

GRADE 8 SCIENCE MOCK EXAM

Name:

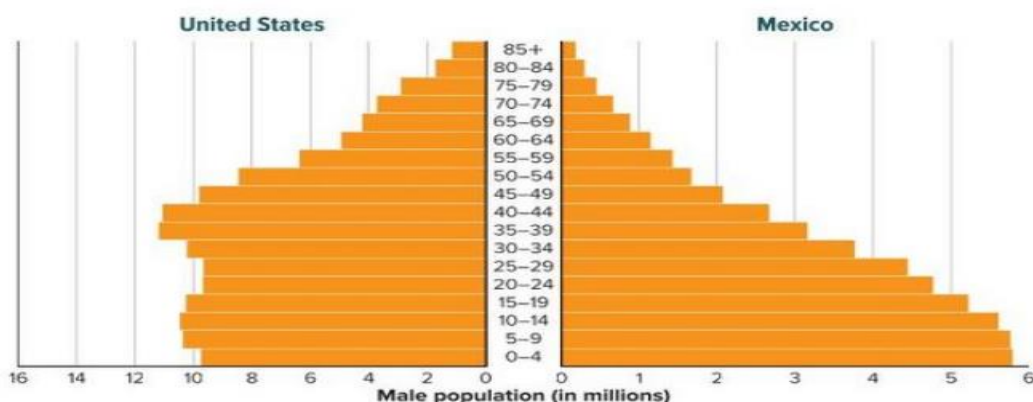
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Part A

1.

Demographers often use age structure diagrams to study human populations in different countries. The shapes of these diagrams provide clues about how quickly the populations are growing. Compare the age distribution of males in the United States and Mexico.



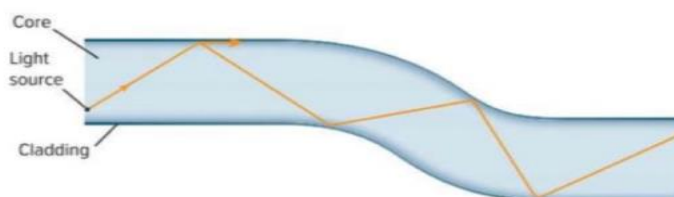
What can be concluded from the data displayed on the age structure diagrams above?

- A** The male population of Mexico is growing at a slower rate than the United States because fewer children are being born in Mexico.
- B** The male population of Mexico is growing at a faster rate than the United States because the number of children in Mexico exceeds the other age groups.
- C** The male population of Mexico is growing at a slower rate than the United States because there are fewer elderly males.
- D** The male population of Mexico is growing at a faster rate than the United States because there is a greater number of elderly males.

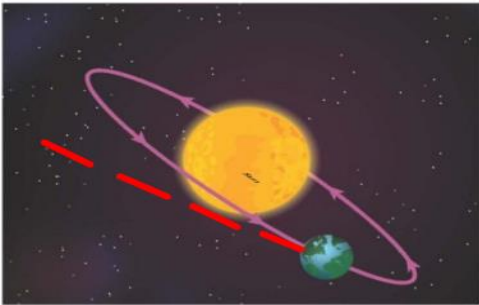
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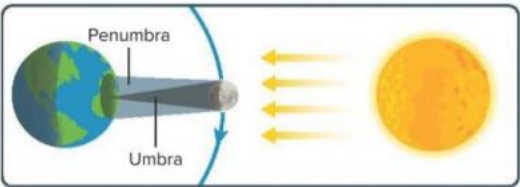
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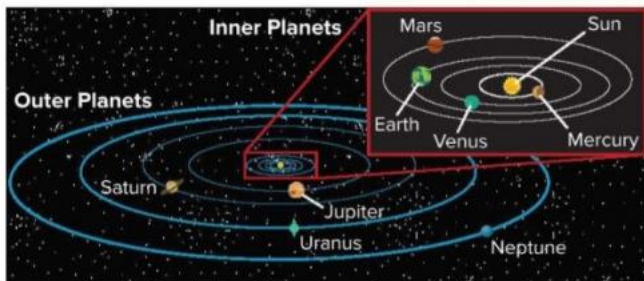
Examine the model of how light travels through a fiber optic cable.

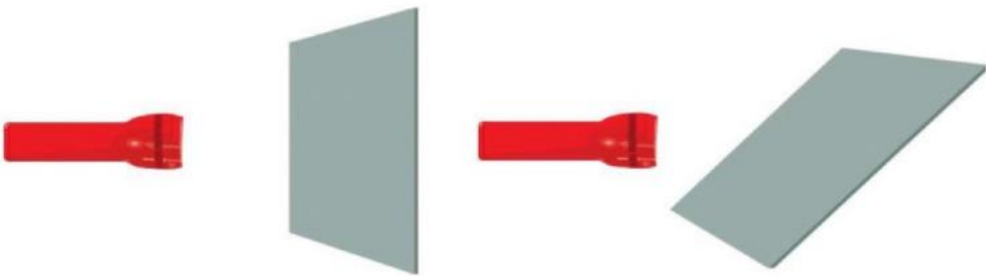
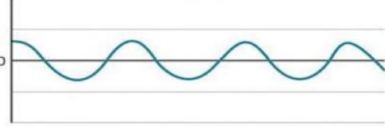
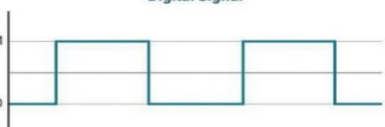


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	The light stays inside an optic fiber due to wave behaviors. Which behavior is not associated with optical fibers? A. Because of the wave behavior of reflection B. Because of the wave behavior of refraction C. Because of the wave behavior of diffraction D. Because of the wave behavior of transmission	
3.	MATH Connection Only a small percentage of Americans owned cars before the 1940s. By 2017, there were nearly 250 million vehicles for 323 million people, greatly increasing the need for roadways. In 1960, the United States had about 16,000 km of interstate highways. Today, the interstate highway system includes 77,000 km of paved roadways. What percent increase does this represent? A 381 percent B 792 percent C 38 percent D 79 percent	4
4.	A new moon occurs once every 29.5 days. Why must the Sun, Earth, and the Moon be aligned in order for the new moon to occur? A. No sunlight is reflected off Earth at this point B. Sunlight directed toward Earth is blocked by the Moon C. The moon does not orbit in the same plane as Earth D. The moon is not directing any light toward Earth at this point	4
5.	It was once thought that Earth was the center of the universe. Eventually, it was proven that the planets orbit around the Sun. The illustration shows the path of Earth's orbit around the Sun.  Describe the path of Earth if the Sun's gravity were to suddenly stop. A. Earth would continue to move within its orbit B. Earth would move in a straight line towards the Sun C. Earth would move in a straight line instead of a curved line D. Earth would stop moving and become suspended in one spot	4

6.	Halley's Comet orbits the Sun and can be seen from Earth about every 76 years. However, before the work of Sir Isaac Newton and Edmond Halley, comets were thought to pass in a straight line through the solar system. In 1705, Edmond Halley used Newton's laws to determine the gravitational effects of Jupiter and Saturn on a comet that he observed in 1682. Using this information and historical records, he determined that comets seen in 1531 and 1607 were the same comet. Halley correctly calculated the orbit of the comet and predicted its return in 1758. Newton's Laws states that all objects exerts gravitational force and that objects with more mass exert more force. Which system of object has the greatest effect on the orbit of Halley's comet? A. Earth, the Sun and the Moon B. The Sun, Jupiter and Saturn C. Asteroids, meteoroids, and dwarf planets D. Earth, the Sun and the Saturn	4
7	In an area with high death rates from a disease such as malaria, what would lead to population growth? ☐ A) A high birth rate would make up for the death rate. ☐ B) A low birth rate would make up for the death rate. ☐ C) The birth rate has no effect on population growth. ☐ D) The death rate has no effect on population growth.	4
8.	Why would someone in North America not be able to view this eclipse?  A. Because this is a lunar eclipse and Earth casts a very small shadow B. Because this is a lunar eclipse and North Americal is experiencing day C. Because this is a solar eclipse and North America is experiencing night D. Because this is a solar eclipse and the Moon casts a very small shadow	4
9.	Where do you have to be located to be able to see a total eclipse? A. Anywhere on the continent where the eclipse is occuring B. Within the penumbra C. Within the penumbra and umbra D. Within in the umbra	4

10.	Biologists report that habitat destruction, overexploitation, and pollution are eliminating species at a rate comparable to the great extinction that marked the end of the age of dinosaurs. The UN Environment Programme reports that, over the past century, more than 800 species have disappeared and at least 10,000 species are now considered threatened. This includes about half of all primates and around 10 percent of all plant species. At least half of the forests existing before the introduction of agriculture have been cleared, and much of the diverse “old growth” on which many species depend for habitat is rapidly being cut and replaced by ecologically impoverished forest plantations. Which statement is a logical conclusion that can be drawn from information in the text? A. Clean technology has helped eliminate pollution and protect endangered species B. Natural resources are limited, and the biosphere has limited capacity to provide our food and water C. Consuming forest resources interferes with the survival of other species D. “Old-growth” forests supply food, energy, and other resources humans depend on	4										
11.	The chart below shows the surface temperatures of the outer planets. <table><thead><tr><th>Planet</th><th>Surface Temperature</th></tr></thead><tbody><tr><td>Neptune</td><td>−214°C</td></tr><tr><td>Uranus</td><td>−216°C</td></tr><tr><td>Jupiter</td><td>−148°C</td></tr><tr><td>Saturn</td><td>−178°C</td></tr></tbody></table> What can you conclude about the outer planets based on the data table? A. If Neptune were closer to Sun, it would be cooler B. Saturn is closer to the Sun than any of the other outer planets C. The coldest planet is Uranus D. The surface temperature of Earth is between that of Neptune and Jupiter	Planet	Surface Temperature	Neptune	−214°C	Uranus	−216°C	Jupiter	−148°C	Saturn	−178°C	4
Planet	Surface Temperature											
Neptune	−214°C											
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Saturn	−178°C											
12.	NASA has been sending exploration missions to Mars for almost 50 years. The length of time it has taken the different spacecraft to reach Mars ranges from 150 days to 360 days. In order to make it possible for humans to travel to Mars, the travel time must be reduced.  Assume the different spacecraft were using the same amount of fuel at the same rate. Why are there such long differences in travel time? A. The distance of Mars from the Sun changes	4										

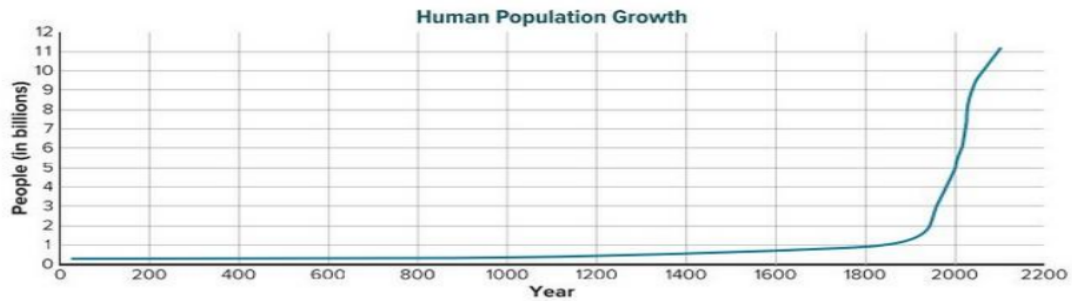
	B. The distance from Earth to Mars changes C. The position of earth from the Sun changes D. The shape of the Planet's orbit changes	
13.	Which best explains why Earth is colder at the poles than at the equator? A. Earth is farther from the Sun at the poles than at the equator B. Earth's orbit is not a perfect circle C. Earth's rotation axis tilted D. Earth's surface is more tilted at the poles that at the equator	4
14.	Use the figure to answer the question  Predict the pattern of the light that will appear on each sheet of paper when the flash light is turned on. A. The pattern on the vertical paper will be a circle, the pattern that will appear on the tilted paper will be elongated and spread out. B. The pattern on the papers will change because the light will fluctuate C. The patterthat will appear on both pieces of paper is the same-a circle of light. D. The pattern that will appear on both pieces of paper is the same-elongated and spread out.	4
15.	Kris works with a rover that sends her data about the surface of a distant planet. The digital information is translated by her computer and provides data that she can use for her studies. Which model best describes the signal that Kris's computer recieves Analog Signal  A. Noise  C. Digital Signal  B. Recorded Signal  D.	4

16.	The shown in the graph below is affected by signal noise. How does this affect quality of the wave?  A. It increases the quality B. It decreases the quality C. The quality is not affected by the noise D. It only affect the wave if you are far away from the source	4
17.	Examine the images below. Jupiter  Saturn  These images were taken from a telescope you might use in your backyard. Based on these image, describe the difference between two planets? Choose two options. A. Jupiter looks like a dot with four dots around it B. Saturn is blurry, but you can see the central sphere with ring system C. Jupiter looks like a comet D. Saturn is clear as it is closer to earth	4
18.	What factors affect the strength of gravitational force between objects? A. Mass and distance B. Density and volume C. Velocity and time D. Distance and displacement	4
19.	Choose the correct key word for the given defenition. “ The area of Earth’s productive land and water required to supply the resources that an individual demands as well as to absorb the wastes that the individual produces.” A. Renewable energy B. Non renewable energy C. Ecological footprint D. Deforestation	4
20.	Which is identified as the development of towns and cities on previously natural areas-is the most human-dominated and fastest-growing type of land use. A. Deforestation B. Agriculture C. Urbanization D. Afforestation	4

PART-B

21.

Analyze the information presented in the graph.



How does the rate of human population growth from years 200 to 1800 compared to the rate of growth from 1800 to 2000?

5

22.

Compare and contrast digital and analog signals. Illustrate the signal with the help of a diagram.

Analog Signal	Digital signal

5

23.	Define deforestation and explain how does deforestation impact Earth’s systems?	5						
24.	Lighthouses were designed for the function of warning boats of dangerous areas near shorelines. Construct an argument for why lighthouses use light instead of sound for sending signals to boats.	5						
	PART-C BONUS QUESTIONS							
25.	<table><tr><td colspan="2">How do population growth rates compare in industrially developed countries and developing countries?</td></tr><tr><td>Population growth rate in developed countries</td><td>Population growth rate in developing countries</td></tr><tr><td></td><td></td></tr></table>	How do population growth rates compare in industrially developed countries and developing countries?		Population growth rate in developed countries	Population growth rate in developing countries			5
How do population growth rates compare in industrially developed countries and developing countries?								
Population growth rate in developed countries	Population growth rate in developing countries							
26.	Calculate the population growth rate (PGR) for each of these countries. Record this information in the below table. Use the following equation. Then answer the following question. birth rate – death rate + net migration rate 10 = PGR (%)	5						

	Population Growth rates						
	Country	Population 2015 (millions)	Birth rate	Death rate	Net Migration rate	PGR %	
	United States (developed)	321.2	13	8	3		
	Germany (developed)	81.1	8	11	5		
	Brazil (Developing)	204.4	15	6	0		
	Indonesia (Developing)	255.7	21	6	-1		
	Nigeria (Developing)	181.8	39	14	0		
	India (Developing)	1314.1	21	7	-1		