**Chapter 5**

**Friction**

1. Make a chart showing at least four instances where friction is helpful in our life.
2. Suppose I am riding a bicycle and it keeps on moving till I am paddling it. The moment I stop paddling or applying force it stops moving, why?
3. All children take part in some sports or another make a list where friction is a nuisance and how the sports person gets rid of it.
4. Name the force that exists between two objects whenever one object moves or tends to move over the surface of another object.
5. Complete the given statements
6. The force that opposes any relative motion between two objects that are in contact with each other is known as \_\_\_\_\_\_\_\_\_\_\_.
7. The force of friction between two surfaces depends on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in contact.
8. The maximum value of the force of static friction comes into play when the body is \_\_\_\_\_\_\_\_\_\_\_\_ the horizontal surface and is known as \_\_\_\_\_\_\_\_\_\_\_\_ of friction.
9. The realisation that rolling friction is much less than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ led man to invent the \_\_\_\_\_\_\_\_\_\_\_\_\_.
10. We tend to slip when we walk on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or an oily floor.
11. Gymnasts often apply chalk powder on their hands because this \_\_\_\_\_\_\_\_\_\_\_ friction between their hands and uneven bars.
12. When we apply grease between moving parts of the machine we \_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_ between them.
13. Air resistance \_\_\_\_\_\_\_\_\_ with increase in the speed of the object moving through it.
14. A systematic regular flow of a fluid in which all the particles that pass any given point, follow the same path with same speed is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
15. Give reason for the following
16. The soles of the shoes and the tyres of vehicles are treaded.
17. We use ball bearings in the shaft of motors, dynamos and axles of vehicles
18. We are able to fix nail on the wall.
19. Our palm become warm when we rub them vigorously.
20. The force of friction between narrow tyre and road is equal to the force between similar wider tyres and the road.
21. There are worn out steps of foot over bridges at railway stations.
22. We often sprinkle talcum powder on carom boards.
23. Correct the given statements
24. The applying of lubricants on machine part increases friction.
25. A streamlined flow of air over a surface of vehicle increases friction and helps it to acquire slower speed.
26. Rolling friction is exerted between two objects when one slides over the other.
27. Sports men have shoes with smooth soles to have better grip.
28. An air cushion between moving parts is often used to increase friction.
29. The force of friction does not depend on the nature of two surfaces in contact.
30. Define the following terms
31. Static friction
32. Drag
33. Limiting force of friction
34. Air resistance
35. Friction-An evil or Nuisance, justify.
36. Excessive heat produced between the moving parts of a machine is a problem, why?
37. Which are the factors that do not affect the force of friction between two surfaces?
38. If we throw a sheet of a paper and a crushed ball of paper from the same height, which of them will fall with greater speed and why?
39. Complete the diagram to show the direction of friction of force

Direction of motion

1. State the factors affecting friction.
2. What are the causes of friction?
3. Fill the blanks

Types of friction frfriction

Rolling friction

After completing the flow chart arrange the types in decreasing order.

1. ‘Friction—A necessity’, justify the statement with help of 2 examples.
2. How can we say that friction is a necessary evil?
3. Why is a hovercraft able to move both on land and water?
4. State the various methods by which we can increase friction.
5. Complete the flow chart

Fluid friction depends on

1. ‘Nature gives useful ideas to mankind,’ justify.
2. Suppose you move a box along horizontal ground and you roll another box, which will move faster and why?
3. Why a small child is able to pull a heavy trolley bag easily?
4. If we wrap metal chains around tyres of vehicle will it be able to move on icy roads or not and state the reason for it.

**Chapter 6**

**Sources of Energy**

1. Search internet and make list of places where solar energy and wind energy as the major source of energy in India.
2. Carefully look around and note down at least 6 activities in daily life that require energy.
3. Differentiate natural sources from synthetic sources.
4. What helps to estimate the quality of fuel?
5. State the three physical states in which we find fuel and give 2example of each type.
6. Complete the flow chart about basis of classification of sources of energy

Occurrence

Sources of energy

1. Complete the given statements
2. Non-renewable sources like petroleum and natural gas is also known as \_\_\_\_\_\_\_\_\_\_\_\_\_.
3. The process of conversion of dead plant material into coal is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Natural gas when compressed and stored under pressure is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. \_\_\_\_\_\_\_\_\_\_\_\_ is a fossil fuel that is dark coloured viscous and foul-smelling liquid commonly called\_\_\_\_\_\_\_\_\_\_.
6. The process of different components of petroleum into their various useful forms is called\_\_\_\_\_\_\_\_\_\_\_.
7. The major coal mines in India are located in \_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_,\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_.
8. \_\_\_\_\_\_\_\_\_\_\_is a major renewable natural resource.
9. Coal is a readily combustible black rock or brownish black \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. Synthetic energy sources are those that use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as sources of energy.
11. Differentiate between renewable and non renewable sources of energy.
12. Define the following terms
13. Renewable sources
14. Fossil fuel
15. Carbonisation
16. Destructive distillation
17. Give reason for the following
18. Natural gas is a better fuel and cleaner fuel.
19. Petroleum and coal are known as non –renewable source of energy.
20. Chemical energy stored in batteries is known as synthetic source of energy.
21. Coal gas is used as domestic and industrial fuel.
22. Petroleum is often called the liquid gold
23. Anthracite is considered as highest grade of coal.
24. Non –renewable source is also known as exhaustible natural resources.
25. Complete the flow chart about types of coal

30% carbon

Peat

Types of coal

Anthracite

1. What is destructive distillation? Name the products we get as result of destructive distillation.
2. Why use of wood as fuel should be discouraged?
3. Correct the given statements
4. Bituminous coal has about 38% carbon.
5. Coal tar is a type of coal.
6. The process of separating different components of petroleum is known as destructive distillation.
7. The source of energy that get used up and can be replaced or replenished is known as non-renewable source of energy.
8. Coal is readily combustible black liquid or a brownish black metamorphosis rock.
9. Complete the table about petroleum products and its uses

|  |  |  |
| --- | --- | --- |
| S.N | Petroleum products | Uses of the products |
| 1 | Residual oil |  |
| 2 |  | Used as fuel in boilers |
| 3 |  |  |
| 4 | Kerosene |  |
| 5 |  | Used as fuel in car, scooters |
| 6 | Petroleum gas |  |

1. Where do you find natural gas in India? What is it used for?
2. Why is there stress on usage of cleaner fuels now?
3. Name the different components of residual oil and state the use of the components.
4. ‘At present the world needs to look for alternative sources like tidal energy, geothermal energy, hydel energy etc’, justify.
5. Why people are being discouraged from using fossil fuel?
6. State which among wood and coal is a better fuel and why?
7. Name the area of India where wind energy can be used as source of energy.
8. Which cleaner fuel is commonly used in villages of India and why?
9. Which fossil fuel is used as base ingredient in the manufacture of fertilisers and chemical?
10. Solar energy and tidal energy are inexhaustible sources of energy, comment.