



FAMOUS STUDENTS PLATFORM



QUESTION BOOKLET
GRADE 5 & 6
TIME ALLOWED : 90 MINS
MAXIMUM MARKS : 90



FSP

VIBRANT YOUNGSTERS COMPETITIONS



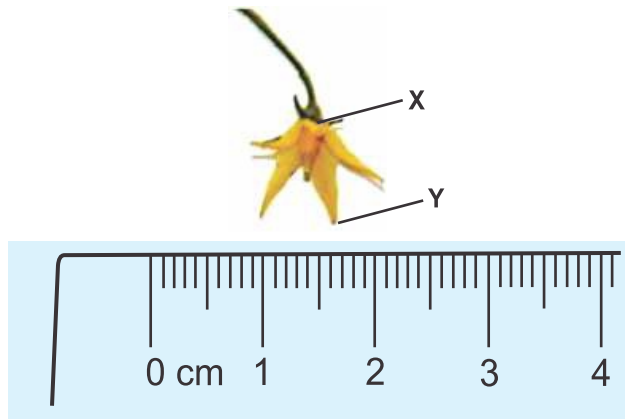


INSTRUCTIONS

- 1) Don't start attempting the paper until instructed by the invigilator.
- 2) instructions from the examination invigilator must be carried out promptly.
- 3) Carefully recheck your name, father name, school name, address etc at the bubble sheet / answer sheet.
- 4) Record all answers on the bubble sheet only. select best answer from the four given options and mark only one option in each question.
- 5) Use blue / black ink to fill up the circles for your answers on the bubble sheet use of lead pencil is not allowed.
- 6) Use of any helping material including cell phones and electronic devices is strictly prohibited.
- 7) Every correct answer earns three points. there would be negative marking. one point would be deducted for every incorrect answer.
- 8) Candidates may not leave the examination room unescorted for any reason, and this includes using the washroom.
- 9) No materials or electronic devices shall be brought in to the room.
- 10) There are five categories of the contest as under:
 - A) Vibrant Youngsters(Grade 1 & 2)
 - B) Vibrant Youngsters(Grade 3 & 4)
 - C) Vibrant Youngsters(Grade 5 & 6)
 - D) Vibrant Youngsters(Grade 7 & 8)
 - E) Vibrant Youngsters(Grade 9 & 10 / 0-levels)
- 11) Only registered students can participate in the contest.
- 12) No candidate shall take out of the hall any answer book(s) or part of an answer book, whether used or unused, or other supplied material.
- 13) If a participant does not understand a word or phrase on the exam paper, neither examiner nor invigilator is permitted to answer.
- 14) for information about upcoming contests or providing valuable feedback,
please visit www.fspcompetitions.org
- 15) Any academic misconduct or malpractice must be reported to fsp vibrant youngsters at info@fspcompetitions.org

QUESTION 3 :

The photograph shows a flower from a tomato plant next to a ruler.

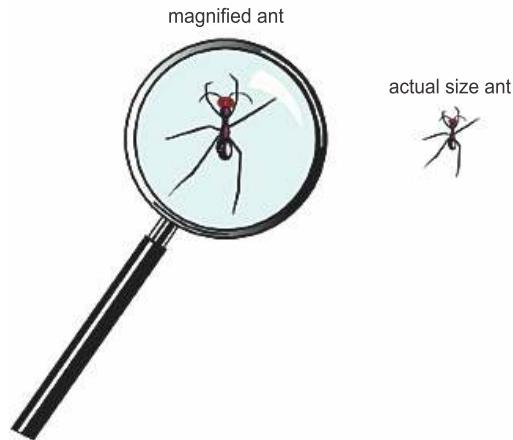


What is the length of the flower petal from X to Y?

- (A) 8 mm
- (B) 12 mm
- (C) 14 mm
- (D) 17 mm

QUESTION 4 :

An ant is shown at its actual size and as it appeared through a magnifying glass.

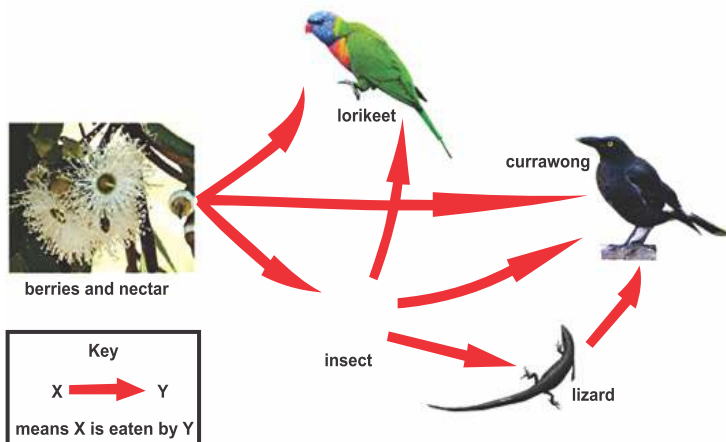


How many times larger did the ant appear through the magnifying glass?

- (A) half as large
- (B) one and a half times as large
- (C) twice as large
- (D) two and a half times as large

Read the information below. Question 5 & 6.

The diagram shows part of the food web in a bushland area.



In a food web animals that feed on plants are called *primary consumers*, animals that eat herbivores are called *secondary consumers* and animals that eat carnivores are called *tertiary consumers*.

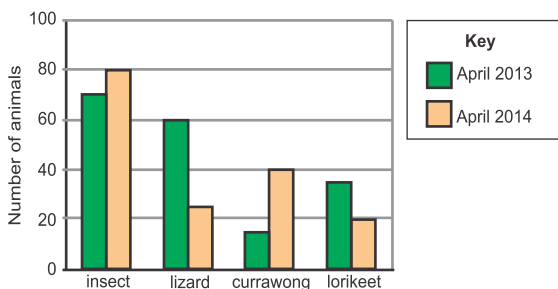
QUESTION 5 :

Which animal in the diagram is a primary, secondary and tertiary consumer?

- (A) currawong
- (B) insect
- (C) lizzard
- (D) lorikeet

QUESTION 6 :

The graph shows how the numbers of each of these animals in the bushland area varied between one year and the next.



Based only on this information, what is the most likely cause of the increased number of insects?

- (A) a change in the availability of berries and nectar
- (B) an increase in the number of currawongs
- (C) a decrease in the number of lorikeets
- (D) different weather conditions

Read the information below. Question 7 & 8.

The table gives information about some ground-dwelling birds that are found in the Cholistan and Thal Deserts (Sindh). Ground-dwelling birds can only fly for short distances (usually to escape predators) and they nest on the ground.

Bird/description	Threats to survival
Houbara Bustards (small bird, length 16-19 cm)	clearing for farming, competition for food from grazing animals, being eaten by foxes and eagles
Guinea Fowl (large bird, length 60-70 cm)	clearing for farming, competition for food from grazing animals, hunting and egg collecting by humans, being eaten by foxes, frequent bushfires
Squatter pigeon (medium bird, length 26-32 cm)	competition for food from grazing animals, being eaten by foxes, cats and snakes, hunting and egg collecting by humans

QUESTION 7 :

Which threats are common to each of these birds?

- (A) frequent bushfires and clearing for farming
- (B) frequent bushfires and being eaten by foxes
- (C) competition for food and being eaten by foxes
- (D) competition for food and egg collecting by humans

QUESTION 8 :

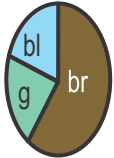
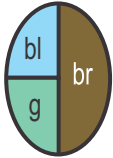
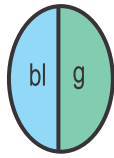
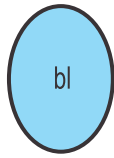
The guinea fowl is **not** hunted by eagles, cats and snakes.

What feature of the guinea fowl most likely explains this?

- (A) its length
- (B) its habitat
- (C) its ability to fly
- (D) its nesting habits

QUESTION 9 :

The table shows the eye colours that children inherited from parents with various eye colours within a community.

Eye colour of parents	Mother - brown Father - brown	Mother - brown Father - blue	Mother - green Father - green	Mother - blue Father - blue
Eye colour of children (%)				

Which statement is correct about the inheritance of eye colour by these children?

- (A) If both parents have blue eyes, they will have no brown-eyed children
- (B) If the mother has brown eyes, then all her children will have brown eyes
- (C) If the father has blue eyes, then at least 50% of his children will have blue eyes
- (D) If both parents have eyes of the same colour, then all of their children will have that same eye colour

QUESTION 10 :

The table gives information about substances that skin secretes to form an acid mantle layer.

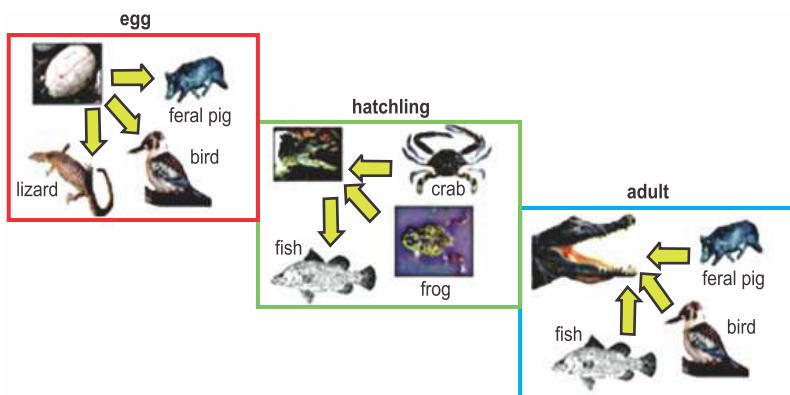
Substance type	Secreted from	Function of substance
sebum (oil)	hair follicles	protects skin and hair from wind and sunlight
sweat (slightly acidic, watery solution pH 4-4.5)	skin pores	slows growth of harmful bacteria

What protects the skin by slowing the growth of harmful bacteria?

- (A) hair follicles
- (B) sebum
- (C) skin pores
- (D) sweat

QUESTION 11 :

Energy transfers from one animal to another as it is eaten. The diagrams show this energy transfer for three stages of the life of *Crocodylus porosus*. The arrow indicates in which direction the energy transfers.



What eats *Crocodylus porosus* at an early stage, and then is eaten by *Crocodylus porosus* at a later stage?

- (A) lizards only
- (B) crabs and frogs only
- (C) fish, birds and feral pigs only
- (D) lizards, birds and feral pigs only

QUESTION 12 :

When a mixture of water and sugar is boiled, water evaporates and the concentration of sugar in the mixture increases.

The table gives the relationship between the temperature at which the mixture boils, the concentration of sugar in the mixture, as well as the type of candy that is made from the water-sugar mixture with that concentration.

Concentration of sugar (%)	Temperature (°C) mixture boils	Type of candy made at this sugar concentration
80	111-113	syrup
85	114-115	fudge
87	118-121	caramels
92	122-129	nougat and marshmallow
95	132-143	butterscotch
99	149-154	toffee and lollipops

What is the relationship between the concentration of sugar in the water-sugar mixture and the temperature at which the mixture boils?

	Concentration of sugar	Boiling point of mixture
(A)	increases	increases
(B)	increases	stays the same
(C)	decreases	stays the same
(D)	decreases	increases

- (A) A
- (B) B
- (C) C
- (D) D

QUESTION 13 :

Rauf and Salim thought that once a tap was dripping it did so at a constant rate. They used four different taps to test the hypothesis. The photographs show the taps used.



The table lists the data Rauf and Salim collected.

Time at which the tap dripped (seconds)			
Tap 1	Tap 2	Tap 3	Tap 4
0	0	0	0
2	6	4	1
5	12	8	4
8	17	11	7
10	21	16	9
11	28	20	11
14	33	24	13
19	39	28	15
21	45	32	18
23	50	35	20
24	56	41	22
27	62	47	24
29	66	50	27
30	72	55	29
34	78	60	31
36	83	64	33
Average rate = 2.4 seconds/drip	Average rate = 5.5 seconds/drip	Average rate = 4.3 seconds/drip	Average rate = 2.2 seconds/drip

Rauf predicted the time at which the next drip would fall from each tap.

Which option is most likely to occur?

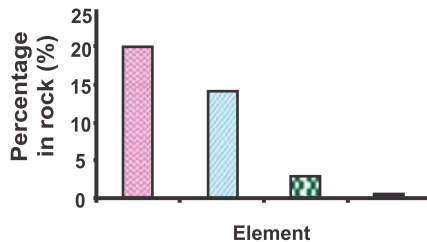
	Tap	Time of next drip (second)
(A)	1	38
(B)	2	88
(C)	3	68
(D)	4	35

- (A) A
- (B) B
- (C) C
- (D) D

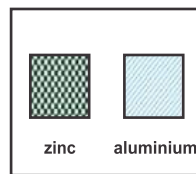
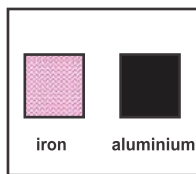
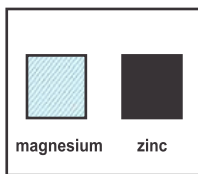
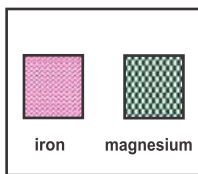
QUESTION 14 :

The table and bar graph both show the same information about the metallic elements in a rock.

Element	Percentage in rock (%)
iron	20
magnesium	14
zinc	3
aluminium	0.5



Which option correctly identifies elements in the graph?



(A)

(B)

(C)

(D)

- (A) A
- (C) C

- (B) B
- (D) D

QUESTION 15 :

In the southern Pakistan, the sun always appears in the northern half of the sky. The clock face of an accurate wrist watch can be used to estimate the direction of north. In the photographs below, the red arrows show the direction of north as it is aligned with the face of the same horizontally held watch at three different times.



In order to find north, what has to be lined up between the centre of the watch and the sun's position in the sky?

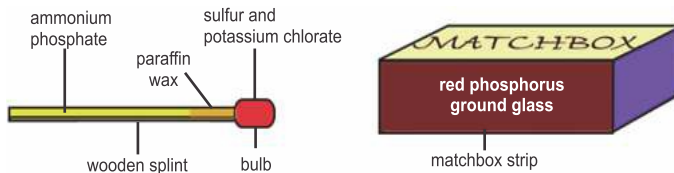
- (A) the winder
- (B) the 12 o'clock position on the clock face
- (C) the hour hand at the time of the estimate
- (D) the half way point between the hour hand and the minute hand

QUESTION 16 :

Fire can only occur when three conditions are met.

- There must be fuel that can burn.
- The fuel must get hot enough to burn.
- There must be oxygen surrounding the fuel or oxygen in the fuel.

The drawing shows the parts of a safety match and chemicals used to make it.



The table gives the purpose of each chemical found in safety matches.

Chemical	Purpose
ammonium phosphate	stops splint from smouldering after it is put out
ground glass	provides heat through friction
potassium chlorate	provides oxygen for bulb to burn
paraffin wax	helps wooden splint to burn
red phosphorus	provides a flame when struck
sulfur	provides fuel to be ignited by friction and red phosphorus
wood	provides fuel for burning

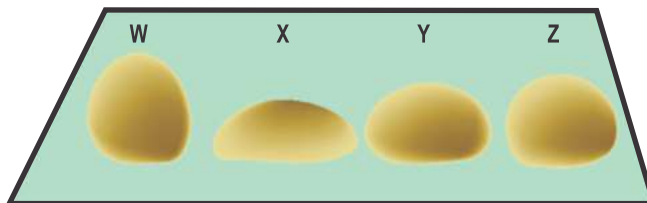
In which chemical is the wooden splint soaked to help it to burn?

- (A) ammonium phosphate (B) paraffin wax
 (C) red phosphorus (D) sulphur

QUESTION 17 :

Lubna made four round balls W, X, Y and Z of the same size, from fresh bread dough. She then dropped each ball from a different height onto a table top. Her observations are shown in the diagram.

Which option lists the balls in order from the ball dropped from the lowest height to the ball dropped from the highest height?

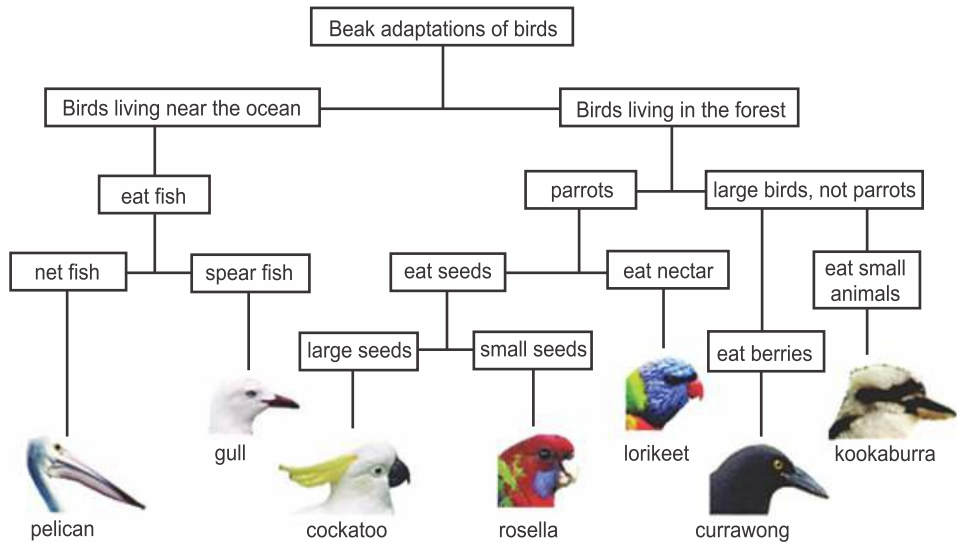


- (A) W, Y, Z, X (B) W, Z, Y, X
 (C) X, Y, Z, W (D) X, Z, Y, W

Read the information below. Question 18 & 19.

A biological adaptation is a feature of an organism that has evolved over a period of time. Adaptations increase the long-term reproductive success of the organism.

The chart shows adaptations in the beaks of some birds.



QUESTION 18 :

According to the key, the lorikeet has adapted to its environment because its beak is suited to

- (A) eating nectar in the forest
- (B) eating berries in the forest
- (C) eating small seeds in the forest
- (D) netting and eating fish near the ocean

QUESTION 19 :

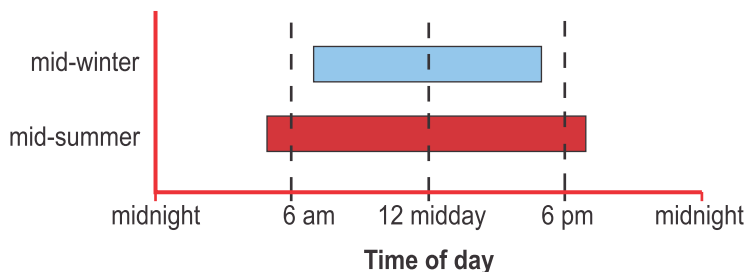
From the key, which bird is most likely to use its beak similarly to the gull as it hunts for food?

- (A) rosella
- (B) pelican
- (C) cockatoo
- (D) kookaburra

QUESTION 20 :

The number of hours of daylight varies during the year. The shortest day of the year is in mid-winter and the longest day is in mid-summer.

The graph shows the number of hours of daylight on the shortest day and on the longest day in Pakistan.

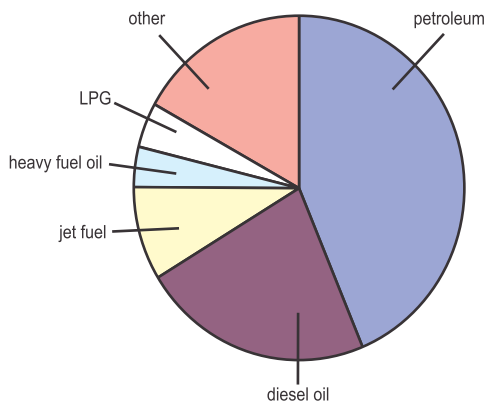


What is the difference in hours of daylight between the longest day and the shortest day?

- (A) 2 hours
- (B) 4 hours
- (C) 6 hours
- (D) 8 hours

QUESTION 21 :

Crude oil is a mixture of hydrocarbons. Oil refineries break down the hydrocarbons in crude oil into various products. The graph shows the percentages of each product refined from crude oil at a refinery.



What percentage of the crude oil was refined into diesel oil?

- (A) 11%
- (B) 22%
- (C) 33%
- (D) 44%

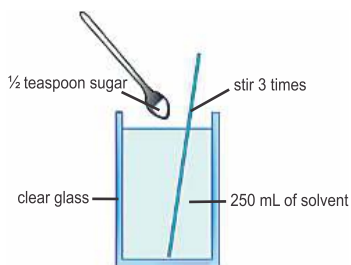
Read the information below . Question 22 & 23

A *solute* is a substance that gets dissolved.

A *solvent* is a substance that does the dissolving.

A *solution* is a mixture of a solute dissolved in a solvent.

Fatima dissolved sugar in five solvents: lemonade, soda water, white vinegar, apple juice and water. She predicted that sugar would dissolve fastest in water. The diagram shows her apparatus and procedures



Fatima wanted her investigation to be a fair test.

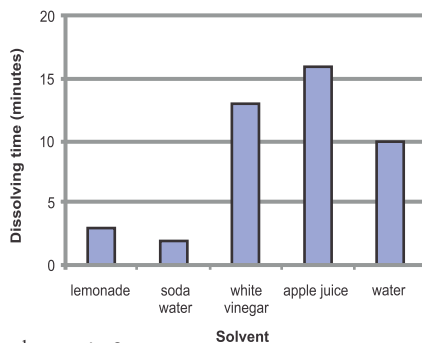
QUESTION 22 :

Which variable could be changed without affecting the fairness of her investigation?

- (A) the solvent used
- (B) the amount of solute used
- (C) the amount of solvent used
- (D) the temperature of the solvent

QUESTION 23 :

The graph shows Fatima's observations.



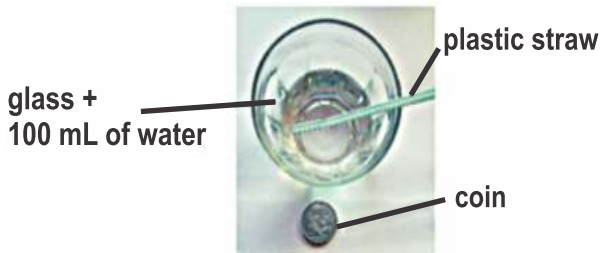
What could Fatima conclude from her results ?

- (A) She had predicted correctly
- (B) Sugar dissolved fastest in soda water
- (C) Water held more sugar in solution than either lemonade or soda water
- (D) More sugar was dissolved in the apple juice than in any of the other solvents tested

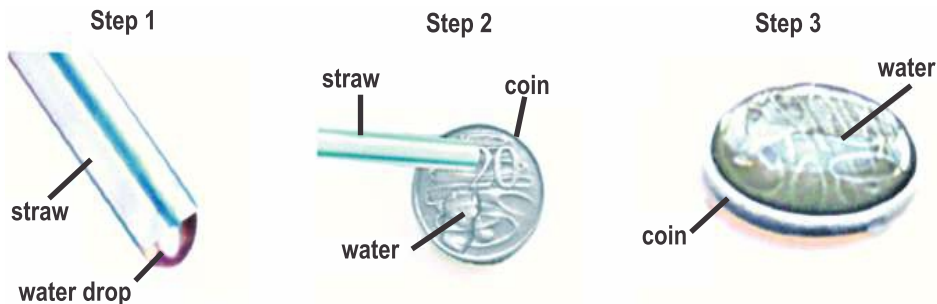
QUESTION 24 :

When water droplets are placed together they join. The water behaves as though its surface is covered by an elastic skin. This is called surface tension. When too much water is added, the surface tension can no longer hold the water's weight and the water runs off.

Sohail investigated how temperature and dissolved substances affect the surface tension of water. He used the equipment shown in the photograph.



Sohail recorded the maximum number of water drops that would join together on top of a coin on a table. Sohail procedure and his table are shown below.



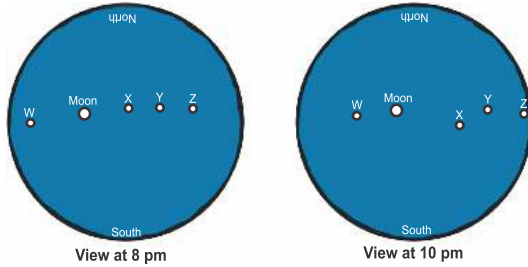
From his results, Sohail was able to conclude that

- (A) the water drops were more attracted to the coin's surface than to each other
- (B) adding salt to the water decreased surface tension
- (C) increasing the water temperature decreased surface tension
- (D) adding detergent to the water did not affect surface tension

Question 25.

The Sun, the Moon and the planets appear to follow a similar path across the sky. Stars do not.

The charts show the positions of some bright objects in the night sky over Islamabad at two different times on the same night.

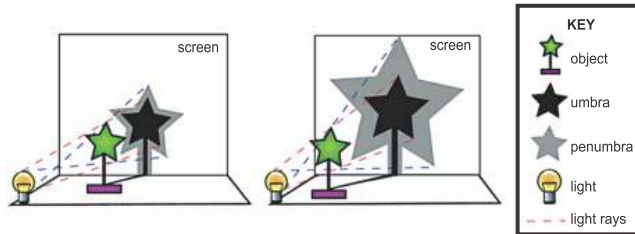


Which object is most likely a star?

- (A) W
- (B) X
- (C) Y
- (D) Z

Question 26.

Shadows form behind objects that block light. The umbra is the part of a shadow where no light reaches. The penumbra is the area of the shadow where only part of the light reaches. The diagrams show how umbra and penumbra form.



When the Moon passes between the Sun and the Earth, it forms a shadow on the Earth's surface. For a total eclipse of the Sun to be seen, the observer must be on a part of the Earth that is in the Moon's umbra.

A total eclipse of the Sun is shown.

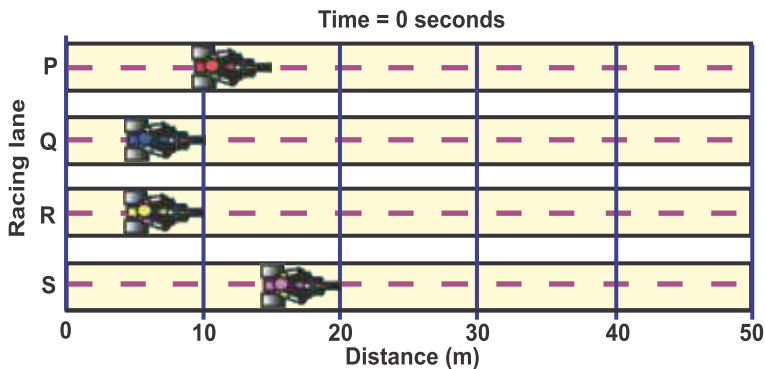


When this total eclipse is seen?

- (A) the Moon must be nearer to the Sun than it is to the Earth
- (B) the Moon appears to be at least the same size as the Sun
- (C) the light from the Sun has to bend around the edges of the Moon
- (D) the Sun appears to be larger than the Moon

Read the information below . Question 27 & 28

The diagrams show the racing lane positions of four motorised tricycles at two different times, $t = 0$ and one second later at $t = 1$. All of the tricycles are moving at a constant speed.



QUESTION 27 :

In which racing lane is the fastest tricycle?

- (A) P
- (B) Q
- (C) R
- (D) S

QUESTION 28 :

The table shows the braking distance for these tricycles at various speeds.

Speed (m/s)	5	10	15	20	25	30
Braking distance (m)	4	15	35	62	98	140

The average reaction time for the tricycle riders is 1 second.

Total stopping distance = Braking distance + Reaction time distance

What would be the total stopping distance (m) for the tricycle in racing lane P?

- (A) 20
- (B) 35
- (C) 62
- (D) 82

Read the information below . Question 29 & 30

The table gives information about some satellites orbiting the Earth.

Satellite	Altitude (km)	Speed (km/s)	Orbit time (h)
Hubble Telescope (H)	1 000	7.5	1½
Lageos (L)	6 000	6	4
Navstar (N)	20 000	4	12
Global Positioning Satellite (G)	36 000	3	24

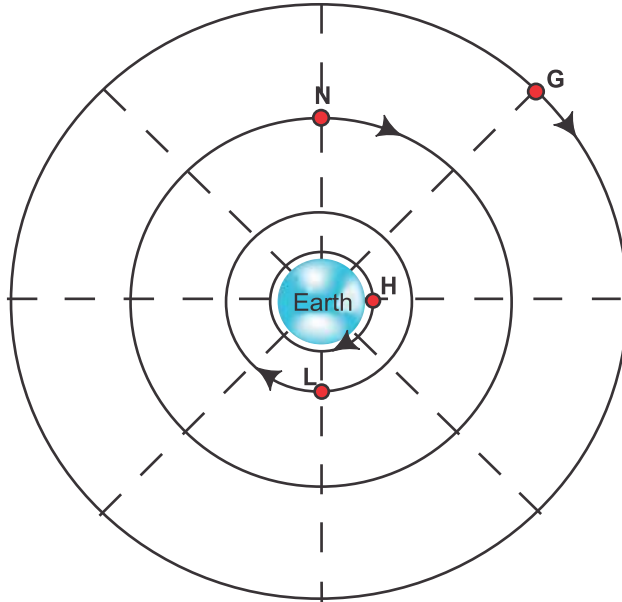
QUESTION 29 :

Which satellite is in the lowest Earth orbit?

- (A) Hubble Telescope
- (B) Lageos
- (C) Navstar
- (D) Global Positioning Satellite

QUESTION 30 :

The drawing shows the orbital path and position of each satellite at a moment in time.



How many hours from the moment shown will all four satellites be aligned with each other for the first time?

- (A) 1
- (B) 3
- (C) 5
- (D) 10



ANSWER SHEET

GRADE 5&6



Q.NO	ANSWER	Q.NO	ANSWER
1	● (B) (C) (D)	16	(A) ● (C) (D)
2	(A) ● (C) (D)	17	(A) ● (C) (D)
3	(A) ● (C) (D)	18	● (B) (C) (D)
4	(A) (B) ● (D)	19	(A) (B) (C) ●
5	● (B) (C) (D)	20	(A) ● (C) (D)
6	(A) (B) ● (D)	21	(A) ● (C) (D)
7	(A) (B) ● (D)	22	● (B) (C) (D)
8	● (B) (C) (D)	23	(A) ● (C) (D)
9	● (B) (C) (D)	24	(A) (B) ● (D)
10	(A) (B) (C) ●	25	(A) ● (C) (D)
11	(A) (B) ● (D)	26	(A) ● (C) (D)
12	● (B) (C) (D)	27	(A) (B) ● (D)
13	(A) (B) (C) ●	28	(A) (B) (C) ●
14	(A) (B) ● (D)	29	● (B) (C) (D)
15	(A) ● (C) (D)	30	(A) ● (C) (D)



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