

Direction: The question below consists of an Assertion (A) and a Reason (R). Use the following key to choose the appropriate answer.

- (a) If both assertion and reason are correct and reason is correct explanation of the assertion.
- (b) If both assertion and reason are correct, but the reason is not the correct explanation of the assertion.
- (c) If assertion is correct, but reason is incorrect.
- (d) If assertion is incorrect, but reason is correct.

17. (a) 1

18. (a) 1

19. (b) both A and B are correct but reason is not the correct explanation of A. 1

20.a) Both A and R are true and R is the correct explanation of the assertion. 1

Section-B

Question No. 21 to 26 are very short answer questions

21. Carbonization is a gradual process that converts dead plants and vegetation into coal.

Carbon dioxide, heat energy. 1+1

22. Wheat crop is sown from November/December to March/April. It is grown in winter and requires less water. If wheat is sown in the Kharif season, its production will be decreased considerably. 2

23. Rhizobium forms a symbiotic association with the roots of leguminous plants and converts the atmospheric nitrogen into simple soluble forms making it available for the plant 2

24. (i) Species of plants and animals that are exclusively found in a particular area.

E.g. sal and wild mango are two examples of the endemic flora of the Pachmarhi biosphere reserve. Bison and Indian giant squirrels are examples of endemic fauna of this area1/2+1/2=1

(ii) The species of plants and animals which have a high chance of becoming endangered unless the circumstances threatening its survival and reproduction improve.

E.g. Giant panda 1/2+1/2=1

OR

It is the sourcebook which keeps a record of all the endangered animals and plants. This book is mainly created to identify and protect those species which are on the verge of extinction. It is published by the International Union for Conservation of Nature and Natural Resources.) 2

25. Force if interaction between two objects is called contact force. Examples: Frictional force & Muscular force 1+1

26. A narrow shape that is narrow from edges and wider from middle.

1. It reduces air drag

2. It reduces liquid drag. 1+1

Section-C

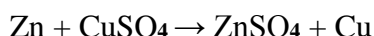
Question No. 27 to 33 are short answer questions

27. (a) GOLD, SILVER., PLATINUM

1

(b) A displacement reaction is a chemical reaction where a more reactive element displaces a less reactive element from its compound. For example, when zinc (Zn) reacts with copper sulphate (CuSO₄), zinc replaces copper because it is more reactive than copper. 2

The equation for this reaction is



28. Synthetic fibers are artificial fibers that are made in factories using chemicals and small units called monomers. 1

Advantages 1

- Durability: Synthetic fibers are strong and can handle heavy loads. They can also retain their shape, making them easy to wash and wear.
- Affordability: Synthetic fibers are generally cheaper than natural fibers.
- Wrinkle resistance: Synthetic fibers are easy to maintain and don't wrinkle.
- Quick drying: Synthetic fibers dry quickly and require little or no ironing.
- Variety of colors: Synthetic fibers are available in many colors.

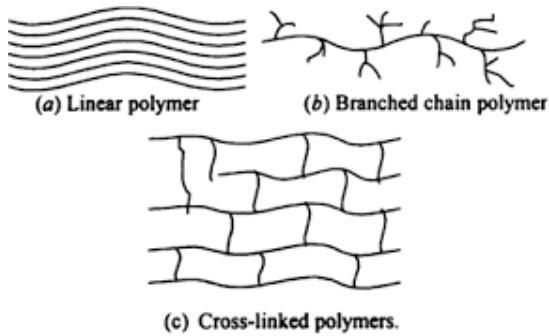
Disadvantages 1

- Nonbiodegradable: Synthetic fibers can cause soil pollution.
- Poor water absorption: Synthetic fibers don't absorb water or sweat, so they can stick to the body in hot and humid weather.
- Fire safety: Synthetic fibers can melt and burn easily, and they shrink and form beads that can stick to the skin when they catch fire. This makes them unsuitable for wearing near flames or in the kitchen.
- Washing: Washing synthetic fabrics on high heat can warp the fabric, causing it to stretch or twist.

OR

(a) Polymerization is a chemical process that joins smaller molecules, called monomers, together to form larger molecules, or polymers. 1

(b)linear chain and cross-linked polymerisation. 1



1

29.a).Wilde life sanctuary:1.Areas where animals are protected from any disturbance to them and their habitat. 2. Example: Sultanpur Bird Sanctuary 1 ½

b)Biosphere reserve:1. Large areas of protected land for conservation of wildlife, plant and animal resources and traditional life of the tribals living in the area. 2. Example: Pachmarhi Biosphere Reserve 1 ½

30. Disease causing microorganisms called pathogens. Microorganisms are carried from diseased person to healthy person through air water food , direct contact or insect carriers. viruses behave like non living particles outside the body of the host but behave like living organisms when it enters the body of the host.

1+1+1=3

31. (a) Friction is an opposing force that slows down the motion of an objects.

(b). cause: Irregularities between two surfaces. It can be minimized by usinglubricant & ball bearings.

1+1+1

32. Give reasons for the following:

3

(a). Pressure is inversely proportional to area and sharp knife has less area which exert more pressure while blunt knife has more area so it exert less pressure this is the reason sharp knife cut better

(b) wooden/concrete sleepers below railway track increase the area and decrease the pressure due to the weight of train on the track. 3

33. Gravitational force is only due to mass of the body. Electrostatic force is exists due to charge on the body. Gravitational force is only an attractive force. Electrostatic force may be an attractive force or a repulsive force. Examples: Satellites moves around the earth and rubbed comb attracts bits of paper. .

2+1

Section-D

Question No. 34 to 36 are long answer questions.

34. (a) Give reasons for the following:

(i) Silver tarnishes when exposed to air because it reacts with sulphur-containing gases in the atmosphere to form a layer of silver sulphide on its surface. This process is called tarnishing. The reaction is as follows:
 $2\text{Ag(s)} + \text{H}_2\text{S(g)} \rightarrow \text{Ag}_2\text{S(s)} + \text{H}_2\text{(g)}$ 1

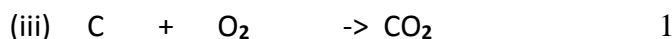
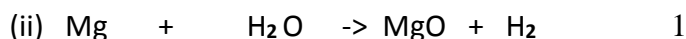
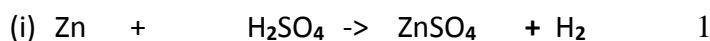
(ii) Sodium is kept in kerosene oil to prevent it from reacting violently with oxygen, carbon dioxide, and moisture in the air, which could cause a fire. 1

(iii) Aluminum is used to make electrical wires because it's a metal with low resistance and good conductivity 1

(b) Hydrogen , Burning match stick towards gas jar makes pop sound 1+1

OR

(a) Complete the following chemical equations.



(b) The process of metals beaten into sheet is called malleability 1

metal 1

35. Because of the following reasons, the conservation of biodiversity is important:

It boosts tourism and thus, plays a significant role in enhancing the economy of the country. It maintains the fertility of the soil. It helps in maintaining the ecological balance on the earth. Biodiversity is a rich source for the study of genetics and evolution. It helps in maintaining the weather by regulating climatic changes, rainfall, etc.2

b. The threat to biodiversity is – natural calamity and climatic changes. The level of carbon dioxide goes up which results in an increase in temperature and consequently leads to global warming. Decreases rainfall which disturbs the water cycle and leads to drought. Changes properties of soil like nutrient content and texture. Also, decreases the water-holding capacity of soil. Fewer trees result in more soil erosion. Removal of the top layer of the soil exposes the lower, hard and rocky layers. This soil has less humus and is less fertile. Gradually the fertile land gets converted into deserts. It is called desertification.....3

OR

a) In a wildlife sanctuary, killing and capturing of wild animals is strictly prohibited. Any human activity which disturbs the wild animals and plants or their habitat is not allowed. So, in these areas, animals live in a natural environment protected from any interference. This is why, sanctuaries are important...3

b) Project Tiger was launched by the government of India in 1973, to save tigers from extinction due to poaching. The objective of this project was to:

- Limit factors that lead to the reduction of tiger habitats and mitigate them by suitable management.
- It strives to maintain the tiger population in the natural environment.
- To ensure the population of tigers for economic, scientific, cultural, aesthetic and ecological values.

2

36. Using ball bearings: Ball bearings are small spherical balls placed between two moving cylindrical surfaces. These balls roll between two cylinders and enable both cylinders to move over each other instead of sliding. Thus, ball bearings change sliding friction to rolling friction, which makes movement easier.



▲ Fig. 12.8 Ball bearings

OR

(a) Friction depends on nature of surfaces and weight of an objects

(b) **Advantages of friction:**

- We walk freely on a surface due to friction because friction between the sole of our shoes and the ground prevents us from slipping over the ground.
- Friction helps to support the ladder against a wall.
- Breaks of vehicles work due to friction

2+3

Section-E

Question No. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts. (1+1+2=4)

37. *Read the passage carefully and answer the following questions.*

(a) Beaker C, the use of fertilisers helps in the fast growth of plants. . 1

(b) A manure is a natural substance obtained by the decomposition of organic matter such as cattle dung, human waste, and plant residues. . 1

(c) The addition of manure will improve the soil texture and water retaining capacity..... 2

OR

(c) The excessive use of fertilisers changes the chemical nature of the soil and makes the soil less fertile. The excessive use of fertilisers causes water pollution in ponds, lakes, and rivers when they enter the lakes and ponds through runoff and soil erosion . 2

38. *Read the passage carefully and answer the following questions.*

(a) Exhaustible 1

(b) (iii) Water 1

(c) Compressed natural gas , 1+1

Compressed Natural Gas (CNG) is a cleaner fuel than petroleum and can reduce pollution in cities by producing fewer harmful pollutants:

Combustion:

CNG burns completely in air and produces smaller amounts of pollutants like carbon dioxide, carbon monoxide, carbon particles, sulfur oxide, and nitrogen oxide. In contrast, petroleum combustion produces harmful pollutants like carbon monoxide gas, un-burnt carbon particles, particulate matter, and fume gases. These pollutants can enter the air and cause respiratory diseases.

OR

(c) Natural gas and coal

39.

(a) Balanced force : Forces acting on an object are said to be balanced forces if the net effect produced by all of them on the object is zero. 1

(b) If two unbalanced forces act on the rope, the rope would move in the direction of large force. The unbalanced forces change the state of the body. 1

(c) The net force on the box is

$$10\text{N} - 6\text{N} = 4\text{N} \quad 2$$

OR

(c) The net force on the box is: 2

$$8\text{N} - 3\text{N} = 5\text{N}$$

