

Question 1

- A. Create a diagram that shows what happens to a signal as it is transmitted over long distances.**



- B. What does it mean to encode a signal? Give an example.**

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- C. Why are electromagnetic waves used to transmit signals? Or describe three characteristics of electromagnetic waves that make them useful for transmitting signals.**

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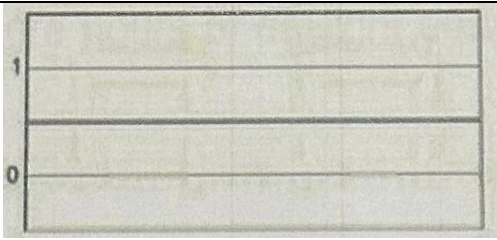
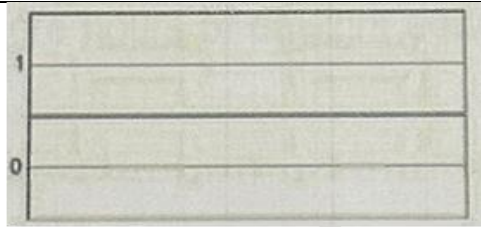
- D. Your friend says two-way radios are digital devices. Explain why they are not.**

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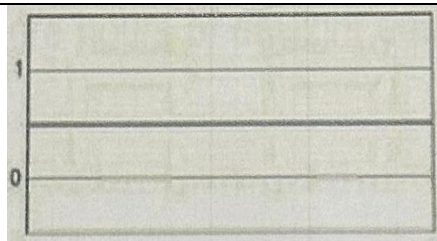
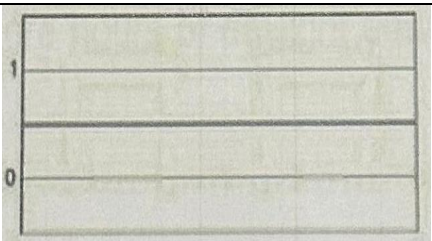
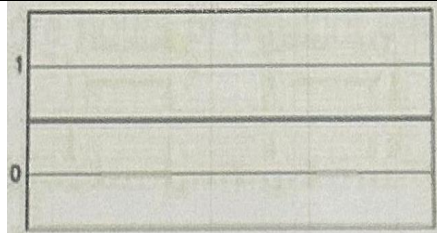
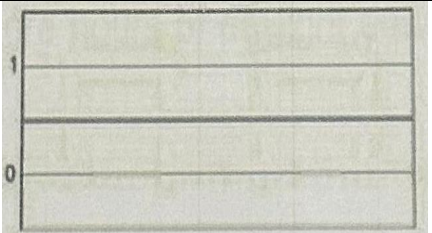


E. Compare and contrast **analog and digital signals** by completing the following table:

	Analog Signal	Digital Signal
Shape		
Storage and Transmission
Noise
Example

F- Students recorded sound using a **tape recorder and a computer**. They replayed each 100 times to compare with the original. Complete the table with correct info, illustrations, and what they observed.



Recording	Signal Type	Signal Representation	Signal after 100 playbacks
Tape recorder		
Computer recording		

Question 2

A. Explain **How deforestation impacts Earth's systems.**

System	Effect
Biosphere
Geosphere
Hydrosphere
Atmosphere



B. Outline an argument for how **deforestation** impacts **Earth's systems**. What are the **short-term** consequences of clearing land? Predict the **long-term** consequences of clearing entire forests.

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C. List **two disadvantages** to deforestation.

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D. Explain **why forests are an important** resource. Include at least **two reasons** in your explanation. Then, **identify two possible negative impacts of deforestation.**

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E. What **actions** can **you** take to minimize your ecological footprint?

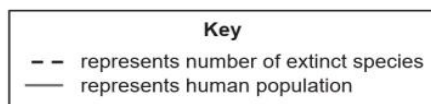
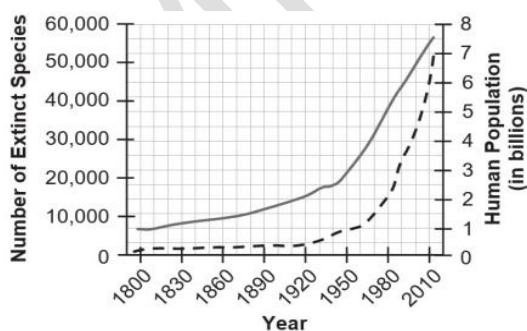


F. How can the **ecological footprint model** be used to predict **how changes in resource consumption might affect Earth's systems**?

G. What types of **technologies and activities** help **mitigate** the **effects of changes in Earth's systems**?

H. Create a concept **sketch** that describes your understanding of how **changes in human populations** have a causal role in **changing Earth's systems**.

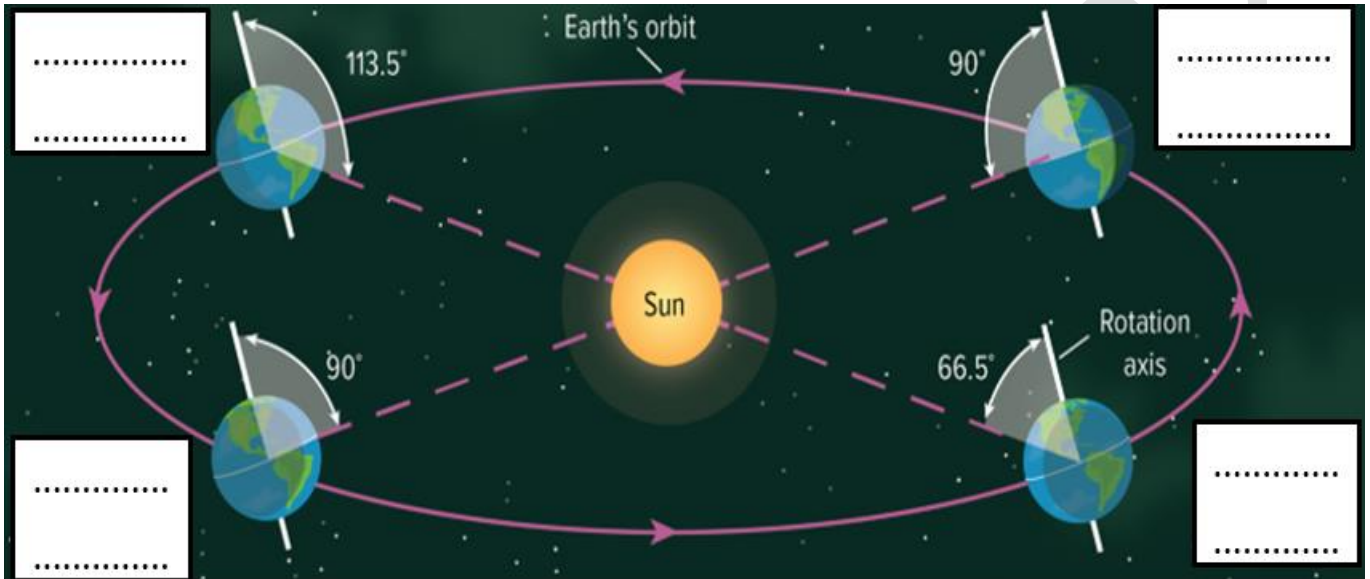
I. The graph shows changes in the human population and in the numbers of species that were declared extinct, from 1800 to 2010. **What does the graph show** about the **changes in human population and species extinctions** from 1800 to 2010?



Question 3

A. **Assign** the following four days (in the table below) on the following figure of Earth's seasonal cycle?

Labeled Days of Earth's seasonal cycle			
March Equinox	June Solstice	September Equinox	December Solstice



B. According to what a **solstice** day is deferent from an **equinox** day.

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C. Assign the part of earth (the **Northern** hemisphere or **Southern** hemisphere) that **summer** occur during the following months:

June :

December:

D. Why does **Earth Orbit** the sun?

Using the figure below, answer the following questions:







A. What causes the four seasons on Earth? Or how does the varying amount of sun's solar energy cause the seasons?

B. Name the points where the hours of daylight equal hours of darkness.





C. When does the sun appear highest in the sky, and when does it appear lowest in the sky?

Fill in the blanks with the correct Moon Phases shown in the table below.





Identify moon phases

Third quarter	New Moon	Waning gibbous	Waxing crescent
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Illustration	The moon phase name
	
	
	
	

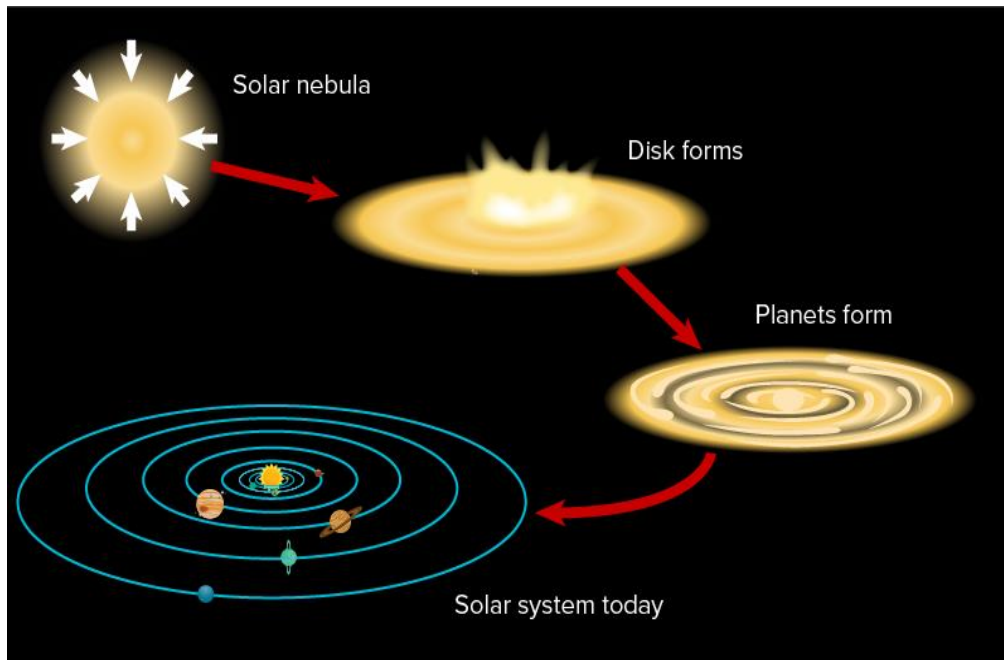
Identify moon phases

First quarter	Full Moon	Waxing gibbous	Waning crescent
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<p>Moon phase:</p> <p>.....</p> 	<p>Moon phase:</p> <p>.....</p> 
<p>Moon phase:</p> <p>.....</p> 	<p>Moon phase:</p> <p>.....</p> 

Question 4

Use the figure to answer the following questions



A. What is the **force** involved in the process of **Solar System formation**?

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B. Use the model to describe the **steps of Solar System formation** in order.

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C. Construct an explanation of **how other solar systems** in other galaxies might **form**.

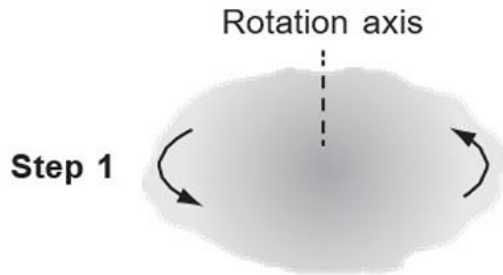
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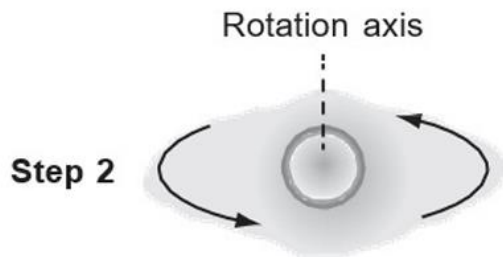
D. Explain **how gravity works between objects in the solar system**. What **factors** affect the **strength of gravity** between two objects?

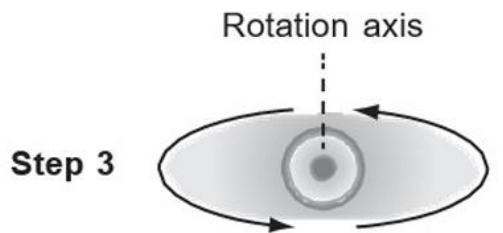
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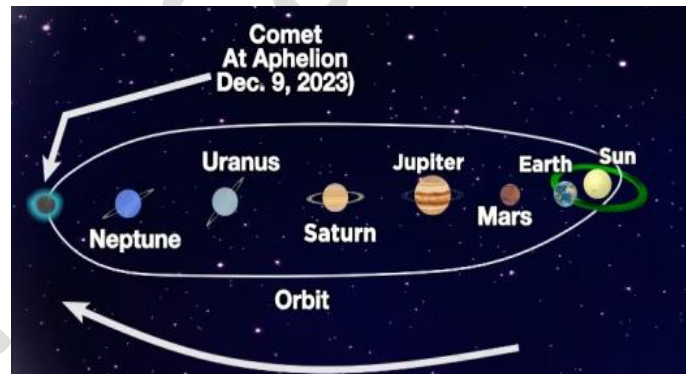
A. Use the model to describe the force involved in the process of **star formation**







B. Which system of objects has the **greatest effect** on the orbit of **Halley's Comet** ?



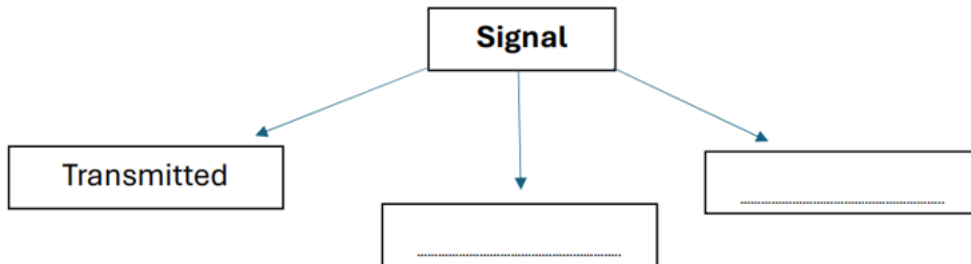
C. How are **galaxies** classified? Name the **three main types** of galaxies.

Question 1 (Extra)

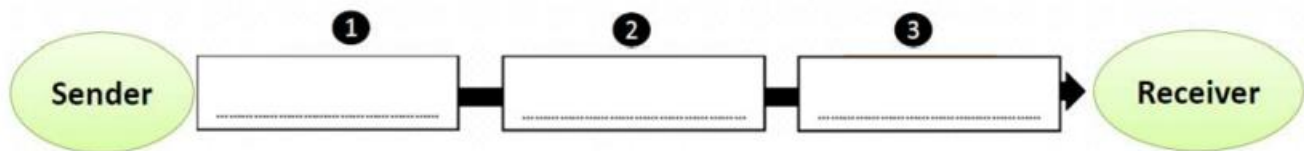
A. Using the table below, fill in the blanks to answer questions A and B

Decoded	Sent
Encoded	Stored

How does a signal communicate information?



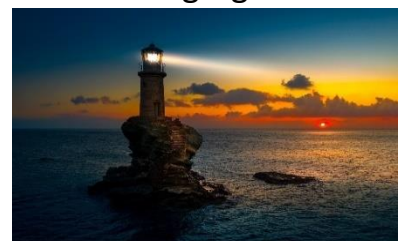
How are signals transmitted from sender to receiver?



B. Give **two reasons** why **music** today is more often **recorded and shared digitally** than on tapes or vinyl records.

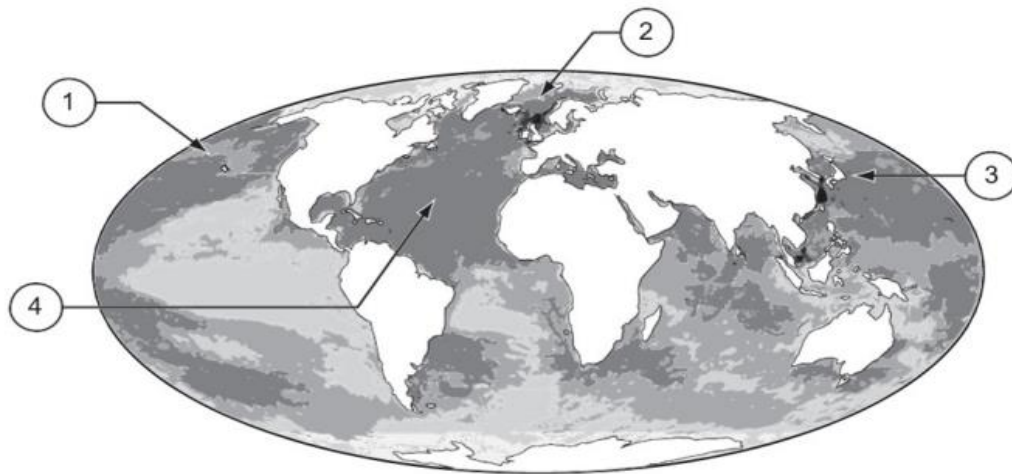
C. Identify **three devices** that were developed to send or receive signals carried by **electromagnetic waves**.

D. Give **two reasons** for why **lighthouses use light instead of sound** for sending signals to boats.



Question 2 (Extra)

The map shows the levels of impact of **human activity on the world's oceans**. The table lists **specific effects in four areas, 1, 2, 3, and 4 of the oceans**.



Key		
<input type="checkbox"/> Very low impact	<input type="checkbox"/> Medium impact	<input type="checkbox"/> High impact
<input type="checkbox"/> Low impact	<input type="checkbox"/> Medium high impact	<input type="checkbox"/> Very high impact

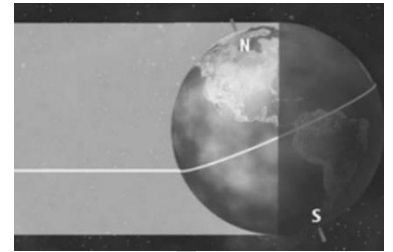
Area on Map	Effect of Human Activity on Ocean
1	An island of trash 700,000 sq km in area floats in the North Pacific Ocean.
2	Overfishing is the number one cause of reduced fish populations.
3	Sewage and other waste from coastal cities enter nearby ocean water.
4	Busy shipping areas are prime spots for oil spills and waste discharge.

A . Choose one of the four numbered areas on the map and predict how an increasing human population will affect that area.

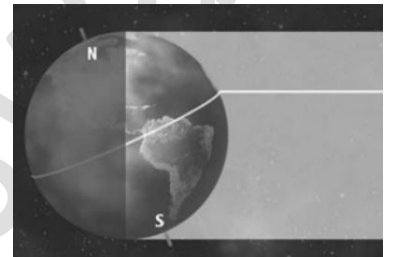
B . For the area you chose in part (a), describe how the map will change in response to an increasing human population.

Question 3 (Extra)

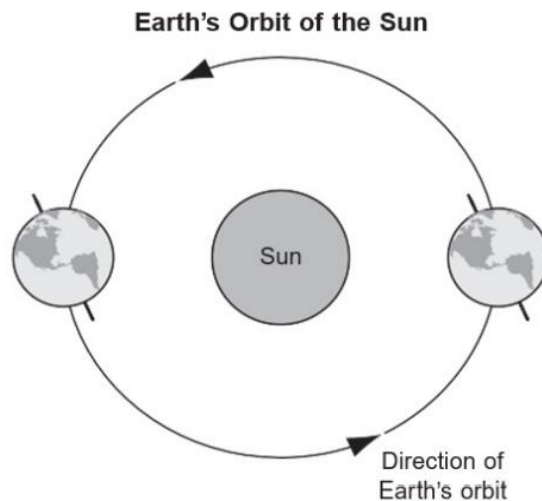
A. What **season** is shown for the northern hemisphere? **Explain** your answer.



B. What **season** is shown for the northern hemisphere? **Explain** your answer.



The diagram is a model of Earth orbiting the Sun.

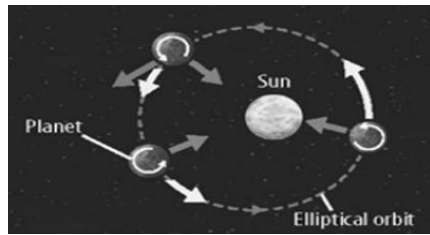


C. Identify a cycle on Earth that can be represented by this model.

D. Describe how the model represents this cycle

Question 4 (Extra)

Using the figure, answer the following questions:



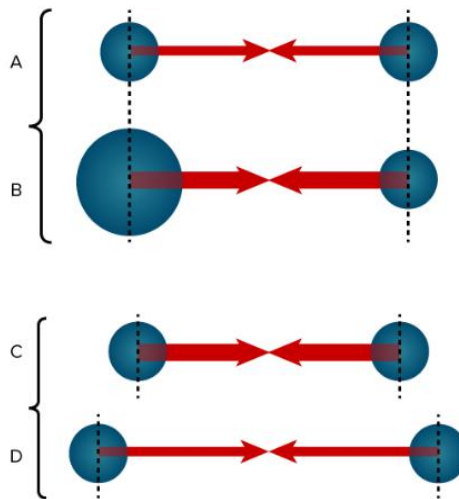
A. What causes planets and other space objects to **revolve around the Sun** ?

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B. What would happen if the **Sun's gravity stopped**?

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Using the figure, answer the following questions:



A. Why is the gravitational force **greater between the objects in row B** than in row A?

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B. Why is the gravitational force **greater between the objects in row C** than in D?

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اللهم إني أعوذ بك من علم لا ينفع

تمنياتي للجميع بالتوفيق والنجاح بإذن الله