Name: _____ Date: _____

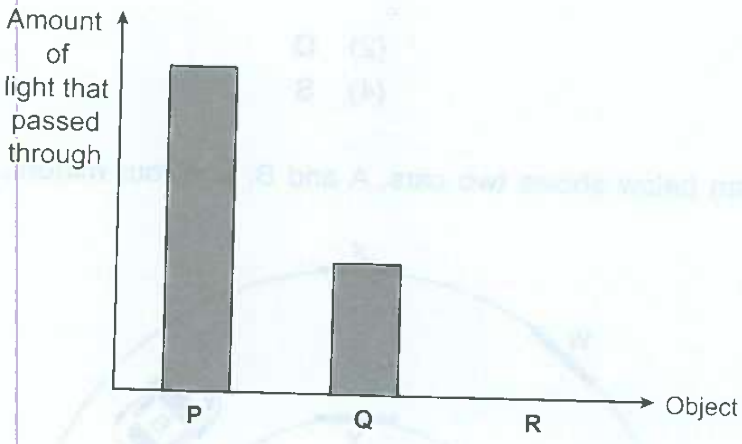
TOPICAL TEST 4B:

30

Section A (10 x 2 marks)

For each question from 1 to 10, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write the answers in the brackets provided.

1. Zoe used a light sensor attached to a data logger to find out how much light passed through three different objects, P, Q and R. The objects were of equal thickness. She recorded the results in the graph below.

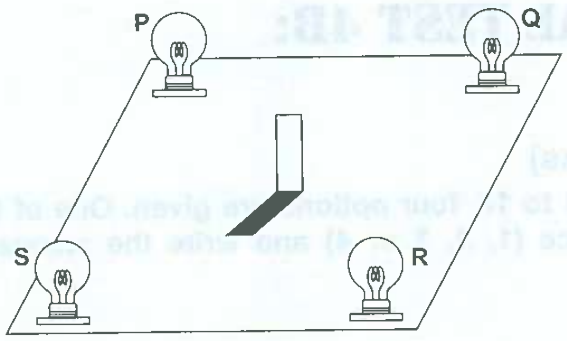


Which of the following best represents Objects P, Q and R?

	P	Q	R
(1)	Clear glass	Steel	Rice paper
(2)	Rice paper	Steel	Clear glass
(3)	Steel	Clear glass	Rice paper
(4)	Clear glass	Rice paper	Steel

( )

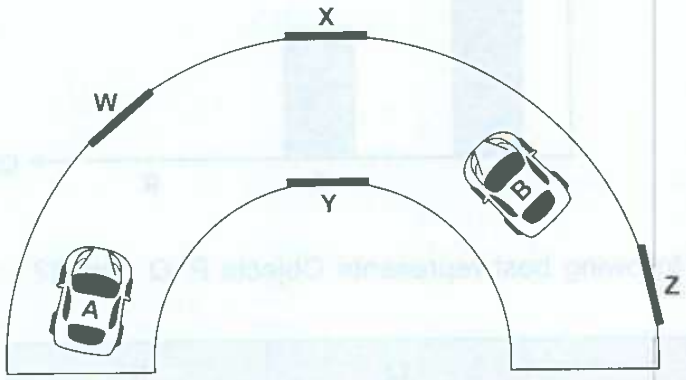
2. A stick is placed in the middle of a board in a dark room.



Which of the bulbs have to be switched on so that the shadow of the stick shown in the diagram is formed?

(1) P (2) Q
(3) R (4) S ( )

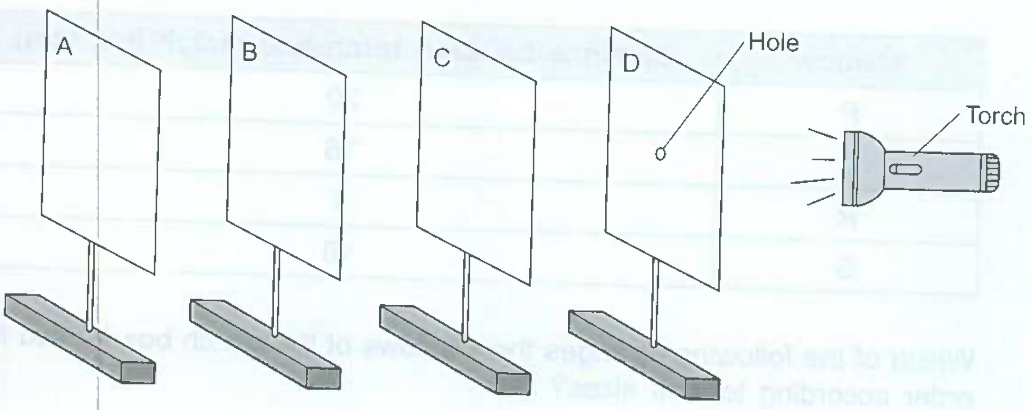
3. The diagram below shows two cars, A and B, and four mirrors, W, X, Y and Z.



Which mirror(s) allow(s) the two drivers to see each other from the positions they were at?

(1) W only (2) W and X only
(3) Y and Z only (4) X, Y and Z only ( )

4. The experiment shown below is carried out in a dark room



Sheets A, B, C and D are arranged in a straight line. When the torch is switched on, a bright oval patch of light is seen on Sheet B only.

Which one of the following correctly describes the properties of the materials that Sheets A, B, C and D are made of?

	Transparent	Opaque	Not possible to tell
(1)	A	B	C and D
(2)	B and D	A	C
(3)	C	B and D	A
(4)	A and C	B	D

( )

5. Rajah set up the experiment as shown below. He carried out the experiment four times. Each time, he would record the distance between the torch and the match box and the size of the corresponding shadow cast on the screen.

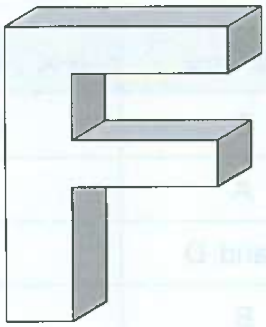
He carried out the experiment using the distances show below.

Shadow	Distance between torch and match box (cm)
P	20
Q	16
R	8
S	10

Which of the following arranges the shadows of the match box formed in ascending order according to their sizes?

(1) P, S, R, Q
(2) P, Q, S, R
(3) S, Q, R, P
(4) Q, S, R, P ( )

6. Which of the following shadows can be formed by the object below?



A: 

B: 

C: 

D: 

(1) A and B only
(2) B and D only
(3) A, C and D only
(4) A, B, C and D ( )

7. Study the table below.

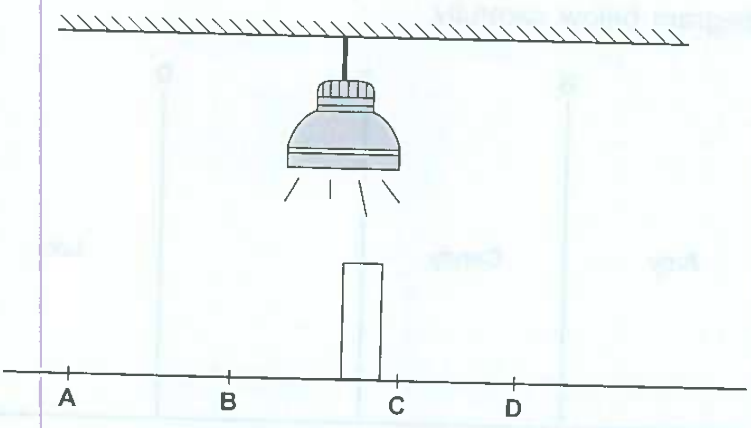
Transparent	Translucent	Opaque
Material A Material B	Material C Material D	Material E Material F

Each of the above materials is placed between a torch and a wall.

Which of the following will be observed when the torch is switched on?

(1) Material A forms a darker shadow than Material C.
(2) Material B forms a darker shadow than Material D.
(3) Material C forms a darker shadow than Material F.
(4) Material E forms a darker shadow than Material D. ( )

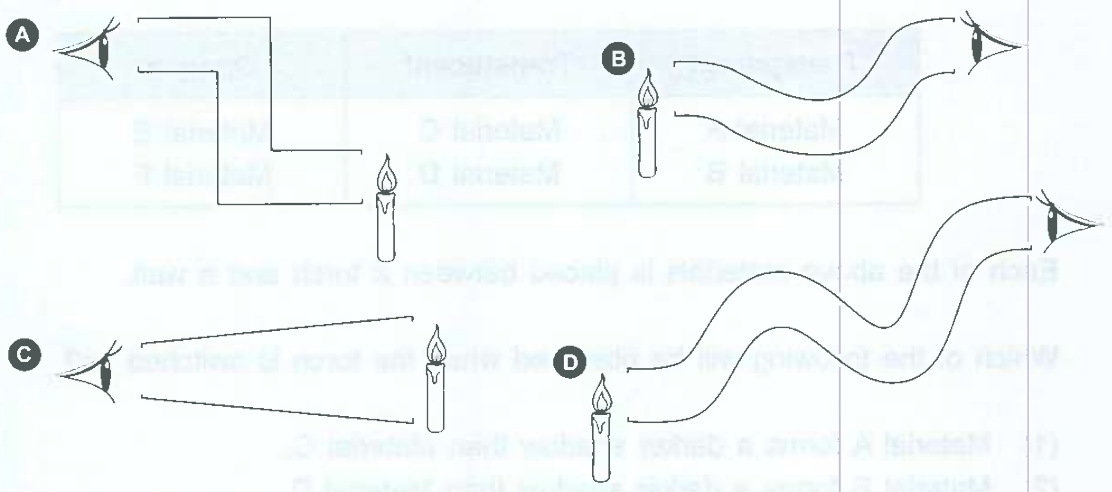
8. Study the diagram below.



Queenie wanted to cast the longest possible shadow of the pole. She can only move the pole as the light is fixed to the ceiling. Where should she move the pole to?

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

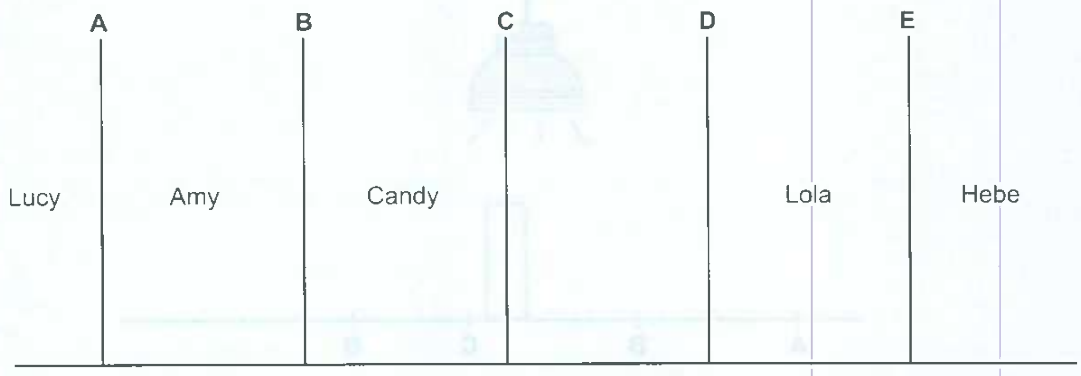
9. The diagrams below show 4 hollow pipes of various shapes.



Select the pipe(s) which will allow the person to see the candle flame.

(1) A only
(2) C only
(3) B and D only
(4) A, B and C only ( )

10. Study the diagram below carefully.



Partitions A, B, C, D and E are made of different materials.

- Amy is able to see Lola
- Candy is able to see Lola and Hebe
- Lucy is unable to see Amy

Which of the following best identifies the materials used to make Partitions A, B, C, D and E?

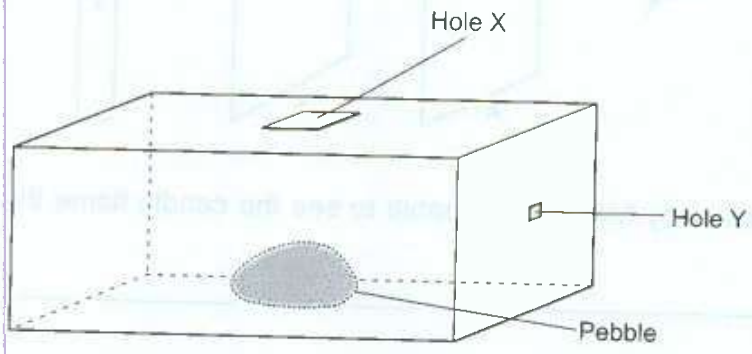
	Allows light to pass through	Does not allow light to pass through
(1)	A, B, C	D, E
(2)	B, C, D, E	A
(3)	B, C, D	A, E
(4)	B, E	A, C, D

( )

Section B (10 marks)

Read each question carefully and write the answers in the spaces provided.

11. The diagram below shows a shoe box that is painted black inside. Hole X is cut on top of the shoe box and a small Hole Y is cut on the side of the box. A pebble is then placed inside the box.



(a) Dex covered Hole X with a thick cardboard and looked through Hole Y. He realised that he could not see anything in the box. Explain why. (1m)

_____

_____

(b) What can be concluded from this experiment? (1m)

_____

_____

(c) What property of light enables Dex to see both the pebble and the box? (1m)

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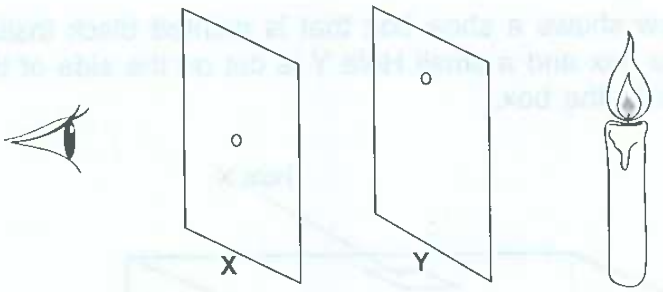
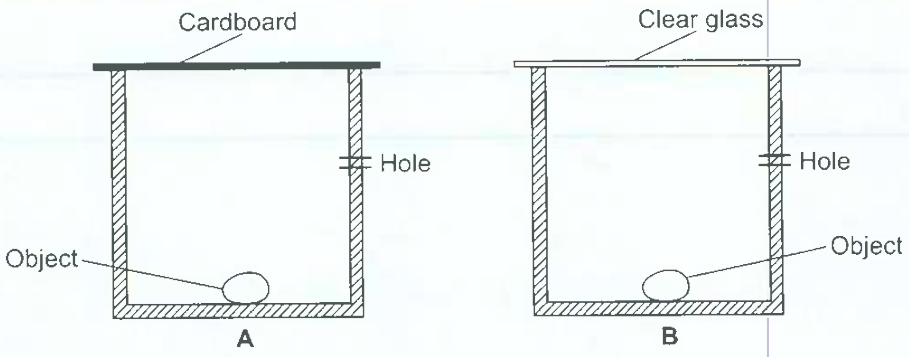
12. Mercy carried out the following experiment. She could not see the candle flame when she looked through the hole in Card X.



(a) Explain why Mercy was unable to see the candle flame through the hole. (1m)

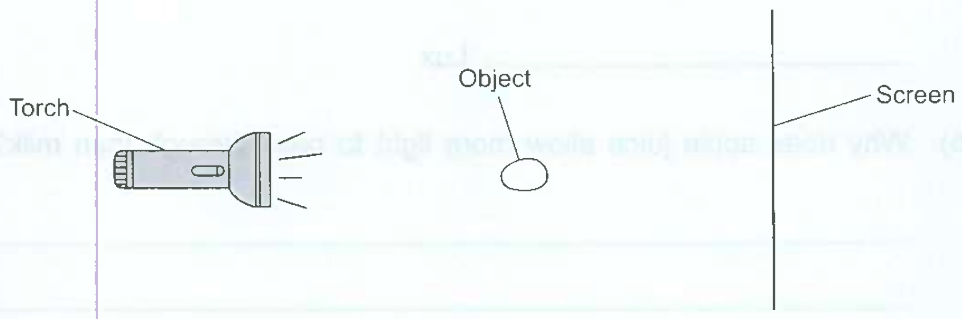
(b) Suggest a possible material that Cards X and Y are made of. (1m)

13. Meina put an object into two similar wooden boxes as shown below. She made a small hole on one side of each box and covered the top of the boxes, one with a thick cardboard and the other with a clear glass as shown in the diagram below. She then shone a torch over each box and peeped in through the hole at the side of the box.



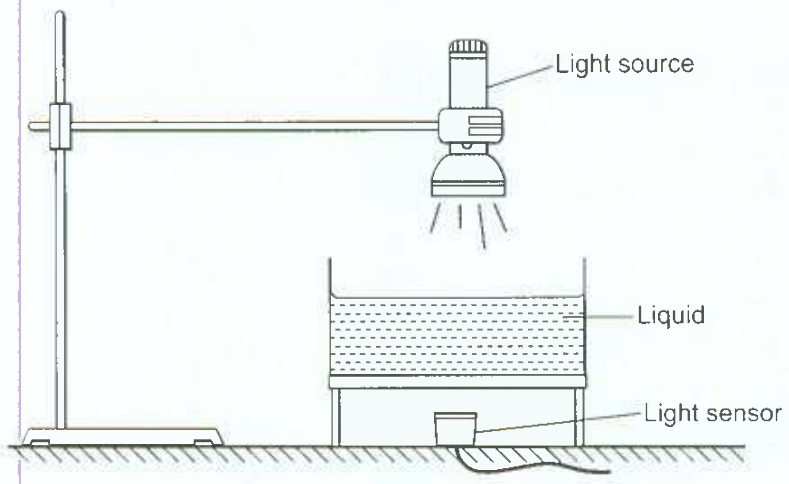
(a) In which set-up was Meina able to see the object? Explain your answer. (2m)

Meina then took out the object from the box and shone a light on it as shown in the diagram below.



(b) Based on the diagram above, suggest one thing she can do to make the object cast a smaller shadow. (1m)

14. Xin Hui used the set-up below to find out how much light passes through different types of liquids.



She used a light sensor to measure the amount of light that passed through each liquid and recorded her results in the table below.

Liquid	Amount of light detected (Lux)
Milk	10
Tap water	320
Apple juice	290
No liquid	?

(a) How much light will be detected by the light sensor when there is no liquid in the container? (1m)

_____ Lux

(b) Why does apple juice allow more light to pass through than milk? (1m)

_____

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