Delhi Public School, Howrah

HALF YEARLY EXAMINATION (2023-2024)

Class-VIII

Care must be taken not to write anything on the question paper. All the questions must be attempted in the correct sequence.

Subject:- Science

Time:-3 Hours **F.M.-80**

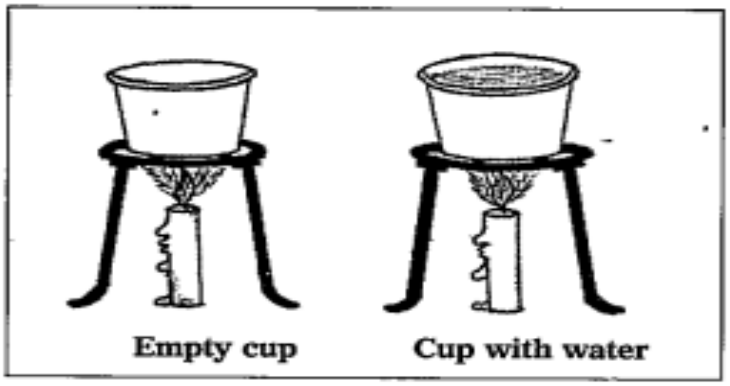
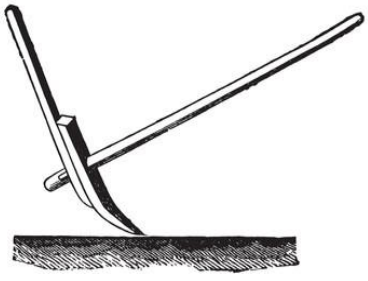
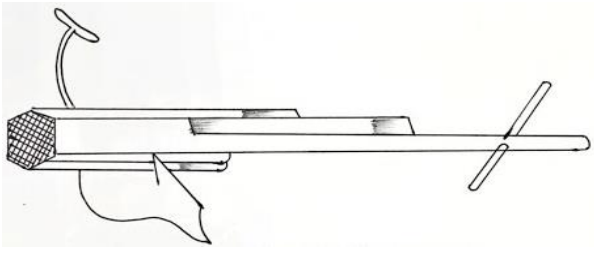
General Instructions:

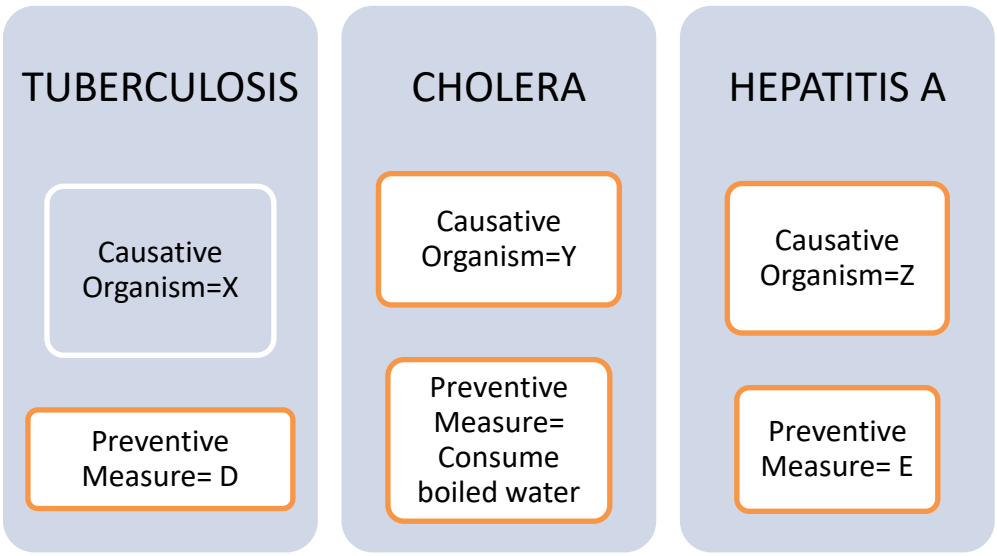
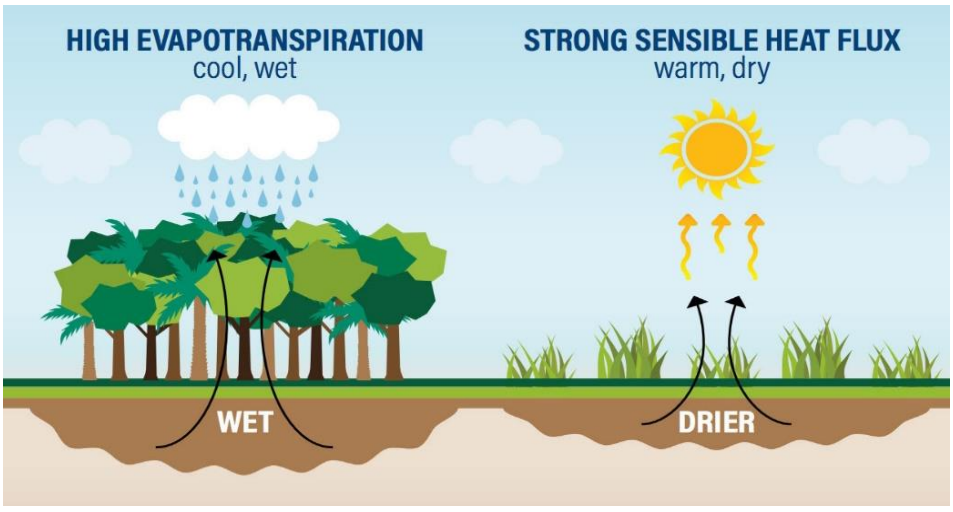
i. **This question paper consists of 39 questions in 5 sections.**
ii. **All questions are compulsory.**
iii. **Section A consists of 20 objective type questions carrying 01 mark each.**
iv. **Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should in the range of 30 to 50 words.**
v. **Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should in the range of 50 to 80 words.**
vi. **Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.**
vii. **Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.**

SECTION A

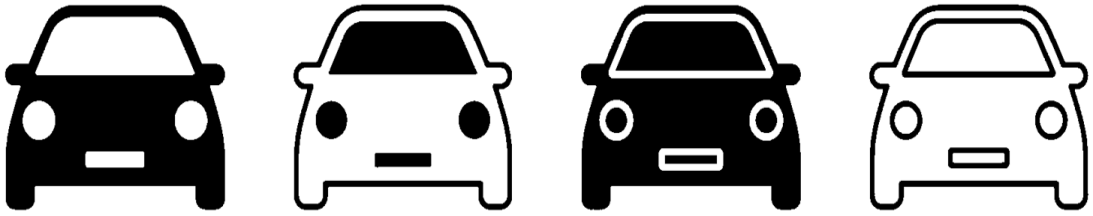
Select and write one most appropriate option out of the four options given for each of the questions 1-20. There is no negative mark for incorrect response.

Q. No.	Questions	Marks
1.	A substance 'X' is considered to be a much cleaner fuel for vehicles nowadays that causes less pollution. It is obtained from a natural resource containing 'Y' as a major component. What are 'X' and 'Y' respectively? (a) X= LPG, Y= Methane (b) X= LPG, Y= Butane (c) X= CNG, Y= Butane (d) X= CNG, Y= Methane	**1**
2.	Which of the followings should be an important feature for an ideal fuel? (a) High calorific value and ignition temperature below room temperature (b) Low calorific value and ignition temperature below room temperature (c) High calorific value and ignition temperature above the room temperature (d) Low calorific value and ignition temperature above the room temperature	**1**
3.	In petroleum refinery crude oil undergoes fractional distillation and important substances like petroleum gas, petrol, diesel, kerosene are obtained through the process. Which of the following statements is correct regarding the process? (a) Kerosene is obtained at the top of the fractionating column as it has a very low boiling point. (b) Petrol is obtained at the top of the fractionating column as it has a lower boiling point. (c) Kerosene and petrol both have nearly same boiling point. (d) Petrol is obtained at the top of the fractionating column as it has a high boiling point.	**1**

4.	Below there is a picture of a picture of an experiment set up using two paper cups, candle and water. What will be your observation in this particular experiment?  (a) Both the paper cups will start burning after some time. (b) The empty paper cup will start burning first followed by the paper cup filled with water. (c) The paper cup with water will start burning first followed by the empty paper cup. (d) The paper cup with water will never burn as it will never achieve it's ignition temperature.	**1**
5.	Substances 'A' and 'B' can be obtained in the same time during processing of coal. Substance 'A' is a liquid substance with unpleasant smell that is utilized in the manufacturing of many important chemicals. Substance 'B' has a great importance in the metal industries. What are 'A' and 'B' respectively? (a) A= Coke, B= Coal tar (b) A= Coke, B= Bitumen (c) A= Coal tar, B= Bitumen (d) A= Coal tar, B= Coke	**1**
6.	Which of the following statements correctly describe the relationship between combustible substances and fuels? (a) All combustible subtances are fuels. (b) A fuel may or may not be a combustible substance. (c) A combustible substance that produce considerable amount of heat energy on burning is called fuel. (d) Combustible substances and fuels are not related at all.	**1**
7.	What should be the most important criteria for a natural resource to be inexhaustible? (a) It should have unlimited supply in nature (b) It should have high calorific value. (c) It should be ecofriendly. (d) It should be the purest form of carbon.	**1**
8.	Given below are images of two agricultural implements. Which of the following statement is incorrect about them.  **A**  **B** (a) These are made of wood and is drawn by a pair of bulls or other animals. (b) These are modern tools used during the process of irrigation.	**1**

	(c) These are used for removing the weeds and turning the soil. (d) These are cheap and easily available.	
9.	Study the flow chart given below and choose the correct option from the following  (a) X=Bacteria, Y= Bacteria, Z=Virus, D=Complete isolation of the patient, E= Vaccination. (b) X=Bacteria, Y= Virus, Z=Protozoa, D=Complete isolation of the patient, E=Vaccination. (c) X=Virus, Y= Virus, Z= Bacteria, D=Vaccination, E=Complete isolation of the patient. (d) X=Bacteria, Y=Virus, Z=Virus, D=Complete isolation of the patient, E=Complete isolation of the patient.	**1**
10.	Riddhi observed that the fishes were coated with salt and kept in a tray in the fish market. What is the likely use of coating the fish with salt? (a) It increases the moisture content of the fish allowing it to survive longer. (b) It stops the growth of bacteria by decreasing the moisture content. (c) It increases the salt content of the fish thus enhancing the taste. (d) It reduces the weight of the fish thus making it easier to transport.	**1**
11.	The image shows the effect of deforestation on water cycle. What will likely happen if deforestation continues?  (a) Increase in oxygen level. (b) Decrease in temperature. (c) Increase in annual rainfall. (d) Decrease in the level of groundwater.	**1**

12. Four similar cars having exactly the same mass are running at the speed on the same road when brakers are applied at the same time as shown in the picture below. The cars come to a stop after covering distances of 5m, 5.5m, 4.8m and 5.2m respectively. The friction between the brake pads and discs will be maximum in the car which travels the distance of: **1**



(a) 5m
(b) 5.5m
(c) 4.8m
(d) 5.2m

13. **1**

List-I	List-II
(P) Magnetic force	1. Non-contact force
(Q) A physical quantity that determines the pressure in liquids	2. Depth
(R) Force	3. $N.m^{-2}$
(S) Pressure	4. Newton

(a) P-3, Q-2, R-4, S-1
(b) P-3, Q-4, R-2, S-1
(c) P-1, Q-2, R-4, S-3
(d) P-4, Q-3, R-1, S-2

14. A boy runs his toy car on dry marble floor, wet marble floor, newspaper and towel spread on the floor. The force of friction acting on the car on different surfaces in increasing order will be- **1**

(a) Wet marble floor, dry marble floor, Newspaper, Towel
(b) Newspaper, Towel, Dry marble floor, Wet marble floor
(c) Towel, Newspaper, Dry marble floor, wet marble floor
(d) Wet marble floor, Dry marble floor, Towel, Newspaper

15. Observe the pitures properly as shown below: **1**

I.

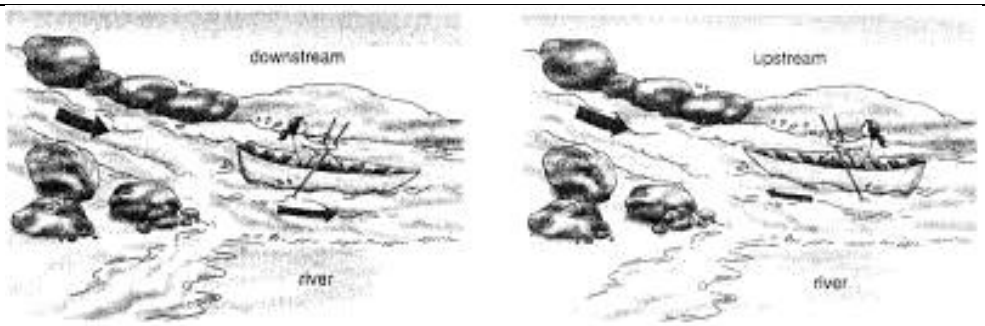
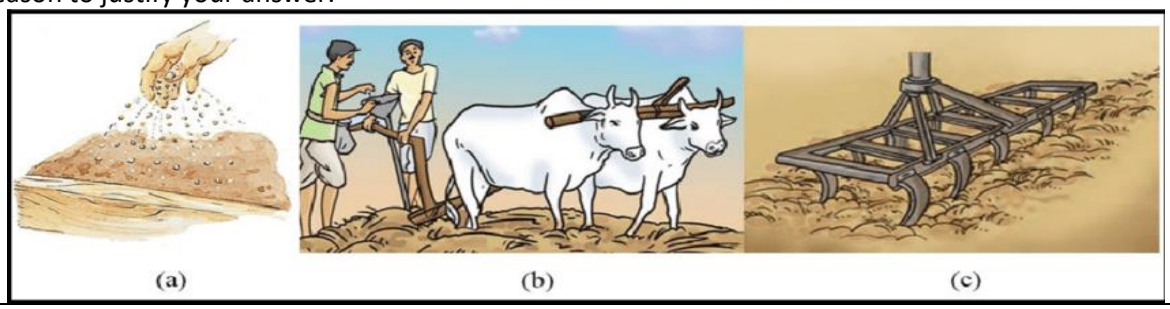
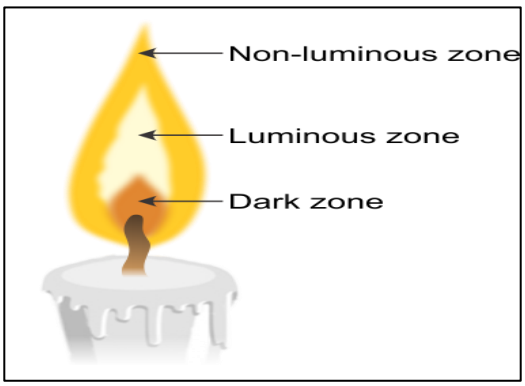
II.

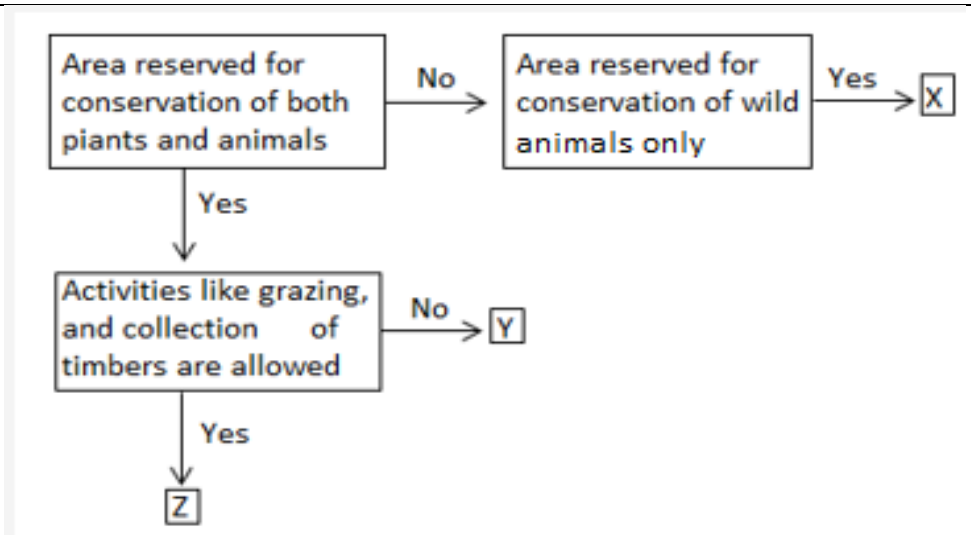
III.

IV.

Which of the above mentioned pictures is/are an example of the force of gravity?

	(a) Picture I & Picture IV (b) Picture II & Picture IV (c) Picture IV only (d) Picture I, II & III	
	Q. no 16 to 20 are Assertion - Reasoning based questions. **These consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:** **(a) Both A and R are true and R is the correct explanation of A** **(b) Both A and R are true and R is not the correct explanation of A** **(c) A is true but R is false** **(d) A is False but R is true**	
16.	Assertion (A): All combustible substances on burning do not produce flame. Reason (R): The substances that do not vaporize during burning produce flame.	**1**
17.	Assertion (A): We do not slip when we walk on a wet floor. Reason (R) : The water forms a thin layer between the feet and the floor and decreases friction.	**1**
18.	Assertion(A): Cakes have a spongy texture. Reason (R) : While baking cakes, yeast produces carbon dioxide which rapidly rises in the dough.	**1**
19.	Assertion (A): A sanctuary is formed for the conservation of animals only. Reason (R): Some restricted human activities are allowed in sanctuaries.	**1**
20.	Given below is the image of an action performed as part of agricultural practice. Two statements are provided on the basis of the image. Comment on the appropriateness of the assertion and reason given below.  Assertion(A) : Farmers have to add manure to the fields to replenish the soil with nutrients. Reeason(R) : Continuous cultivation of crops makes the soil rich in nutrients.	**1**
	SECTION B **Q. no. 21 to 26 are very short answer questions.**	
21.	In villages people do not have room heaters and hence they keep some burning coke inside a closed room and sleep. Is it advisable? If not, why?	**2**
22.	Suppose there are two types of fuels. 5 kg of Fuel 'X' produces 45,000 kJ heat energy and 10 kg of fuel 'Y' produces 55,000 kJ heat energy on burning completely. Which one of these two fuels can boil the water in a vessel faster if same amount of the two fuels is used for heating separately? Explain the reason for your answer. (kJ=kilojoule)	**2**
23.	Give reason for the following statements: a. The depth at which seeds are planted is important. b. It is advisable to wash fruits and vegetables before using them.	**2**
24.	Ritu rows a boat with a force of 700 N while running water applies a force of 500 N. Look at the picture and calculate the following.	**2**

	 a. Resultant force while going downstream. b. Resultant force while going upstream.	
25.	Differentiate between the following: a. Tires having grooves and fishes having streamlined bodies b. Force and thrust	**2**
26.	The image shows the different tools used for sowing seeds. Which method is more advantageous? Give reason to justify your answer. 	**2**
	SECTION C **Q.no. 27 to 33 are short answer questions.**	
27.	Two students Anil and Arjun were heating two test tubes containing some liquids inside separately using a candle flame as no burner was available at the moment. Look at the picture below and answer the following questions.  (a) Anil was holding the test tube near the luminous zone and Arjun was holding the test tube near the non-luminous zone. Whose test tube will be heated faster? Why? Explain your answer. (b) A colour difference can be observed in the two zones that Anil and Arjun were using. What can be the reason for the colour differences in the two zones?	**(2+1) =3**
28.	Substance 'P' is a hydrocarbon (containing both carbon and hydrogen as constituents) that is also a fossil fuel and is used in industries to produce a variety of chemicals. From 'P' we get 'Q' that is widely used as a fuel for stoves and lamps. From 'P' the chemicals obtained are collectively called 'R' that are used in manufacture of detergents, nylon fibres, polyesters, polythene etc. Identify 'P','Q', and 'R'.	**3**
29.	a. Refer to the given flowchart and identify X, Y and Z.	**3**



b. Salima visited Chilka Lake during her summer vacations. She found many birds which are not native to that area. She asked her mother the reason. What do you think her mother replied?

30. As a part of eco-club activity, students were asked to raise a kitchen garden in the school premises. They were provided with some materials given below. List the other materials you would require. How will you plan the garden? Write the steps. You are told that only environmentally friendly materials can be used. **3**

Khurpi, water-can, spade

31. Case 1: If you take a spring balance and a brick. Tie the spring balance with the brick, as shown in figure below. Now, pull the brick with some force and observe it. **3**

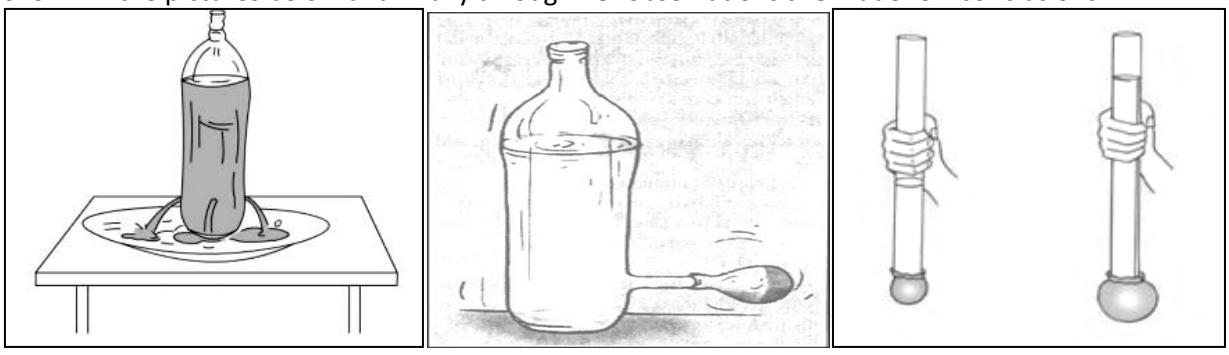
Case 2: Wrap a butter paper or a polythene bag around the brick. Now, pull the brick again.

a. Do you observe any difference in the readings of the spring balance in the above two cases?

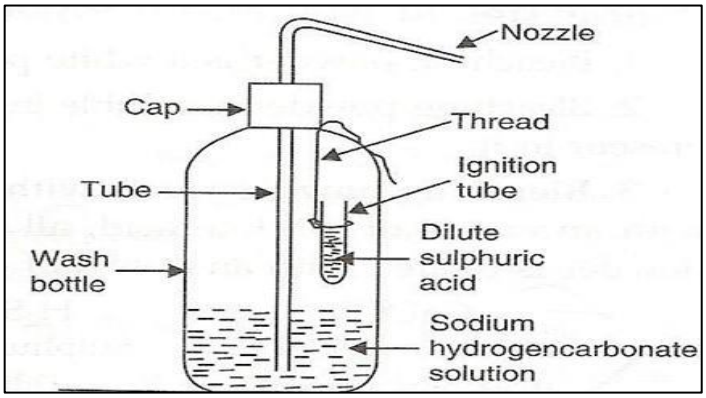
b. What might be the reason for this difference?

c. Repeat this activity by wrapping a piece of jute bag around the brick. What do you observe?

32. Meena came to know about liquid pressure in physics class. So, she decided to do some activities based on liquid pressure to verify her learnings. Hence, she arranged the following three set ups as shown in the pictures below and finally through her observations she made few conclusions. **3**



What are the conclusions made by Meena from the above three different pictures? Write in your own words.

33.	a. A force of 30 N, acts on an area of 15 cm^2 and exerts a pressure P. Calculate the magnitude of Pressure. b. What is the area of cross-section of a body in m^2, when it exerts a force of 50 N and produces a pressure of 2000, Pa? c. A force F acts on an area of 600 cm^2 and produces a pressure of 12500 Pa. Calculate the magnitude of F.	**3**
	SECTION-D **Q.no. 34 to 36 are long answer questions.**	
34.	Below there is a diagram of soda acid type fire extinguisher. Look at the picture below and answer the following questions.  a. In which types of fire this can be used? Why? b. Which substances inside the fire extinguisher help in extinguishing the fire? c. What is the main advantage of using the soda acid type fire extinguisher? d. Can you think of any other type of fire extinguisher that has also the same type of working principle as the soda acid type fire extinguisher.	**(2+1 +1+1)=5**
35.	a. Schematically represent the nitrogen cycle. b. Mention the role of microorganisms in cleaning the environment and sewage treatment? c. Henna was suffering from viral cold and flu. Her mother gave her antibiotics but she did not recover. What is the likely cause for this? d. Ria thought of making curd. For this, she took lukewarm milk, mixed some curd into it and stir well. She kept the mixture in fridge. Next day she observed that curd was not set. Can you tell why the curd did not set?	**5**
36.	Read the following passage carefully and answer the questions given below. **Friction always works in the direction opposite to the direction in which the object is moving, or trying to move. It always slows a moving object down.** **Friction also produces heat. If you rub your hands together quickly, you will feel them get warmer. Friction can be a useful force because it prevents our shoes slipping on the pavement when we walk and stops car tyres skidding on the road. When you walk, friction is caused between the tread on shoes and the ground. This friction acts to grip the ground and prevent sliding. Sometimes we want to reduce friction. For example, we use oil to reduce the friction between the moving parts inside a car engine. In many machines, friction is reduced by using ball bearings. The reduced friction means there is less wear on the moving parts and less heat produced.** a. When does friction arise? b. Why should we apply oil on the hinges of the door? c. Gymnasts apply some coarse substance on their hands. Why? d. Explain why sportsmen use shoes with spikes.	**5**
	SECTION - E ***Q.no.37to 39 are case -based/data -based questions with 2 or 3 short sub - parts.***	

37.	**Raju has come to know recently from a research based study that India depends largely on thermal power using coal as raw material for electricity generation. Electricity transmission is more effective than transporting coal over the same distance. As a result, many thermal power plants are established near coal mines. Some of the advantages of Thermal Power Plants are listed below:** • **It is easy to make energy from thermal power plants.** • **A thermal power plant has a lower startup cost than other generation plants.** • **The fuel used in thermal power plants, such as coal, is quite cheap.** **But he has also learned in class that coal is mainly carbon and that can not conduct electricity.So he is confused about using coal as the major source of electricity generation in the thermal power plants.** a.What do you think can be the reason for using coal in the thermal power plants? b.Raju thinks that it is not good to use so much coal in the thermal power plants as it can create problems in the future. Why does he think so? c. Raju wants to know about some ways so that so much coal will not be consumed, but the quantity of electricity generation will reamin same. Can you help Raju in finding the solution of this particular problem? d. Do the thermal power plants generate electricity in ecofriendly way?	**(1+1 +1+1)=4**
38.	Given below is a newspaper article that was published in 'The Times Of India'. Refer to the image and answer the questions that follows:  a. Why is it a matter of concern when a species goes extinct?	**4**

	b. Mention two causes that led to the extinction of any species? c. List two ways how we as an individual can protect the wildlife?	
39.	**A force can be described by stating its magnitude and the direction in which it acts. When two forces act on an object in the same or opposite direction, the effect on the object is due to the net force acting on it. In this case it is the sum or difference of the two forces. Two or more forces act on an object in different directions, the effect on the object is due to the magnitude and the direction of the net force acting on it.** a**.** Does a force acting on a body always cause a change in the state of motion? b. Two forces A and B acting on an object bring about the change in the shape of the object. What should be the magnitude and direction of these forces acting on the object?	**4**