

## LC 2015 (SET B): PAPER 2

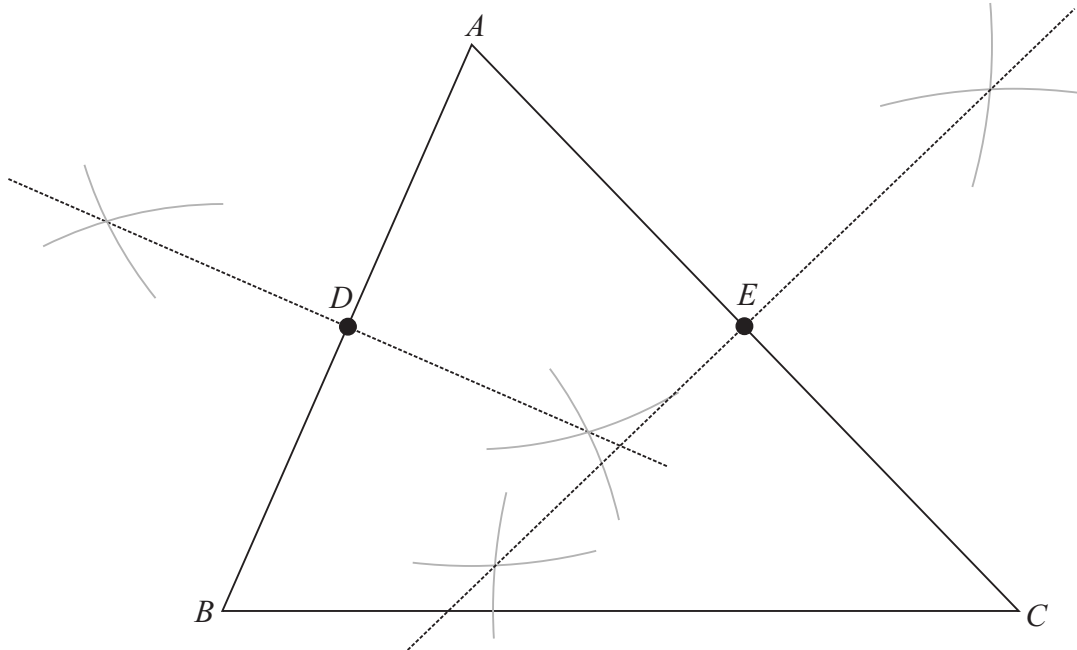
### QUESTION 6 (25 MARKS)

#### Question 6 (a)

The centroid of a triangle is the intersection of the medians.

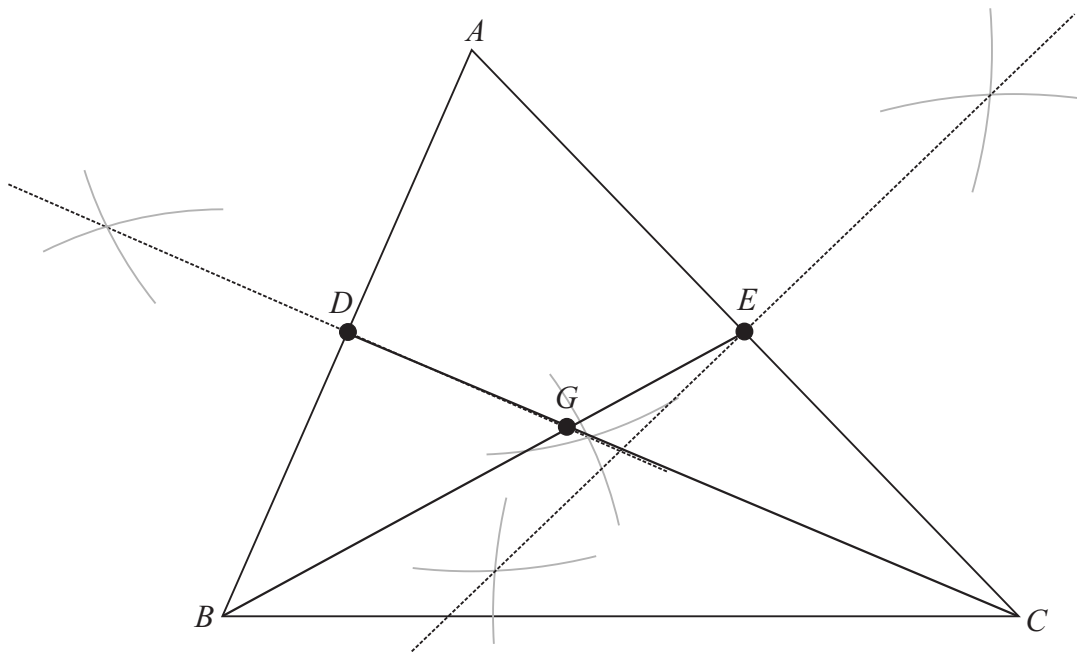
A median is a line from a vertex to the midpoint of the opposite side.

Using a compass, bisect lines  $AB$  and  $AC$  to get the midpoints  $D$  and  $E$  of these lines.



Draw medians  $BE$  and  $CD$ .

The centroid  $G$  is the intersection of these medians.



#### MARKING SCHEME NOTES

##### Question 6 (a) [Scale 5C (0, 2, 4, 5)]

- 2: • Some relevant calculation  
 • One side bisected  
 • One midpoint indicated
- 4: • One median drawn

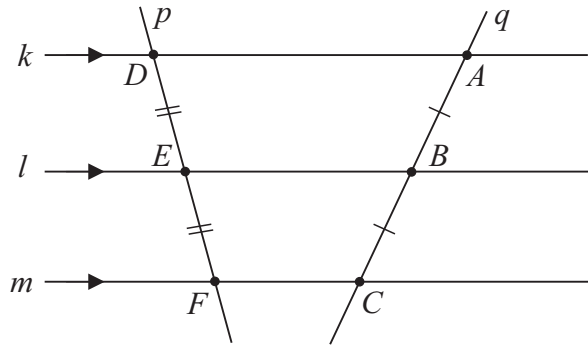
**Question 6 (b)**

**THE TRANSVERSAL LINE THEOREM**

If three parallel lines cut off equal segments on some transversal line, then they will cut off equal intercepts on any other transversal.

**GIVEN:**  $k \parallel l \parallel m$  and  $|DE| = |EF|$ .

**PROVE:**  $|AB| = |BC|$



**CONSTRUCTION:** Draw a line  $D'F'$  through  $B$  parallel to  $DF$ .

**PROOF:**

$DEBD'$  is a parallelogram  $\Rightarrow |DE| = |D'B|$

$EFF'B$  is a parallelogram  $\Rightarrow |EF| = |BF'|$

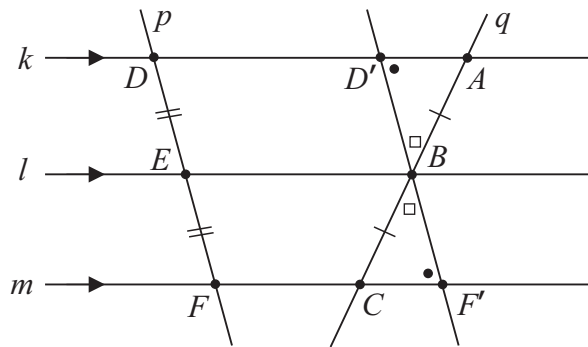
$\therefore |D'B| = |BF'|$  (because  $|DE| = |EF|$ )

$|\angle AD'B| = |\angle BF'C|$  (alternate angles)

$|\angle ABD'| = |\angle CBF'|$  (vertically opposite)

$\therefore |\triangle AD'B| = |\triangle BCF'|$

$\therefore |AB| = |BC|$



**MARKING SCHEME NOTES**

**Question 6 (b)**

**Diagram/Given:** [Scale 5B (0, 2, 5)]

2: • Effort at *Diagram* or *Given*

**Construction:** [Scale 5B (0, 2, 5)]

2: • Construction attempted (diagram and/or description)

**Proof:** [Scale 10C (0, 4, 8, 10)]

4: • More than one critical step omitted but still some substantial work of merit

8: • Proof completed with one critical step omitted