Final Revision: Module 1 Introduction to Waves

تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ⇦ المناهج الإماراتية ⇦ الصف الثامن ⇦ علوم ⇦ الفصل الثالث ⇦ ملفات متنوعة ⇦ الملف

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المزيد من مادة علوم:

ملفات ا كتب للمعلم ا كتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي ا للمدرس

إعداد: Waswas Issa

التواصل الاجتماعي بحسب الصف الثامن

صفحة المناهج الإماراتية على فيسبوك

المواد على تلغرام | التربية الاسلامية | اللغة العربية | اللغة الانجليزية | الرياضيات

المزيد من الملفات بحسب الصف الثامن والمادة علوم في الفصل الثالث

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2	Science Final Revision: Introduction to Waves
3	أسئلة نموذج امتحان
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وزارة التربية والتعليم
MINISTRY OF EDUCATION

Al Salamat School
(Trimester 3) (2025-2026)
Grade (8) Science
Mr. Issa Waswas

AL SALAMAT SCHOOL

Final Revision

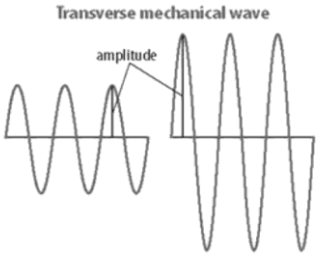
Module 1: Introduction to Waves (**5 questions** in the Exam)

Q1) Which equation best represents the relationship between the amplitude (A) of an ocean wave and its energy (E), shown in the table below?

Wave	Amplitude (units)	Energy (units)
W	1	1
X	4	16
Y	7	49
Z	10	100

A) $E = A$ B) $E = A^2$ C) $\frac{1}{E} = A$ D) $\frac{1}{E} = A^2$

Q2) What change could explain the difference between the waves?



A) The speed of the wave increased.
B) The source of vibrations increased the speed of vibrations.
C) The wavelength of the wave increased.
D) The energy provided by the source of vibrations increased.

Q3) Which row correctly shows the amplitude of all three waves?

Wave	Amplitude (units)	Energy (units)
W		1
X		36
Y		64

A) W = 1, X = 18, Y = 32 B) W = 1, X = 3, Y = 4 C) W = 2, X = 6, Y = 16 D) W = 1, X = 6, Y = 8

Q4) Which correctly shows the amplitude of wave X?

Wave	Amplitude (units)	Energy (units)
W	1	1
X		9
Y	5	25

A) 2 B) 3 C) 4 D) 6

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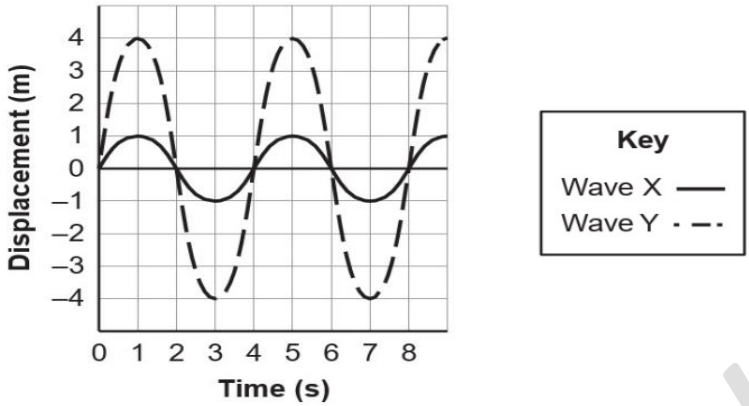
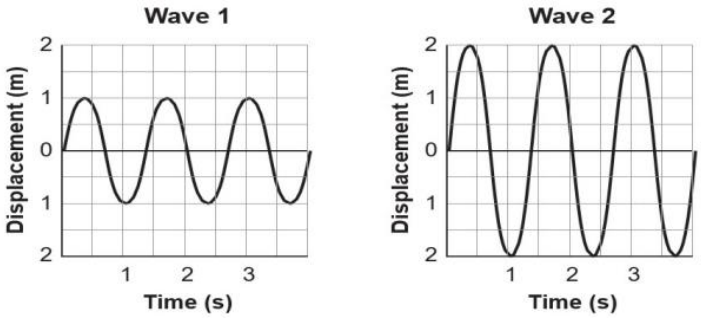
Q5) This graph represents sound waves generated by a vibrating string at two energy levels. Which statement best describes the difference in energy between Wave X and Wave Y?



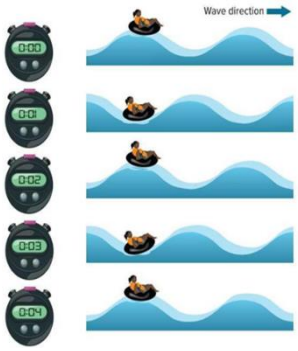
A) The energy of Wave Y is one-fourth of the energy of Wave X.
B) The energy of Wave Y is 4 times greater than the energy of Wave X.
C) The energy of Wave Y is one-sixteenth of the energy of Wave X.
D) The energy of Wave Y is 16 times greater than the energy of Wave X.

Q6) The graphs show two waves with the same frequency. By what factor did the energy change from Wave 1 to Wave 2?



A) The energy increased 2 times.
B) The energy increased 3 times.
C) The energy increased 4 times.
D) The energy increased 8 times.

Q7) What is the frequency of the wave shown in the image below?



A) 1.00 Hz
B) 0.50 Hz
C) 0.25 Hz
D) 4.00 Hz

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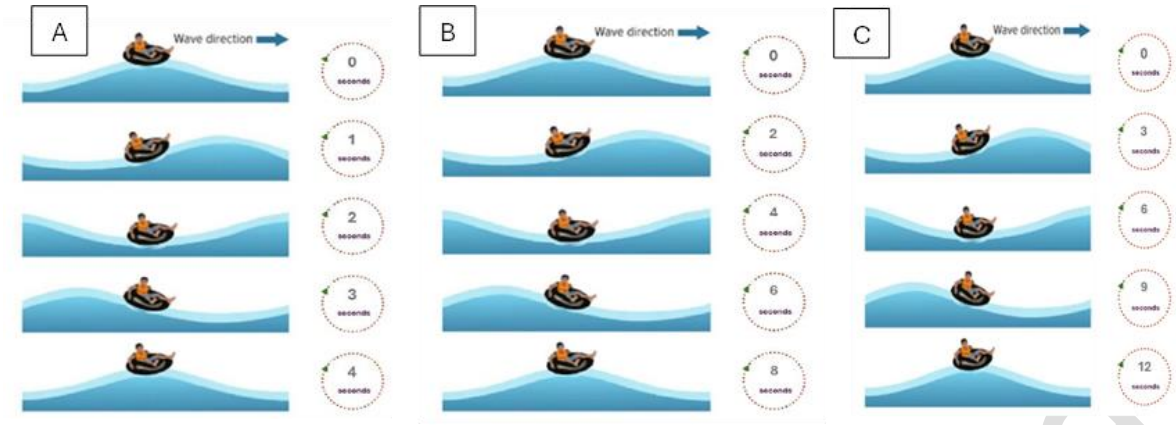
Q8) What is the frequency of the wave shown in the image below?



What is the frequency of the wave shown in **Image A**?

A) 1.00 Hz B) 0.50 Hz C) 0.25 Hz D) 4.00 Hz

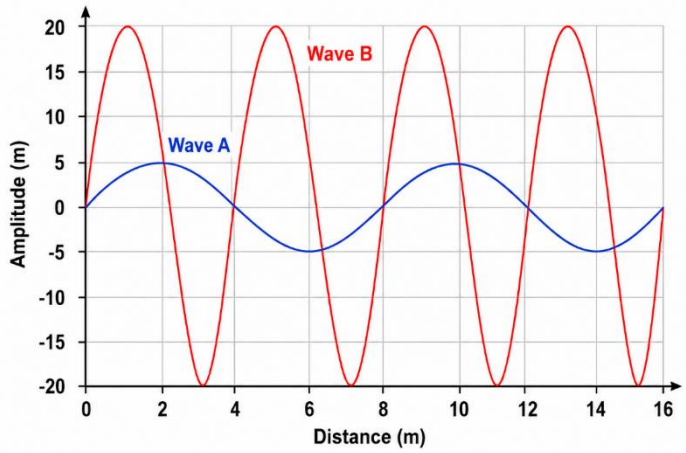
What is the frequency of the wave shown in **Image B**?

A) 0.50 Hz B) 0.25 Hz C) 0.125 Hz D) 8.00 Hz

What is the frequency of the wave shown in **Image C**?

A) 0.333 Hz B) 0.167 Hz C) 0.083 Hz D) 12.00 Hz

Q9) Use the graph to answer the following MCQs:



What is the **amplitude of Wave A?**

A) 4 m B) 5 m

C) 8 m D) 20 m

What is the **amplitude of Wave B?**

A) 4 m B) 5 m

C) 8 m D) 20 m

Assuming both waves travel at the same speed, Wave _____ has the greater frequency.

A) Wave A B) Wave B C) Both waves D) Neither wave

Which statement best compares Wave A and Wave B?

A) Wave A has a greater amplitude and longer wavelength than Wave B.

B) Wave B has a greater amplitude and shorter wavelength than Wave A.

C) Wave A and Wave B have the same amplitude and wavelength.

D) Wave B has a smaller amplitude and longer wavelength than Wave A.

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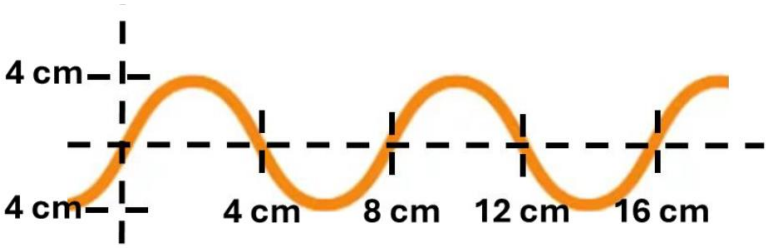
Q10) Determine the amplitude of the wave shown in the image below.



A) 1 cm B) 2 cm C) 4 cm D) 8 cm

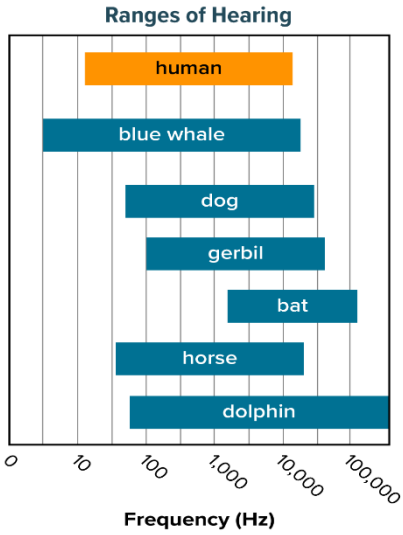
Q11) Joni plays a scale on her clarinet. As she plays from low notes to high notes, what happens to the sound waves that the clarinet creates?

A) The amplitude of the sound waves decreases.
B) The frequency of the sound waves increases.
C) The intensity of the sound waves increases.
D) The wavelengths of the sound waves increase.

Q12) How is frequency related to pitch?

A) A higher-frequency sound wave results in a lower-pitched sound.
B) A lower-frequency sound wave results in a higher-pitched sound.
C) A higher-frequency sound wave results in a higher-pitched sound.
D) Frequency and pitch are not related.

Q13) Which animals can hear ultrasound?



A) Dogs only
B) Blue whales and bats only
C) Dolphins, bats, dogs, and gerbils.
D) Dolphins and bats only

Q14) Which sound has the highest pitch?

A) 100 Hz
B) 500 Hz
C) 1000 Hz
D) 5000 Hz

Q15) In which of the following does sound travel the slowest?

A) Solid B) Liquid C) Gas D) Sound travels at the same speed in all three

Q16) In which of the following does sound travel the fastest?

A) Air B) Water C) Iron D) All have the same speed

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Q17) Sound wave takes about 0.02 s to move through a material that is 29.6 m long. What is the material?

Speed of Sound in Different Materials	
Material (at 20°C)	**Speed (m/s)**
Air	343
Glass	5,640
Iron	5,130
Water	1,481

A) Air B) Glass C) Iron D) Water

Q18) The speed of sound in wood is _____ than the speed of sound in water.

A) less B) greater C) the same at low temperature D) the same at high temperatures

Q19) What conclusion can you draw from the information shown in the figure?

Speed of Sound Through Different Materials

Material	Approximate Speed (m/s)
Air (20°C)	350
Glass	5,600
Steel	5,900
Water (25°C)	1,500
Rubber	1,600
Diamond	12,000
Iron	5,100

A) Sound intensity is greater in water than in air.
B) Sound waves can move more quickly through liquids than through solids.
C) The frequency of sound increases with wave speed.
D) The speed of sound varies with the material in which the waves travel.

Q20) Based on the figure shown, sound waves travel most slowly through which of the following?

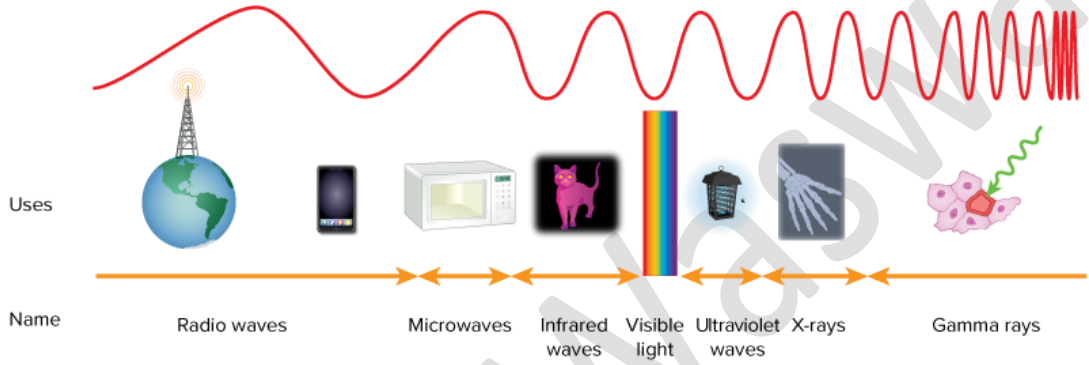
A) air
B) glass
C) rubber
D) water

Module 2 :Light (8 questions in the Exam)

Q21) Which statement about visible light is correct?

A) It has the highest energy in the electromagnetic spectrum
B) It is the only electromagnetic wave humans can see
C) It has the longest wavelength in the spectrum
D) It travels slower than sound waves

Q22) What is the relationship you can conclude between frequency, wavelength, and energy for the electromagnetic radiation shown below?



A) There is no relationship between wavelength, frequency, and energy.
B) As wavelength increases, both energy and frequency decrease.
C) As wavelength increases, both energy and frequency increase.
D) As wavelength increases, energy increases, but frequency decreases.

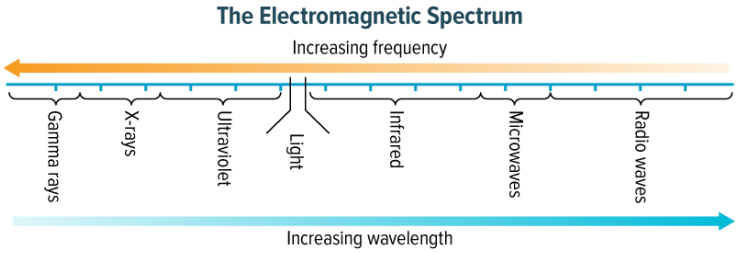
Q23) Why do radio waves have the lowest frequency in the electromagnetic spectrum?

A) They have the shortest wavelengths
B) They have the longest wavelengths
C) They have the highest energy
D) They travel slower than light

Q24) Which electromagnetic wave has the highest energy?

A) Radio waves
B) Microwaves
C) X-rays
D) Gamma rays

Q25) What pattern best describes the relationship between wavelength and frequency?



A) As frequency increases, wavelength increases.
B) As frequency decreases, wavelength decreases.
C) As frequency increases, wavelength decreases.
D) There is no relationship between wavelength and frequency.

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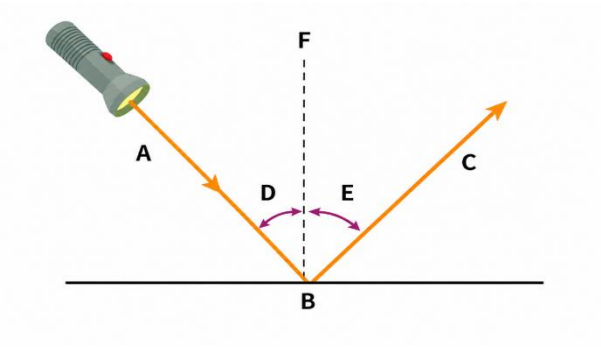
Q26) Use the graph to answer the following MCQs:



Which statement correctly identifies the labeled rays in the diagram?

A) A = Reflected ray and C = Incident ray
B) B = Incident ray and C = Reflected ray
C) A = Incident ray and B = Reflected ray
D) A = Incident ray and C = Reflected ray

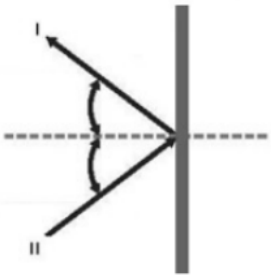
Which pair represents the angle of incidence and the angle of reflection, respectively?

A) E and D B) F and E C) D and E D) B and D

Which statement correctly identifies the labeled parts in the diagram?

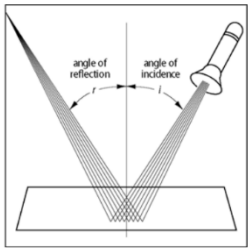
A) B = Normal line and F = Plane mirror
B) B = Incident ray and F = Reflected ray
C) B = Angle of incidence and F = Angle of reflection
D) B = Plane mirror and F = Normal line

Q27) Which is FALSE about the diagram?



A) The two angles are equal.
B) Line I is the normal.
C) Line II is the incident ray.
D) The mirror being modeled is a plane mirror.

Q28) In the figure shown, if angle *i* is increased, angle *r* will _____.



A) remain the same
B) decrease by the same amount
C) increase by the same amount
D) decrease to zero

Q29) According to the law of reflection, if a light ray strikes a mirror at an angle of incidence of 35°, what is the angle of reflection?

A) 35° B) 45° C) 55° D) 70°

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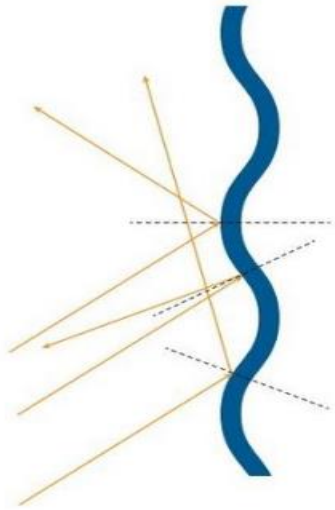
Q30) Which statement best describes the law of reflection?

A) The angle of incidence is greater than the angle of reflection.
B) The angle of reflection is greater than the angle of incidence.
C) The angle of incidence is equal to the angle of reflection.
D) The angle of incidence is always 90°.

Q31) Which object has a surface structure that reflects light rays in the same manner shown in the model?

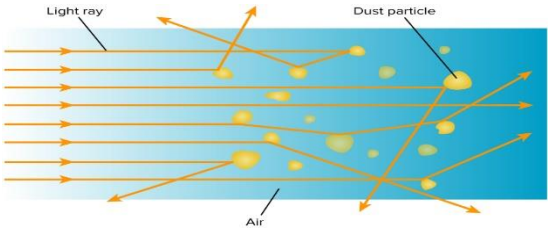


A) Convex mirror
B) Glass window
C) Polished silver spoon
D) Pond with ripples

Q32) What type of reflection is modeled in the diagram?

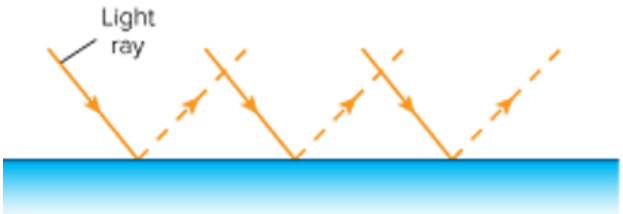
A) Diffuse reflection
B) Real image
C) Virtual image
D) Regular reflection

Q33) Which behavior of light is shown when light rays hit dust particles in the air?



A) Reflection of light
B) Refraction of light
C) Scattering of light
D) Absorption of light

Q34) Which type of reflection occurs when light rays reflect from a smooth surface in the same direction?

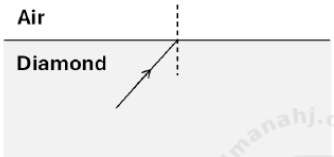


A) Diffuse reflection
B) Scattering
C) Regular reflection
D) Refraction

Q35) A ray of light travels from a diamond into the air. What happens to the ray?

A) The ray bends toward the normal.
B) The ray travels along the normal.
C) The ray bends away from the normal.
D) The ray travels along the boundary surface.

Medium	Index of Refraction
Air	1.0003
Water	1.33
Diamond	2.47



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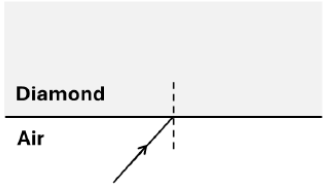
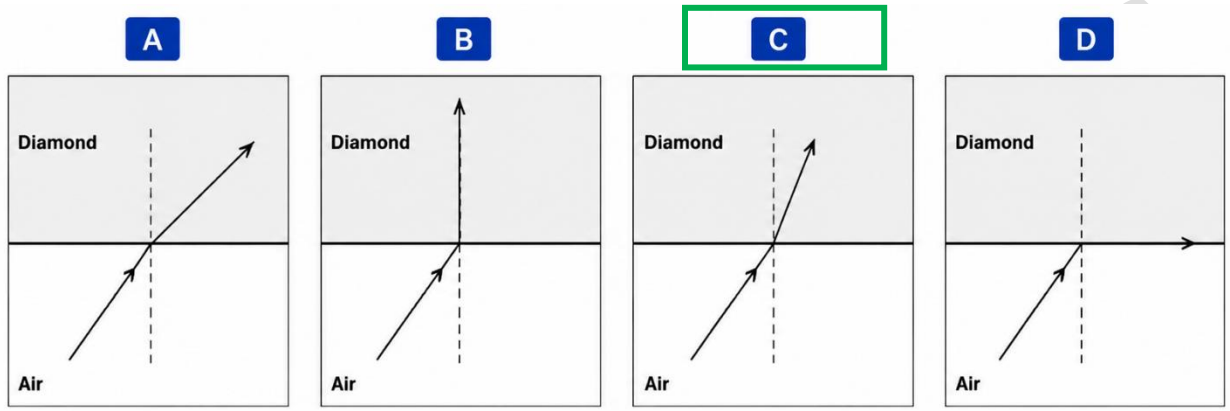
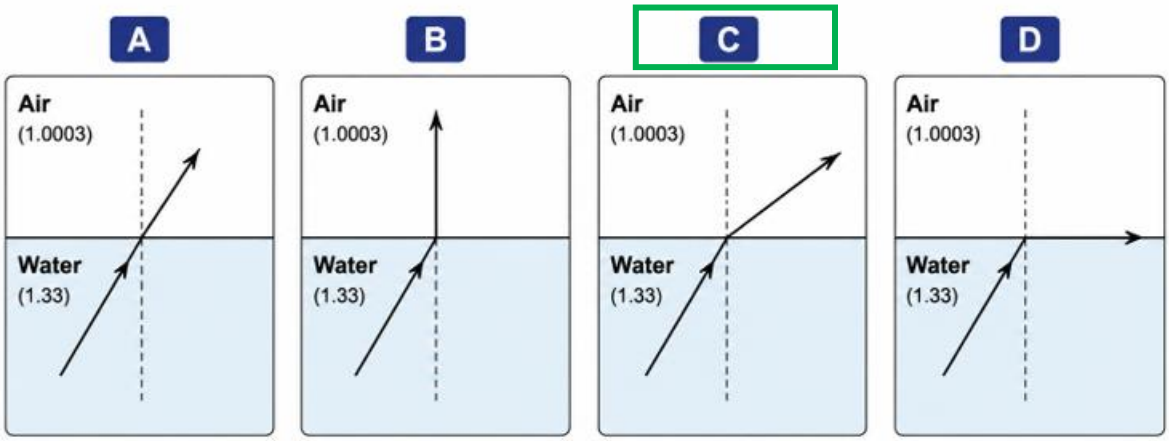
Q36) A ray of light travels from air into a diamond. Which diagram correctly shows the path of the refracted ray?

Medium	Index of Refraction
Air	1.0003
Water	1.33
Diamond	2.47



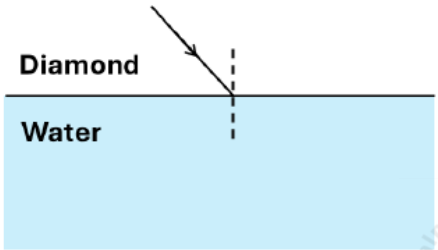


Q37) A ray of light travels from water into air as shown. Which diagram correctly shows the path of the refracted ray?

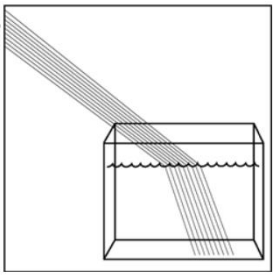


Q38) A ray of light travels from a diamond into water. Which diagram correctly shows the path of the refracted ray?

A) The ray bends toward the normal.
B) The ray travels along the normal.
C) The ray bends away from the normal.
D) The ray travels along the boundary surface.

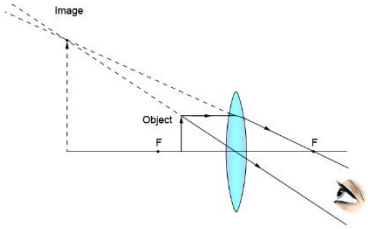


Q39) In the figure shown, the light waves change direction as a result of __.



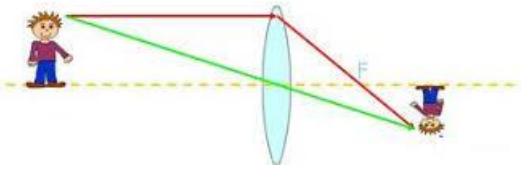
A) diffraction
B) reflection
C) refraction
D) absorption

Q40) Based on the ray diagram shown, what are the characteristics of the image formed by the convex lens?



A) Real, inverted, and smaller than the object
B) Real, upright, and larger than the object
C) Virtual, upright, and larger than the object
D) Virtual, inverted, and smaller than the object

Q41) Based on the ray diagram shown, what are the characteristics of the image formed by the convex lens?

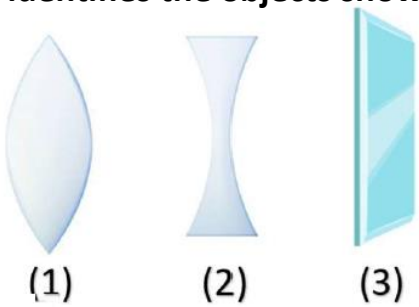


A) Virtual, upright, and larger than the object
B) Real, inverted, and smaller than the object
C) Real, upright, and smaller than the object
D) Virtual, inverted, and smaller than the object

Q42) Which of the following statements best explains why a concave lens cannot be used to start a fire?

A) A concave lens will focus the Sun's light into a point that will cause a piece of paper to catch on fire.
B) Because the Sun's light comes from all directions, a concave lens will straighten the light onto the paper, causing the paper to catch on fire.
C) Because a concave lens diverges the light, the Sun's light will not focus on the paper and no fire will occur.
D) A concave lens will focus the Sun's light before the light can reach the paper, and no fire will occur.

Q43) Which statement correctly identifies the objects shown in the figures?

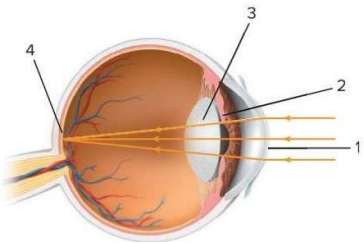


A) Figure 1 is a convex lens, figure 2 is a concave lens, and figure 3 is a flat mirror.
B) Figure 1 is a concave lens, figure 2 is a convex lens, and figure 3 is a flat mirror.
C) Figures 1, 2, and 3 are different types of lenses.
D) Figures 1, 2, and 3 are different types of mirrors.

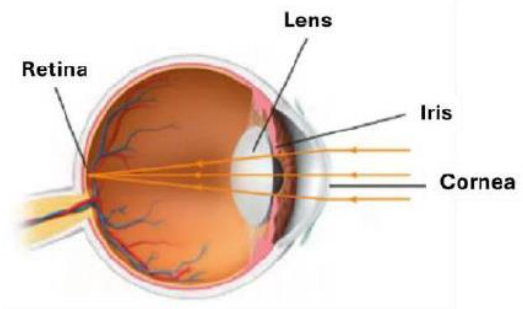
Mr. Issa Wasfi

Q44) Which part of the eye can change its structure to form a focused image?

A) 1
B) 2
C) 3
D) 4



Q45) Use the graph to answer the following MCQs:



Which part of the eye can change its shape to **help form a focused image** on the retina?

A) Retina B) Cornea C) Lens D) Iris

On which part of the eye is the **image formed?**

A) Retina B) Cornea C) Lens D) Iris

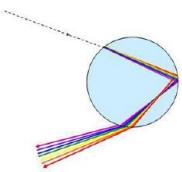
Which part of the eye relaxes and contracts to **control** the amount of light entering the eye?

A) Retina B) Cornea C) Lens D) Iris

Which part of the eye is a **transparent** tissue layer that **changes the direction** of light rays as they enter the eye?

A) Retina B) Cornea C) Lens D) Iris

Q46) Rainbows form due to _____ caused by droplets of water.



A) Reflection and refraction
B) Refraction and absorption
C) Refraction only
D) Diffusion

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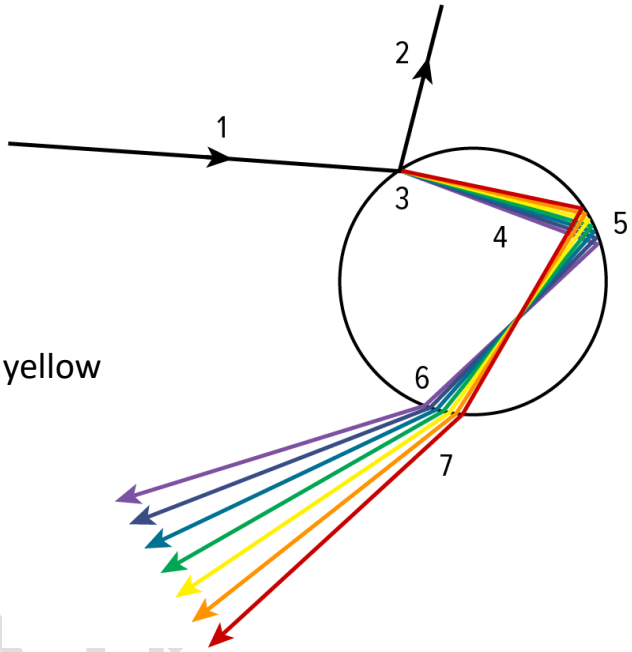
Q47) Use the graph to answer the following MCQs:

What caused the spread of the colors at **point 7?**

A) Absorption
B) Reflection
C) Refraction
D) Transmission



What colors of light make up **ray 1?**

A) The primary colors of light—red, blue, and green
B) The secondary colors of light—cyan, magenta, and yellow
C) No colors. The ray is black.
D) All of the colors. The ray represents white light.

What produced the light represented by **ray 2?**

A) It was absorbed by the drop.
B) It was reflected from the drop.
C) It was refracted by the drop.
D) It was transmitted by the drop.

Q48) A red ball reflects which of the following colors of light?

A) red
B) all colors but red
C) green
D) white

Q49) Which of the following statements about a blue ball is correct?

A) A blue ball reflects red light and absorbs blue light.
B) A blue ball reflects all colors of light.
C) A blue ball absorbs all colors of light.
D) A blue ball reflects blue light and absorbs most other colors.

Q50) Which color of light does a yellow banana reflect?

A) blue
B) red
C) yellow
D) black

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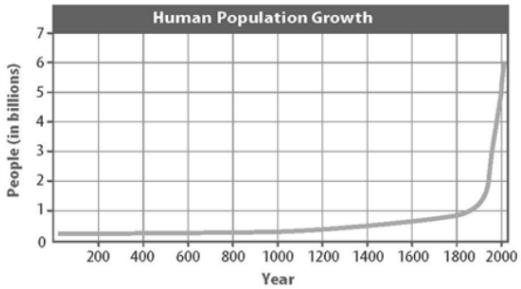
Module 3 :Earth and Human Activity (**9 questions** in the Exam)

Q51) Which of the following does <u>not</u> help explain the sudden rise in population that occurs from the late 1700s and beyond?



A) the beginning of the Industrial Revolution
B) scientific advances
C) the settling of the new American towns
D) medical advances

Q52) Which of the following helped cause the rapid increase in the human population after the late 1700s?

A) The beginning of the Industrial Revolution
B) Scientific advances
C) Medical advances
D) All of the above

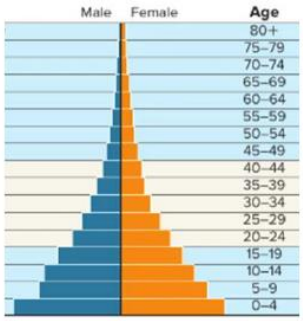
Q53) Population explosion refers to the _____.

A) estimated world population in 2025
B) number of people who live in poverty
C) world population in 1810
D) increased rate at which the population is growing

Q54) A population is _____.

A) all the members of a species living in a given area
B) different species living together
C) all living things on Earth
D) the place where organisms live

Q55) What type of human population growth does the age structure diagram represent?



A) Negative growth because there are more elderly individuals than young individuals.
B) Slow growth because most age groups contain similar numbers of individuals.
C) Rapid growth because there are many pre-reproductive individuals and a wide base.
D) Negative growth because the birth rate is lower than the death rate.

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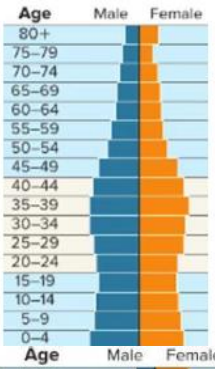
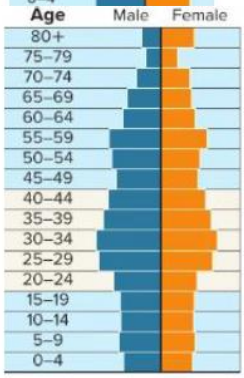
Q56) What type of human population growth does the age structure diagram represent?



A) Rapid growth.
B) Slow growth.
C) Negative growth
D) None of the above

Q57) What type of human population growth does the age structure diagram represent?



A) Rapid growth because there are many pre-reproductive individuals.
B) Slow growth because most age groups contain similar numbers of individuals.
C) Rapid growth because the birth rate is increasing quickly.
D) Negative growth because there are fewer young individuals than adults.

Q58) Using the data in the table below, calculate the (PGR%) for India.

Population Growth Rates (PGR%)				
	Population (millions)	Birth Rate	Death Rate	Net Migration Rate
United States	321.1	13	8	3
Germany	81.1	8	11	5
Indonesia	255.7	21	14	−1
India	1,314.1	39	7	−1

$$\text{PGR}(\%) = \frac{birth\ rate - death\ rate + net\ migration\ rate}{10}$$

A) 3.1% B) 0.8% C) 1.7% D) 4.5%

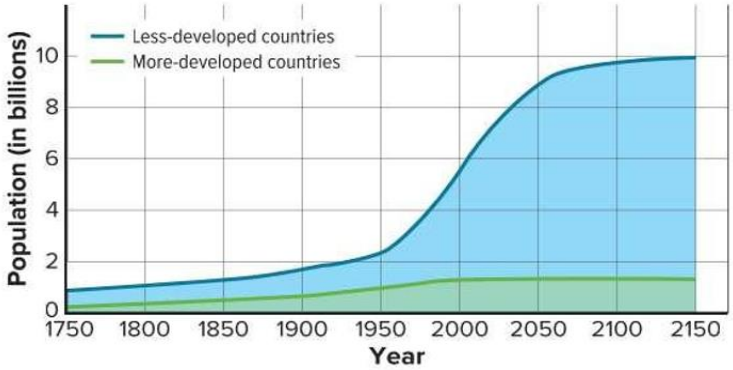
Q59) Using the data in the table, calculate the (PGR%) for the USA.

A) 0.6% B) 0.8% C) 1.5% D) 2.1%

Q60) When do populations increase?

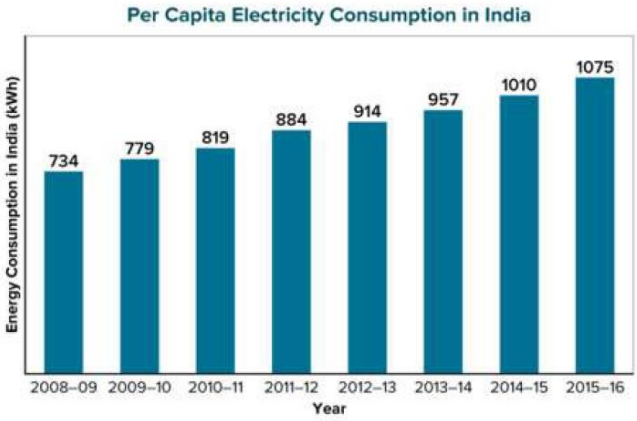
A) when birth rates are lower than death rates
B) when death rates are higher than birth rates
C) when birth rates are higher than death rates
D) when birth rates and death rates are equal

Q61) How do birth rates typically differ between more-developed and less-developed countries?



A) More-developed countries generally have higher birth rates than less-developed countries.
B) Birth rates are about the same in both more-developed and less-developed countries.
C) Less-developed countries generally have higher birth rates than more-developed countries.
D) Birth rates are irrelevant to the level of development of a country.

Q62) Based on the graph, what can be concluded about India's population?



A) The increase in electricity use indicates that the population of India has increased over time.
B) The number of people who use electricity has decreased over time; population decreased.
C) The overall usage of electricity has stayed the same because of the limited resources.
D) The overall usage of electricity has decreased.

Q63) _____ refers to the largest population an environment can support.

A) ecosystem B) organisms C) carrying capacity D) habitat

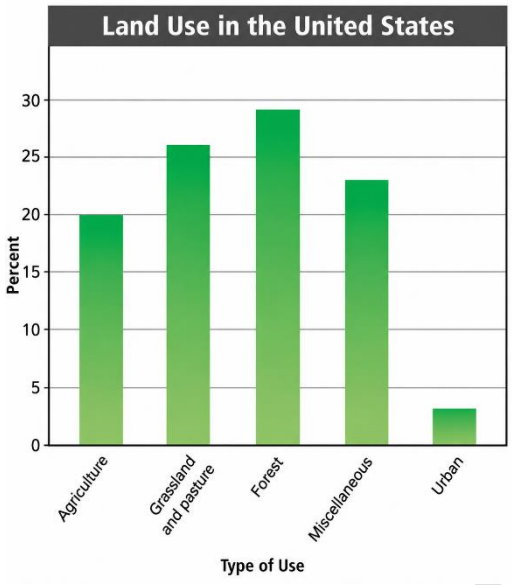
Q64) In 1960, USA had about 16,000 km of interstate highways. Today, the interstate highway system includes 77,000 km of paved roadways. What percent increase does this represent?

A) 381 percent B) 792 percent C) 38 percent D) 79 percent

Q65) The size of the Amazon rainforest in 1970 was around 5.8 million km². In 2020, the size of the rainforest was around 5.2 million km². What is the percent decrease?

A) 5.2% B) 10.3% C) 12.5% D) 15.8%

Q66) Use the graph to answer the following MCQs:



According to the graph, how much land is used by **cities** compared to other land uses?

A) Most land is used by cities.
B) Cities use half as much land as agriculture.
C) Cities use one-third as much land as forests.
D) Cities use very little land compared to any other category.

Based on the graph, which category had the **highest percentage of land use** in the United States?

A) Agriculture B) Grassland and pasture C) Forest D) Urban

Based on the graph, which types of land use were **20% or lower**?

A) Agriculture and Urban
B) Forest and Urban
C) Grassland and Pasture and Urban
D) Agriculture and Miscellaneous

Based on the graph, which types of land use were **higher than 20%**?

A) Agriculture and Urban
B) Forest and Urban
C) Grassland and Pasture, forest, and Miscellaneous
D) Agriculture and Miscellaneous

Q67) Which atmospheric gas contributes to climate change?

A) Carbon dioxide B) Oxygen C) Argon D) Nitrogen

Q68) Deforestation can lead to _____.

A) Loss of animal habitats
B) Soil erosion
C) Increased Earth's average surface temperature
D) All of the above

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Q69) One cause of _____ may be deforestation.

A) Thunderstorms B) Climate change C) Clouds D) Precipitation

Q70) Of the following, which helps conserve natural resources?

A) using a cloth shopping bag instead of a paper bag
B) riding your bike on short trips around town
C) planting trees in your front yard
D) all of the above

Q71) Which of the following is a way a 13-year-old in America can help control greenhouse gases?

A) plant trees
B) recycle aluminum cans
C) turn off electronics that are not in use
D) all of the above

Q72) Which two actions can help reduce an ecological footprint?

A) 1 and 4
B) 2 and 3
C) 1 and 3
D) 2 and 4

Action

1. Increase urbanization
2. Increase forest areas
3. Use hydropower
4. Use more fertilizer

Q73) Which TWO actions increase the ecological footprint on the environment?

A) 1 and 2
B) 2 and 3
C) 1 and 3
D) 2 and 4

Action

1. Deforestation
2. Recycling materials
3. Increased use of fossil fuels
4. Using renewable energy

Q74) Switching to renewable energy resources will lead to _____.

A. Reducing our ecological footprint
B. Increasing our ecological footprint
C. Increasing pollutants in the atmosphere
D. Reducing oxygen and forests on Earth

Q75) Which of the following effects is directly linked to deforestation?

A. Increased oxygen levels in the atmosphere
B. Decreased greenhouse gas emissions
C. Increased carbon dioxide levels in the atmosphere
D. Stabilized global temperatures

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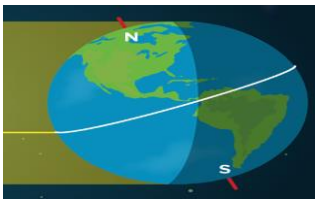
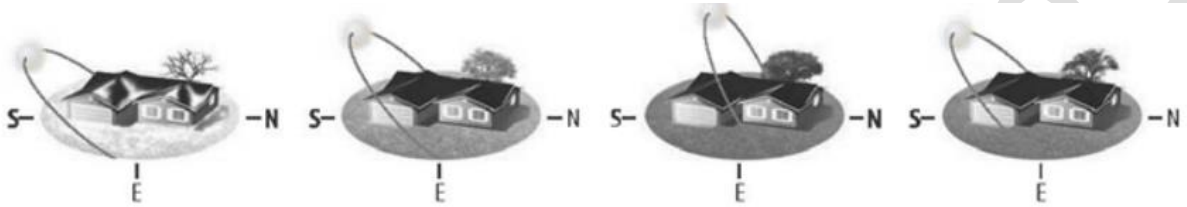
Module 4 :The Sun-Earth-Moon System (**3 questions** in the

Q76) Summer occurs on the hemisphere of Earth that is _____.

A) turned away from the Sun
B) tilted toward the Sun
C) tilted away from the Sun
D) turned toward the Sun



Q77) Which of the following would have the most daylight hours?

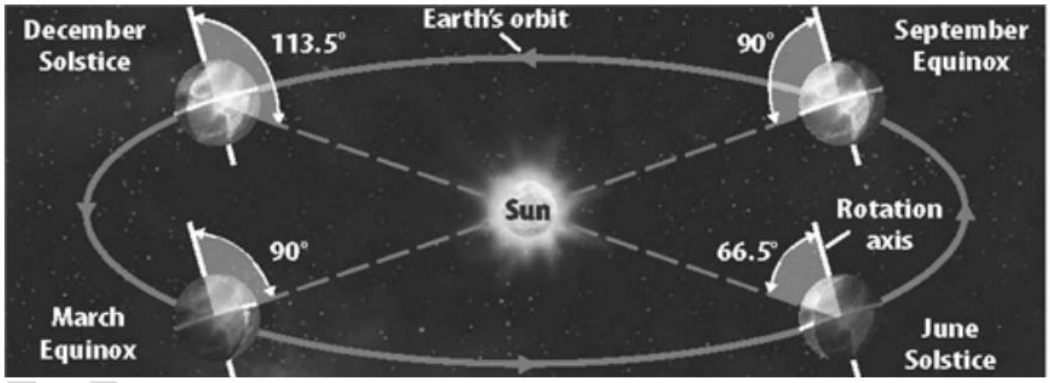


A B C D

Q78) The Sun's rays strike Earth at their northernmost and southernmost positions during __.

A) winter and summer solstices
B) spring and fall equinoxes
C) lunar eclipses
D) solar eclipses

Q79) Which statement is true about both the March Equinox and the September Equinox?



A) There are about 12 hours of daylight and 12 hours of darkness everywhere on Earth.
B) Spring is starting for the southern hemisphere.
C) Spring is starting for the northern hemisphere.
D) They are the longest days of the year.

Q80) A solstice is a day when _____.

A) Earth's rotation axis is most toward the Sun.
B) Earth's rotation axis is most away from the Sun.
C) Earth's rotation axis is neither leaning toward nor away from the Sun.
D) Both A and B are correct.

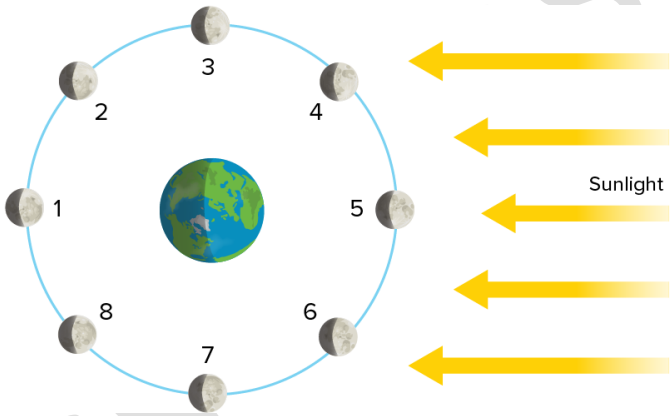
Q81) The seasons are caused by _____.

A) the tilt of Earth's axis as Earth orbits the Sun
B) Earth's distance from the Sun
C) the shape of Earth's orbit
D) the tides of the ocean

Q82) 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.

Q83) Use the graph to answer the following MCQs:



Predict the locations when the Moon is in a **waxing phase**.

A. 1, 5 B. 2, 3, 4 C. 6,7, 8 D. 3, 7

Predict the locations when the Moon is in a **waning phase**.

A. 1, 5 B. 2, 3, 4 C. 6,7, 8 D. 3, 7

Predict which location is the phase seen from Earth at the end of the **second week** of the lunar cycle.

A. 1 B. 3 C. 5 D. 7

Q84) Which phase of the moon is shown in this picture of the sky at midnight?

a. New moon
b. First quarter
c. Full moon
d. Third quarter

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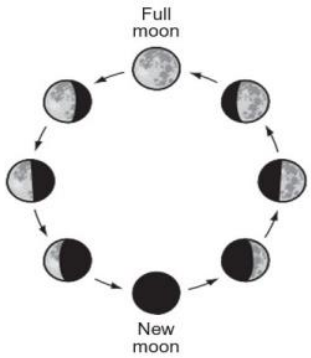
Q85) Which phase of the Moon can you most likely observe on the eleventh night of this lunar cycle?



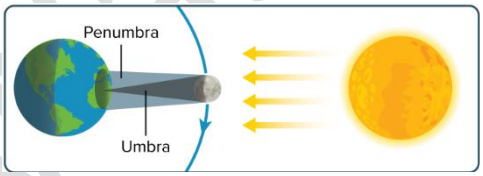
A)

B)

C)

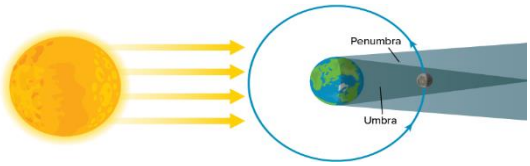
D)

Q86) what is occurring in this figure?



a. Lunar eclipse
b. Lunar and solar eclipse
c. Partial lunar eclipse
d. Solar eclipse

Q87) what is occurring in this figure?



a. Lunar eclipse
b. Lunar and solar eclipse
c. Partial lunar eclipse
d. Solar eclipse

Q88) A lunar eclipse can only occur during which type of moon phase?

A) first quarter moon
B) full moon
C) new moon
D) third quarter moon

Q89) A lunar eclipse occurs when _____.

A) The Moon is between the Sun and Earth
B) Earth is between the Sun and the Moon
C) the Sun is between Earth and the Moon
D) the Moon blocks sunlight from reaching Earth

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اللهم إني أعوذ بك من علم لا ينفع

تمنياتي للجميع بالتوفيق والنجاح بإذن الله

Mr. Issa Waswas