

UNIT 01: PERSPECTIVES [RESEU01]

<u>Speaker A</u>	<u>Speaker B</u>
<p>. . . I stand before you to express my views and I wholeheartedly support the motion.</p> <p>Social media is a revolutionary invention that most people admire because it has innumerable advantages. To begin with, Social networks started as a place to connect with your friends in an easy and convenient way. Truly speaking, many of you might have found your old school or college friends who were out of touch due to one reason or other. Well, I would say I have and I thank social network for this. Social network has provided us the opportunity to connect with people and build better relationships with friends whom we are unable to meet personally.</p> <p>Secondly, with the help of social network we are able to raise our voice and communicate our thoughts and perceptions about different issues to a large number of people. We have the option of forming groups with people who are like-minded, share the related news with them and ask their opinion or input about the subject or topic.</p> <p>Last but not the least, social network has become a crucial part of our life. We don't even notice this but as soon as we open our desktops or laptops to access the web, we sub-consciously open our favorite social network just to check the updates received. Businesses have noticed the value of social network in our life, and they are using different techniques to promote their products. Social platforms offer a number of customized applications whose main purpose is to promote a product or brand.</p>	<p>I vehemently oppose the motion and I assure you that by the end of my speech all of you sitting here would shun the idea itself.</p> <p>Studies have shown that the most common malady of social media is, how its extensive use can actually cause addiction to the users. Throughout the day, you feel like posting something on the social media pages or check others posts, as it has become an important part of our life.</p> <p>Moreover, extreme usage of social media has reduced the level of human interaction. Because of social network the online interaction with other people has become effortless and people have isolated their lives behind their online identities. Face to face communication and meetings have been reduced and many of us have lost the flavour and charm of being together under one roof.</p> <p>Finally, businesses use social media to find and communicate with clients. But it is a great distraction for employees, who may show more interest in what their friends are posting than in their work. Wired.com posted two studies which demonstrated the damage to productivity caused by social networking. Nucleus Research reported that Facebook shaves 1.5% off office productivity while Morse claimed that British companies lost 2.2 billion a year to the social phenomenon. New technology products that allow social network to be blocked are available, but their effectiveness remains mottled.</p>

Use the information in the texts above to answer the following questions:

Question 1 [Q01] :

Both the extracts are two sides of a coin. What according to you is the motion that they are debating about?

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Question 2 [Q02]

Speaker A lists three points in favour of and Speaker B three points against the motion. List their points in the table given below:

SPEAKER A	SPEAKER B
1.	
2.	
3.	

Question 3 [Q03]

According to speaker B, social media proves to be a distraction in personal as well as professional lives. Which of the following statements support this?

- i. It has become more of an addiction
- ii. Businesses use social media to communicate with their clients
- iii. Social network can be blocked
- iv. Companies have lost revenue because of the over indulgence of employees with social network

- A. Only iv
- B. ii and iii
- C. i and iv
- D. Only iii

Question 4 [Q04]

What corrective measures would you suggest to the companies facing loss of productivity and business due to social media?

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UNIT 02: EARTH, HOME [RESEU02]

Earth, home



Ellementry, a homegrown lifestyle brand, has their new terracotta collection out. The dishes (some with wooden lids), jugs, tumblers and curd-setters are made of clay from the hill slopes of northern India. Their alkaline and porous quality helps the curd set thick and sweet, they say. The drinkware, much like earthen pots of yore, keep water naturally cool, taking the design value up several notches.

Using the information above, answer the following questions:

Question 5 [Q01]

Why are companies like *Ellementry* promoting earthenware in contemporary times?

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Question 6 [Q02]

Natural qualities of terracotta enable setting of thick and sweet curd and keep water naturally cool.

Tick or under the properties of terracotta listed in columns A and B, that support the given processes:

	A	B
PROCESS	POROUS	ALKALINE
Setting of curd		
Keeping water cool		

Question 7 [Q03]

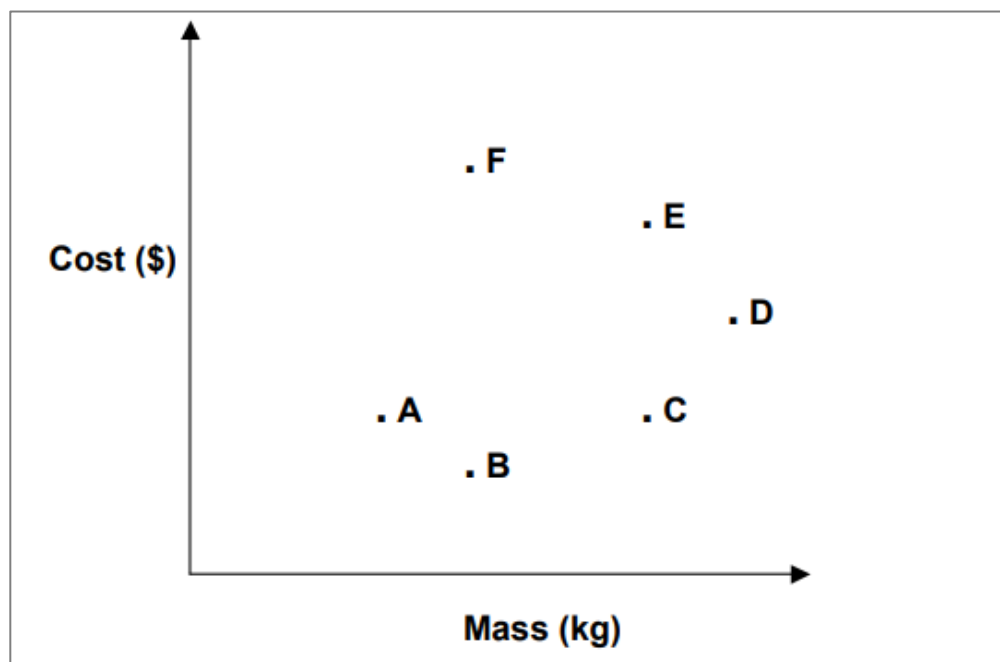
What feature(s) of *Ellementry* earthenware are likely to stimulate its sale and popularity in the market?

- A. Utility and design
- B. Durability and design
- C. Utility and accessibility
- D. Safety and accessibility

UNIT 03: BULKBIRDFEED [RESEU03]

Given below is a graphical representation of the cost and size of seven different bags of birdfeed. Each point represents information about one bag.

Read the information and answer the questions that follow:

**Question 8 [Q01]**

Which of the bags is the lightest?

- A. B
- B. F
- C. A
- D. E

Question 9 [Q02]

Which two bags give you same value for money?

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Question 10 [Q03]

Which of the bags is the most expensive?

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Question 11 [Q04]

How will information about bag A change if the point is moved lower but not left or right?

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PRACTICE

CREATIVE AND CRITICAL THINKING

UNIT 01: SAFETY WITH MICROWAVE OVEN [SCSEU01]

Virender wanted to help his father in making a breakfast of instant oatmeal. He puts the oatmeal in a plastic bowl and then puts the bowl in the microwave, hits the start button and suddenly panics as a mini-firework spreads out in the kitchen. He remembered suddenly that he had left the steel spoon inside the bowl.



To understand more he researched and found out more about Microwave Ovens. The oven primarily consists of a device called a magnetron and a vacuum tube through which a magnetic field is made to flow. The device spins electrons around and produces waves with a frequency of 2.5 Gigahertz (1 Ghz = 10^9 Hz). For every material, there are particular frequencies at which it absorbs maximum light particularly well, for water that frequency is

2.5 GHz . Since most things we eat are filled with water, those foods will absorb energy from the microwaves and heat up.

But when microwaves interact with a metallic material, the free electrons on the metallic surface get thrown around at above mentioned frequency. This doesn't cause any problems if the metal is smooth all over. But where there is an edge, like at the tines of a fork, the charges can pile up and result in a high concentration of voltage. If it's high enough, it can rip an electron off a molecule in the air, creating a spark and a charged molecule. Charged particles absorb microwaves even more strongly than water does, so once a spark appears, more microwaves will get sucked in, charging even more molecules so that the spark grows like a ball of fire.

Use the information given in the above passage and graph to answer the following questions.

Question 1 [Q01] : Microwave is a type of

- A. Matter Wave
- B. Electromagnetic Wave
- C. Nuclear Radiation
- D. Mechanical Wave

Question 2 [Q02] : The speed of the Microwave is that of the light. Find the approximate wavelength of the Microwaves that are used in the Oven

- A. 1.2 mm
- B. 12 m
- C. 12 cm
- D. 120 nm



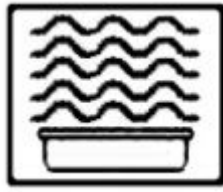

Question 3 [Q03] : How do Microwave Ovens cook food?

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Question 4 [Q04] : Choose the correct symbol from the following for microwave-safe utensils.

A		C	
B		D	

Question 5 [Q05] : What are the three microwave safe containers that Virender should use?

- A. Glass, Ceramic and Microwave-Safe Plastic Vessels
- B. Glass, Ceramic and All Plastic Vessels
- C. Glass, Plastic and Metal
- D. Ceramic, Glass and Metal

UNIT 02: ROLLER COASTER [SCSEU02]

A Roller coaster is a machine that uses gravity and inertia to send a train of cars along a winding track. The combination of gravity and inertia gives the body certain sensations as the coaster moves up and down and around the track. It gives a feeling of joy in some rides and nausea in others. The car is pulled to the top of the first hill and released, after which it rolls freely along the track for the remainder of the ride. The initial hill is the tallest in the ride.

The purpose of the coaster's initial ascent is to build up a sort of reservoir of potential energy. The concept of potential energy, often referred to as energy of position, is very simple: As the coaster gets higher in the air, gravity can pull it down a greater distance. You experience this phenomenon all the time. Think about driving your car, riding your bike or pulling your sled to the top of a big hill. The potential energy you build going up the hill can be released as kinetic energy — the energy of motion that takes you down the hill.

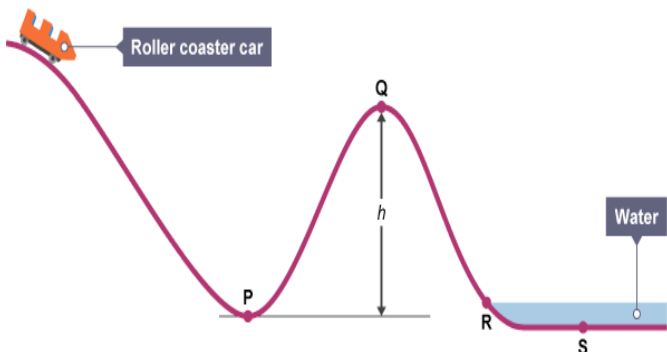
Once you start cruising down that first hill, gravity takes over and all the built-up potential energy changes to kinetic energy. Gravity applies a constant downward force on the cars. The coaster tracks serve to channel this force and they control the way the coaster cars fall. If the tracks slope down, gravity pulls the front of the car toward the ground, so it accelerates. If the tracks tilt up, gravity applies a downward force on the back of the coaster, so it decelerates.

Based on the above paragraph answer the following questions

Question 6 [Q01]

Which of the following shows the energy conversion involved in a Roller Coaster as it starts to descend from the hill?

- A. Kinetic energy is increasing and potential energy is decreasing
- B. Potential energy is decreasing and kinetic energy is increasing
- C. Both potential and kinetic energy is decreasing
- D. Both potential and kinetic energy is increasing



Question 7 [Q02]

At the point S in the above figure, the car is slowed down by a shallow tank of water and the kinetic energy of the car is reduced to zero. Make three suggestions for what happens to this kinetic energy.

- I.....
- II.....
- III.....

Question 8 [Q03]

The mass of the car is 900 kg. The maximum speed of the car is 15 m/s.

- I. State at what point this speed is to be observed. ($g=10\text{m/s}^2$)
- II. Approximately find the maximum height of the rail at the initial point.

I.....

II.....

Question 9 [Q04]

Suggest why your answer from the previous section will be approximate.

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Question 10 [Q05]

Give one reason for each of the following:

- I. Seat belts are a must for the riders in the Roller Coasters?

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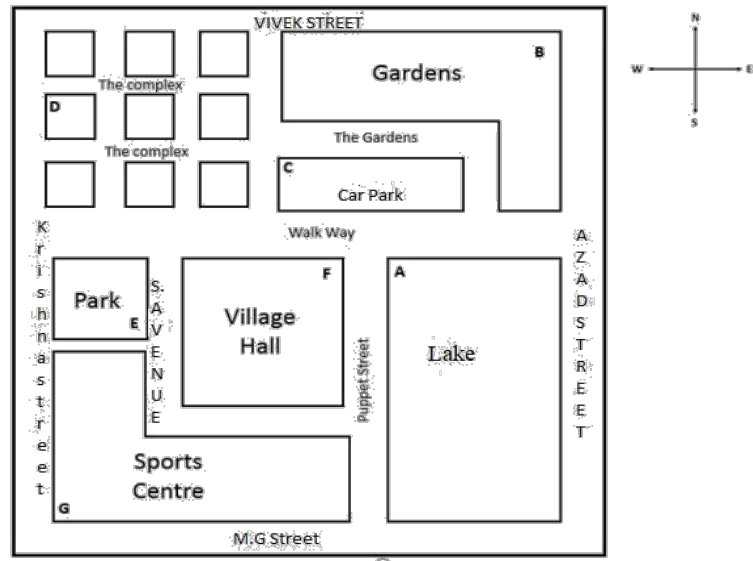
- II. The tracks of the Roller Coasters have magnets.

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UNIT 03: City Layout Plan [MASEU03]

Context: Mensuration

The following street plan shows a locality in a city. Look at the street plan carefully and answer the following questions.



Question 11 [Q01]: Hari has just finished his game at the Sports Centre. He walks out of the Sports Centre from Point G on to M.G Street. He walks East. He turns at the second left and walks North. He takes the first left and then a sharp right. He moves forward and turns left again. What street is Hari now on?

- A – The complex
- B – Azad Street
- C – The Gardens
- D – S. Avenue

Question 12 [Q02] : Seema wants to walk 2 km around the lake. If length of lake is three times its breadth and area of the lake is 1875 sq. m then, she will have to take _____ rounds.

Question 13 [Q03] : The total area of a locality is 1000 sq.km and the area of car park is 12% of the locality. Can 1000 cars be parked in the parking area if 10 cars are parked in 1 sq.km? Justify your answer.

Question 14 [Q04] : If you were standing at Point G and wanted to get to Point E in the quickest time, then you will head first in north direction?

- A –Yes _____
- B – No _____

Question 15 [Q05] : The area of the village hall is 30.25 sq. km. It is to be divided into two triangles of equal area. What is the dimension of the longest side of the triangle?

- A – $5.5\sqrt{2}$ cm
- B – $4.5\sqrt{2}$ cm
- C – $6.5\sqrt{2}$ cm
- D – 11 cm

UNIT 04: Understanding Polynomials [MASEU04]**Context: Polynomial**

- A **Polynomial** is an algebraic expression with power of a variable as **non-fractional positive number**.
- If the sum of the coefficients of a polynomial is zero, then $(x - 1)$ is a factor of the polynomial.

Based on above facts answer the following questions:

Question 16 [Q01] : One of the zero of the polynomial $x^3 - 8x^2 + 17x - 10$ is:

- A) 0 B) 1 C) -1 D) 2

Question 17 [Q02] : If one of the zeroes of the polynomial $x^3 + 6x^2 + 11x + 6$ is $x+1$, then, the other two zeroes are:

- A) -2, -3 B) 2, 3 C) -2, 3 D) 2, -3

Question 18 [Q03] : One of the factor of $x^3 - 7x^2 + 10x - 4$ is 3. Is it True or False?

Question 19 [Q04] : 5 Students were told to write two polynomials each, they wrote:

- i. $(x+2)^2$, $x^3 - \frac{1}{x} + 3$
- ii. $\frac{6x^{\frac{3}{2}} - \sqrt{x}}{\sqrt{x}}$, $x^2 - 4x + 9$
- iii. $y - 3 + xy$, $\left(x + \frac{1}{x}\right)^2$
- iv. $(x)^{\frac{3}{2}} - (x)^{\frac{1}{2}} + 2$, $x^2 + 4x + 6$
- v. $x^3 - x^2 + 3$, $x^3 - 4x$

From the above tick the option, for correct set of polynomials:

- A- i, ii, iii
 B- ii, iv
 C- ii, v
 D- iii, iv, v

Question 20 [Q05] : Degree of a Zero Polynomial is _____.