making ornaments from silver (d) **Ripening of fruits**

12. Which of the following is a desirable change?

(a) Earthwuake (b) Accident

(c) **Blooming of volcano** (d) Landslide

13. Which of the following is a periodical change?

(a) **Heart beat** (b) Earthquake

(c) Eruption of volcano (d) Landslide

14. Which of the following is a non-periodical change?

(a) `Oscillation of pendulum (b) Phases of moon

(c) Occurrence of day and night (d) **Earthquake**

15. The reactions in which heat is liberated are called ___ reactions.

(a) Endothermic (b) **Exothermic**

(c) Adiabatic (d) Isothermic

16. The reactions in which heat is absorbed are called ___ reactions.

(a) **Endothermic** (b) Exothermic

(c) Adiabatic (d) Isothermic

17. In some changes, the substance can be brought back to its original state. Such changes are called ____ changes.

(a) Periodic (b) Non-periodic

(c) Undesirable (d) **Reversible**

18. Changes that are useful are called ___changes.

(a) Undesirable (b) **Desirable**

(c) Periodic (d) Irreversible

19. Dissolution of glucose in water is an example of_____ reaction.

(a) Adiabatic (b) Isothermal

(c) **Edothermic** (d) Exothermic

20. When Ammonium chloride is dissolved in water ____ is absorbed.

(a) Mass (b) **Heat**

(c) Time (d) Salt

21. Dissolution of quick lime in water is an example of _____ reaction.

(a) **Exothermic** (b) Endothermic

(c) Isochronous (d) Isobaric

22. Dissolution of detergent powder in water is an example of ____ reaction.

(a) **Exothermic** (b) Endothermic

(c) Isochronous (d) Isobaric

II. Fill in the blanks.

1. Curdling of milk is an _____ change.

Ans: irreversible

2. Ripening of fruit is _____ change.

Ans: desirable irreversible

3. Burning of paper is a_____ change.

Ans: fast

4. Melting of ice is a/an _____ change.

Ans: reversible

5. Seasonal changes are _____ changes.

Ans: periodic

6. Eruption of volcano is ____change.

Ans: non-periodic

7. When detergent powder is dissolved in water, heat is_____

Ans: liberated

8. When glucose is dissolved in water, heat is _____

Ans: absorbed

9. Germination of seed is ___

Ans: slow change

10. Burning of paper is _____

Ans: fast change

11. Kalpana Chawla was the _____ who travelled to the space.

Ans: first Indian woman

12. She went round the world within ____

Ans: one and half hours

13. Useful changes are called _____

Ans: desirable changes

14. Velco was invented in the year ____

Ans: 1948

15. Velco is widely used in _____

Ans: foot wear

16. Dissolution of glucose is an _____

Ans: endothermic

17. Trees which are buried under the earth are turned into ____

Ans: coal

18. Release of compressed spring is _____

Ans: reversible

III. Match the following

1.

1. Burning of paper	a. Desirable change
2. Rusting of iron	b. Reversible change
3. Melting of ice	c. Slow change
4. Ripening of fruits	d. fast change

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

2.

1. Melting of Gold	a. Reversible change
2. Melting of Tar	b. Irreversible change
3. The batter from Idly or dosa	c. Undesirable change
4. Eruption of volcano	d. Reversible change

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

3.

1. Earth quake	a. Endothermic changes
2. Weather	b. Non-periodic changes
3. Buring of match stick	c. Periodic changes
4. Dissolution of glucose	d. Exothermic changes

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

4.

1. Full moon and New moon	a. Exothermic changes
2. Weather	b. Endothermic changes
3. Buring of match stick	c. Periodic changes
4. Dissolution of glucose	d. Periodic changes

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

4. Measurement and Motion

1. Measurement

What is measurement?

Measurement is a process of comparison of an unknown quantity with a standard (accepted) quantity of the same kind. The known constant quantity is called **Unit**. Here metre, kilogram and minute are units.

2. The need for Standard Unit

Any measurement that gives the same value for all is called **Standard measurement**. The units which are used in **Standard measurement** are called **Standard units**. Therefore, we infer that cubit, hand span, etc. are not standard units. **Metre, kilogram and second are standard units**.

3. Fundamental quantities

Length, Mass and Time are called fundamental quantities, because they can not be expressed in terms of any other physical quantity. The units which are used to measure the fundamental quantities are called **fundamental units.**

4. SI Units

(System International Units) In different parts of the world different system of units for measuring length, mass and time were in use. A few systems of units are

1. FPS system (Foot, Pound, Second)

2. CGS system (Centimetre, Gram, Second)

3. MKS system (Metre, Kilogram,Second)

In order to overcome the difficulties of using different systems of units, an International system was adopted in 1960. This was accepted by scientists all over the world.

This system is called SI units.

Physical quantity	SI Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s

5. **Measurement of length**

The distance between two points is called length. The SI unit of length is metre. To measure length we use measuring tape, metre scale etc.

6. **Multiples and submultiples of length**

larger distances such as the distance between two places are expressed in **kilometre.** This is called **multiple of length**. We express smaller lengths such as length of a pencil, pen nib etc. in centimetre and millimetre. These are called **submultiples.**

Physical quantity	SI unit	Multiples	Sub Multiples
Length	Meter	Kilometer	millimetre,centimetre

1 metre = 1000 millimetres

1 metre = 100 centimetres

1 kilometre = 1000 metres

7. **Measurement of mass**

The mass of a body is the amount of matter contained in it. The SI unit of mass is kilogram. We use beam balance, physical balance and electronic balance for measuring mass.

8. **Multiples and submultiples of mass**

We use units quintal and metric tonne to measure larger quantities of sugarcane bundles, cotton bales, etc. Similarly, we use units gram and milligram to measure smaller quantities of gold, silver, spices, etc. These are called multiples and submultiples of mass.

Physical quantity	SI unit	Multiples	Sub Multiples
Mass	kilogram	quintal, metric tonne	Gram, milligram

1 gram = 1000 milligrams

1 kilogram = 1000 grams

1 quintal = 100 kilograms

1 metric tonne = 1000 kilograms

9. Measurement of time

Time is the **interval between two events**. The SI unit of time is **second.**

For measuring time we use pendulum clock, wristwatch, wall clock, stop clock etc. In olden days people used sundial, sand clock, water clock etc. For measuring time accurately we use atomic clock.

10. Multiples and submultiples of time

Larger time intervals are expressed in **minute, hour, day, week, month, year etc.** These are called multiples of time. Any time interval less than 1 second is expressed in **millisecond, microsecond etc**. These are called submultiples of time.

Physical quantity	SI unit	Multiples	Sub Multiples
Time	Second	minute, hour, day, week, month, year	millisecond, microsecond

1 minute = 60 seconds

1 hour = 60 minutes

1 day = 24 hours

1 year = 365 1/4 days

1 second = 1000 milliseconds

1 second = 1000000 microseconds

11. **Motions**

If an object does not change its position with respect to time, it is said to be **stationary or at rest.**

If the object changes its position with respect to time then it is said to be in motion. Hence **motion** is defined as the change of position of an object with respect to time.

An object may appear to be stationary for one observer and appear to be moving for another. An object is at rest in relation to a certain set of objects and moving in relation to another set of **objects**. This implies that rest and motion are relative.

Types of motion

When an object moves along a straight line, it is said to be in linear motion. Motion of a freely falling body and motion of a lift are examples for **linear motion.**

Circular motion

if an object moves along a circular path, it is said to be in circular motion. Motion of the tip of hands of a clock and a point marked on the blade of the fan are some more examples for **circular motion.**

Rotational Motion

If a body revolves about an axis, it is said to be in rotational motion.

Eg. Spinning top, Motion of a fan, Motion of a merry-go-round

Periodic motion

If an object repeats the same type of motion at regular intervals of time it is said to be in periodic motion.

Eg.

Motion of a child in a swing,

Motion of the pendulum in a wall clock,

Motion of the string of veena while plucking,

Motion of the moon revolving around the earth,

Motion of the earth revolving around the sun,

Random Motion

When an object moves at different speeds and in different directions, it is said to be in **random motion.**

Eg. A fish swimming in a tank, The movement of a football during a game

Multiple Motion

The motion of the wheels of a bicycle is rotational, whereas the motion of the bicycle is linear. The wheels of a bicycle perform rotational as well as linear motion simultaneously. Similarly, a rolling ball and a drilling machine perform more than one type of motion simultaneously.

I. Choose the correct answer.

1. SI unit of length is____

(a) centimetre (b) millimetre

(c) **metre** (d) kilometre

2. The symbol for SI unit of mass is___

(a) g (b) **kg**

(c) mg (d) cg

3. 1 metric tonne is equal to____

(a) **1000 kilograms** (b) 100 kilograms

(c) 1 kilogram (d) 10 kilograms

4. SI unit of time is___

(a) **second** (b) minute

(c) week (d) day

5. 1 hour=____ seconds

(a) 60 (b) **3600**

(c) 24 (d) 1000

6. Movement of a branch of a tree in air an example for____

(a) Linear motion (b) Circular motion

(c) **Periodic motion** (d) Rotational motion

7. The motion of a rolling ball is _____ motion.

(a) Circular (b) Linear

(c) **Rotational** (d) Multiple

8. When a bicycle is in motion, the mouth which is used to fill the air will perform _____

(a) Random motion (b) Periodic motion

(c) Circular motion (d) **All of these**

9. The vegetables are weighed with the help of a____

(a) scale (b) **balance**

(c) measuring jar (d) watch clock

10. Which one of the following is not the unit of length?

(a) Hands pan (b) Metre

(c) Kilometre (d) **kilogram**

11. 1kilometre is equal to ____

(a) 10000 millimetre (b) 10 metre

(c) **1000 metre** (d) 100 metre

12. _____ days are equal to one year.

(a) 24 (b) **365**

(c) 1000 (d) 3600

13. Which of the following system is accepted as international standard system?

(a) CGS (b) F P S

(c) M K S (d) **S I**

14. 100kilogram is equal to___

(a) 1 metric tonne (b) **1 quintal**

(c) 1 tonne (d) 1000 milligram

15. Which one of the following is used to measure liquids?

(a) **Litre** (b) Second

(c) Micro second (d) Hands pan

16. Which one of the following is a linear motion?

(a) Motion of cycle wheel (b)**Motion of a lift**

(c) Rolling ball (d) Drilling machine

17. The motion of a drilling machine is ____

(a) circular (b) linear

(c) **circular and linear** (d) oscillatory

II. Fill in the blanks.

1. One metre = **100** centimetre

2. One kilometre= **1000** metre

3. One quintal = **100** kilogram

4. One minute = **60** seconds

5. The mass of gold is measured by the unit _____

Ans: gram

6. Rice, sugar etc are measured by the unit____

Ans: kilogram

7. Generally sugarcane is weighted by the unit ____

Ans: tonne

8. The mass of the chemicals present in a tablet are expressed in the unit___

Ans: milligram

9. Many physical quantities have both _____ and _____.

Ans: magnitude, unit

10. _____ is the multiple unit of length.

Ans: Kilometre

11. The mass of a body is the amount of _____ contained in it.

Ans: matter

12. For measuring time accurately, nowadays we use ____ and _____.

Ans: electronic, atomic clock

13. Motion of the moon around the earth is _____ motion.

Ans: rotational

14. ____ is defined as the change of position of an object with respect to time.

Ans: Motion

15. Centimetre, gram, second is called__ system of units.

Ans: CGS

16. Centimetre, millimetre are called _____ of metre.

Ans: submultiples

17. ___ is defined as the interval between two events.

Ans: Time

18. Motion of a body dropped from the top of the building is____ motion.

Ans: linear

19. _____is called as Father of Robot.

Ans: Issac Asimov

20. Robot is a_____

Ans: human machine

III.Match the following.

1.

1. Thickness of a five rupee coin	a. Kilometre
2. Breadth of a classroom	b. centimetre
3. Distance between two places	c. millimetre
4. Height of your friend	d. metre

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

2.

1. mass	a. 1 kilometre
2. length	b. 1 metric tonne
3. time	c. kilogram
4. 1000 m	d. metre
5. 1000 kg	e. second

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

IV. Answer the following in one or two words.

1. What is the device used to measure time accurately?

Ans: Atomic clock

2. Define time.

Ans: Time is defined as the interval between two events.

3. What is length?

Ans: The distance between any two points.

4. Name the various units of mass.

Ans: Gram, kilogram, quintal and metric tonne.

5. Mention any two tools to measure length.

Ans: Tape, metre scale

6. What are the balance used to measure mass?

Ans: (a) Beam balance (b) Physical balance (c) Electronic balance.

7. Give an example of rotational motion.

Ans: Motion of a spinning top.

5. Magnetism

1. How magnets were discovered? It is an interesting story.
   There was a region called Asia Minor, where there was a town called Magnesia. It was full of mountains, rocks and plateaus. The only occupation for the people was grazing the cattle. There was a shepherd named Magnes.

While grazing the cattle, Magnet was discovered by Magnes, they called it Magnet and also Magnetite. Magnetite was the ore with attracting property found in that region.

2. Magnetites are natural magnets. They are called magnetic stones.
3. Natural magnets do not have a definite shape. When a magnet is freely suspended, it always comes to rest in north- south direction. That is why they are called leading stones or lode stones.
4. After learning the method of changing the piece of iron into magnet (magnetization) we have been making and using several kinds of magnet.

Such man-made magnets are called artificial magnets. Here some of the shapes of artificial magnets that we use in our daily life.

We understand that magnet attracts certain substances and do not attract some other substances.

Substances that are attracted by magnet are called **magnetic substances**.

Iron, cobalt, nickel are magnetic substances.

Substances that do not get attracted by magnet are called **non-magnetic substances.**

Paper, plastic are called non- magnetic substances.

The ends of a magnet have the strongest magnetic force. So most of the iron filings cling to the ends of the magnet. They are called poles of the magnet.

A freely suspended magnet always comes to rest in north-south direction.

North seeking pole is called **north pole**. South seeking pole is called **south pole**.

The Magnetic compass has been designed by using this directive property of the magnet.

5. **Magnetic compass**

A magnetic compass is a circular disc on which a small needle is pivoted at its centre. Different directions (North, South, East, and west) are marked on the compass. This needle can rotate freely and always point in the north-south direction.

The magnetic needle always rests in north-south direction. By using this magnetic compass we can find out different directions.

Attraction? or repulsion?

When we bring two north poles of two bar magnets closer, they move away from each other. Similarly when the south poles of two bar magnets are brought closer they too move away from each other.

When a north pole of one magnet and a south pole of another magnet are brought closer, they pull towards each other.

Like poles repel each other.

Unlike poles attract each other.

Do magnets lose their properties ? When?

Magnets lose their properties if they are heated or dropped from a height or hit with a hammer.

Storage of magnets

Improper storage can also cause magnets to lose their properties. To keep them safe, bar magnets should be kept in pairs with their unlike poles on the

same side. They must be separated by a piece of wood and two pieces of soft iron should be placed across their ends.

For a horse-shoe magnet a single piece of soft iron can be used as a magnetic keeper across the poles.

I. Choose the correct answer.

1. It is a natural magnet.

(a) Bar magnet (b) **Magnetite**

(c) Ring magnet (d) Horse-shoe magnet

2. An object that is attracted by magnet.

(a) Wooden piece (b) **Plain pins**

(c) Eraser (d) A piece of paper

3. The people who made mariner's compass for the first time.

(a) Indians (b) Europeans

(c) **Chinese** (d) Egyptians

4. A freely suspended magnet always comes to rest in the _____ direction.

(a) North-east (b) South-west

(c) East-west (d) **North-south**

5. Magnets lose their properties when they are

(a) used (b) stored

(c) **hit with a hammer** (d) cleaned

6. Mariner's compass is used to find the

(a) speed (b) displacement

(c) **direction** (d) motion

7. Which of the following is used in lifts and escalators?

(a) Iron rod (b) Temporary magnet

(c) **Electromagnet** (d) Bar magnet

8. In which of the following electromagnets are used?

(a) Flying trains (b) Lifts

(c) Escalators (d) **All the these**

9. Which of the following is attracted by magnets?

(a) Paper (b) **Nail**

(c) Wooden scale (d) Plastic scale

10. Which of the following is not attracted by the magnet?

(a) Iron ball (b) Nail

(c) **Chalk piece** (d) Blade

11. Which one of the following principles is used in an electromagnetic train?

(a) **Magnetic attraction and repulsion**

(b) Forces of induction

(c) Vanderwaal's force

(d) Dipole-Dipole attracrtion

12. The natural magnet was discovered by___

(a) **Magnes** (b) Thomas

(c) Magnesia (d) Robert Hooke

13. Which of the following is called natural magnet?

(a) Pyrolusite (b) Magnesite

(c) **Magnesite** (d) Magnesium sulphate

14. Which of the following is the characteristic property of natural magnet?

(a) **They do not have definite shape**

(b) They have definite shape

(c) They come to rest in east-west direction

(d) All the above

15. Natural magnets are otherwise called_____

(a) bar magnet (b) **lode stones**

(c) electromagnet (d) ring magnet

16. Which one of the following is the shape of the natural magnet?

(a) Ring (b) Horse shoe

(c) **Shapeless** (d) Bar

17. Which of the following is the characteristic of an electromagnetic train?

(a) Do not have wheels (b) Runs faster than ordinary train

(c) Does not make noise (d) **All the above**

18. Electromagnetic trains are called suspension trains since they run____

(a) on tracks (b) with high speed

(c) **without touching the rails** (d) by electricity

19. Cranes are used to lift heavy load with the help of____

(a) bar magnet **(b) powerful electromagnet**

(c) horse shoe magnet (d) ring magnet

20. Which of the following is attached to the pin holder and the refrigerator?

(a) **Magnet** (b) Magnesium

(c) Copper (d) Silver

21. Which of the following attracts more iron fillings?

(a) Bar magnet (b) **Horse shoe magnet**

(c) Temporary magnet (d) Iron rod

22.The place at which the attractive force is more in a magnet is____

(a) **poles** (b) centre

(c) entire surface (d) a midpoint

23. When two north poles of two bar magnets are brought closer there will be____

(a) attraction (b) **repulsion**

(c) collision (d) none of these

24. When a North pole and South pole are brought closer, they show___

(a) **attraction** (b) repulsion

(c) move away from each other (d) all of these

25. Electromagnetic train is also called_____

(a) electric train (b)ordinary train

(c) **flying train** (d) slow train

II. Fill in the blanks.

1. _____ are used to operate electromagnetic trains, lift and escalators.

Ans: Powerful electromagnets

2. Natural magnets are called ____ stones.

Ans: magnetic

3. The two ends of a magnet where the attractive force is more are called____

Ans: poles

4. Powerful magnets are used to operate electromagnetic trains, lifts and _____

Ans: escalators

5. Natural magnets come to rest in ____ direction.

Ans: north-south

6. The substances that are not attracted by a magnet are called _____

Ans: non-magnetic

7. The attractive force is more at the ____ of the magnet.

Ans: poles

8. ____magnet attracts more iron filings at the two ends.

Ans: Horse shoe

9. ____ poles attract each other.

Ans: Unlike

10. The change in _____ pushes and pulls the electromagnetic train.

Ans: polarity

11. Electromagnetic train is also called _____train.

Ans: flying (or) suspension

12. Magnetites are the _____

Ans: natural magnet

13. Earth behaves like a _____

Ans: giant magnet

14. Electromagnetic train does not reuire_____

Ans: Petrol

15. The electric current that changes constantly allows a change in _____ of electromagnets.

Ans: polarity

16. For _____magnet one should keep a piece of iron across the poles.

Ans: horse shoe

17. _____ proposed that earth behaves like a giant magnet.

Ans: William Gilbert

III. Match the following

1.

1. Magnes	a. Chinese
2. Plastic scale	b. Natural magnet
3. Nail	c. Flying train
4. Electromagnetic train	d. Non-magnetic substance
5. Mariner's compass	e. Magnetic substance

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

2.

1. Natural magnet	a. Electromagnetic trains
2. Lode stones	b. Asia Minor
3. Powerful electromagnets	c. Magnetites
4. Magnesia	d. North-south direction

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

3.

1. powerful magnets	a. Magnetites
2. Magnetites	b. Used by Chinese navigators to find the directions
3. Natural magnets	c. Lift heavy iron loads
4. Magnets	d. do not have definite shape.

Ans: 1-c,2-a,3-d,4-c

4.

1. Artificial magnets	a. Strongest magnetic force
2. Non-magnetic substance	b. Man-made magnets
3. Magnetic substance	c. Plastic scale, wooden scale
4. Ends of a magnet	d. Iron, nickel and cobalt

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

5.

1. Ends of the magnets are called	a. Poles
2. Magnetic needles always rests in	b. North south direction
3. Magnetic compass	c. Used to find out different direction
4. North pole and south pole of a magnet brought closer leads to	d. Attraction

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

IV. Answer the following in one or two words.

1. Who discovered natural magnet?

Ans: Magnes

2. What is north pole?

Ans: North seeking pole

3. What is south pole?

Ans: South seeking pole

4. What are the substances attracted by magnets?

Ans: Plain pins, nails, blade, iron

5. Name the substances not attracted by magnets?

Ans: Wooden scale, Plastic scale, Chalk piece