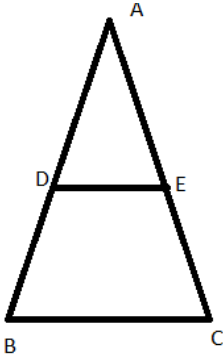
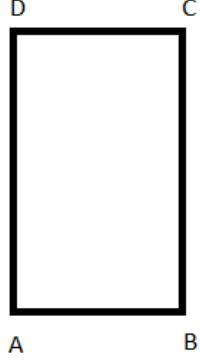
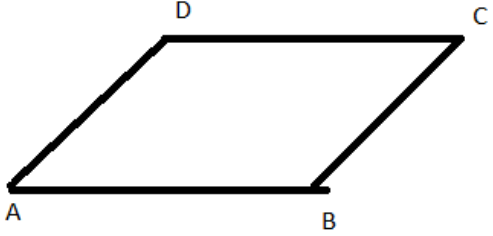
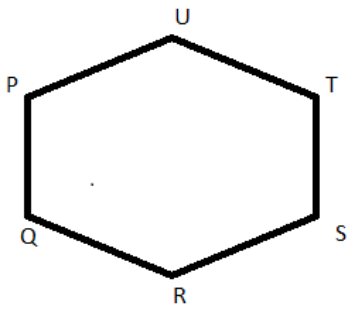
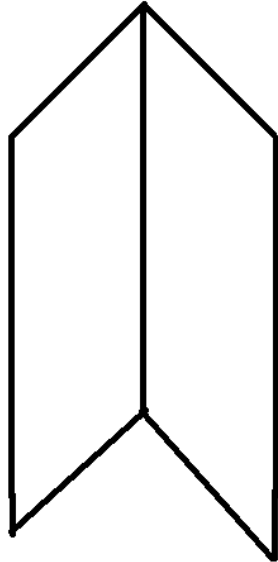
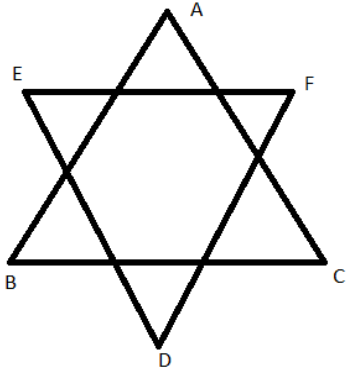


## Pair of Lines and Transversal

### Exercise 15.1

#### Question: 1

Identify parallel line segments:

		
(i)	(ii)	(iii)
		
(iv)	(v)	(vi)

#### Solution:

(i)  $BC \parallel DE$

(ii)  $AB \parallel DC$ ,  $AD \parallel BC$

(iii)  $AB \parallel DC$ ,  $AD \parallel BC$

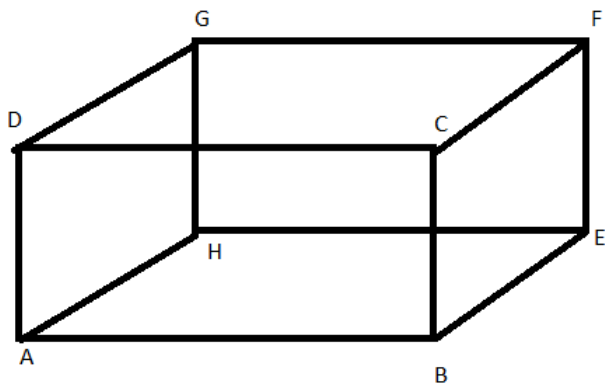
(iv)  $PQ \parallel TS$ ,  $UT \parallel QR$ ,  $UP \parallel SR$

(v)  $AB \parallel DC \parallel EF$ ,  $AD \parallel BC$  and  $DE \parallel CF$

(vi)  $BC \parallel E$ ,  $AB \parallel DF$  and  $AC \parallel DE$

### Question: 2

Name the pairs of all possible parallel edges of the pencil box whose figure is shown in the figure



### Solution:

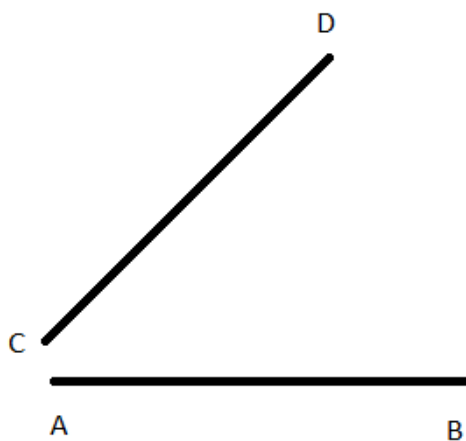
(i)  $AH \parallel DG \parallel CF \parallel BE$

(ii)  $AB \parallel DC \parallel GF \parallel HE$

(iii)  $AD \parallel HG \parallel EF \parallel BC$

### Question: 3

In the figure, do the segments AB and CD intersect? Are they parallel? Give reasons.



### Solution:

In the given position, segments AB and CD do not intersect, but they can intersect if extended to a point. No, they are not parallel, as the distance between them is not constant.

### Question: 4

State which of the following are true or false:

- i) If two lines in the same plane do not intersect, then they must be parallel
- ii) Distance between two parallel lines is not same everywhere
- iii) If  $m$  perpendicular  $l$  and  $n$  perpendicular  $l$  and  $m \neq n$ , then  $m$  parallel to  $n$
- iv) Two non – intersecting co –planar rays are parallel
- iv) If Ray  $AB$  parallel to  $m$ , then line segment  $AB$  parallel to  $m$
- v) If Ray  $AB$  parallel to  $m$ , then line segment  $AB$  parallel to  $m$
- vi) No two parallel segments intersect each other
- vii) Every pair of lines is a pair of co-planar lines
- viii) Two lines perpendicular to the same line are parallel
- ix) A line perpendicular to one of two parallel lines is perpendicular to each other

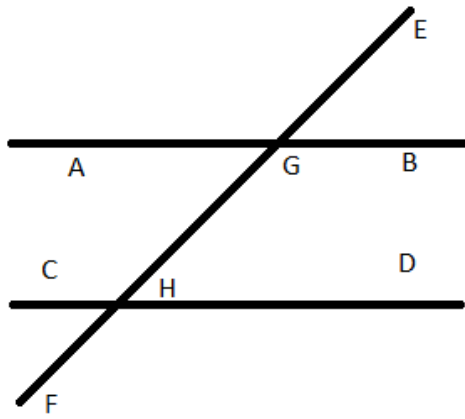
### **Solution:**

State which of the following are true or false:

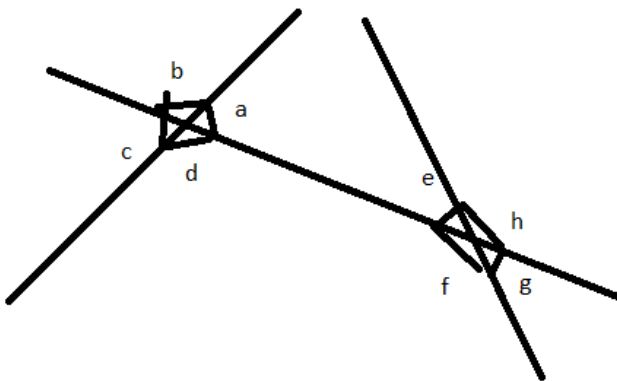
- i) True
- ii) False
- iii) True
- iv) False
- iv) True
- v) True
- vi) True
- vii) False
- viii) True
- ix) True

### **Question: 5**

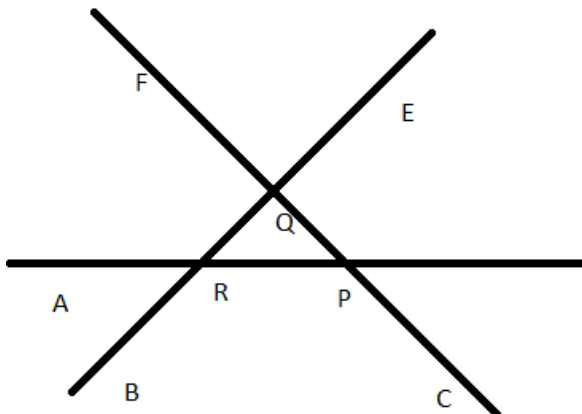
- i) Alternate corresponding angles



ii) Angles alternate to  $\angle d$  and  $\angle g$  and angles corresponding to angles  $\angle f$  and  $\angle h$  in the figure



iii) Angles alternative to  $\angle PQR$ , angle corresponding to  $\angle RQF$  and angle alternative to  $\angle PQE$  in the figure



### Solution:

i)

Alternate interior angles are:

Angle BGH and angle CHG

Angle AGH and angle CHF

Alternate exterior angles:

Angle AGE and angle DHF

Angle EGB and angle CHF

Corresponding angles are:

Angle EGB and angle GHD

Angle EGA and angle GHC

Angle BGH and angle DHF

Angle AGF and angle CHF

ii)

The alternate angle to  $\angle d$  is  $\angle e$  and alternate angles to  $\angle g$  is  $\angle b$

The corresponding angles to  $\angle f$  is  $\angle c$  and  $\angle h$  is  $\angle a$

iii)

In the given figure. 'I' is a transversal to 'm' and 'n'

So, the alternate angle of  $\angle PQR$  is  $\angle QRA$

The corresponding angle  $\angle RQF$  and  $\angle BRA$

The alternate angle of  $\angle PQE$  is  $\angle BRA$

### Question: 6

Match column A and column B.

i) Vertically opposite angles  $\rightarrow$  a.  $\angle PAB$  and  $\angle ABS$

ii) Alternate angles  $\rightarrow$  b –  $\angle PAB$  and  $\angle RBY$

iii) Corresponding angles  $\rightarrow$  c.  $\angle PAB$  and  $\angle XAQ$

### Solution:

i) Vertically opposite angles  $\rightarrow$  c.  $\angle PAB$  and  $\angle XAQ$

ii) Alternate angles  $\rightarrow$  a.  $\angle PAB$  and  $\angle ABS$

iii) Corresponding angles  $\rightarrow$  b –  $\angle PAB$  and  $\angle RBY$