

**Eduqas Physics GCSE**  
**Topic 6.3: Lenses**  
**Mark Schemes for Questions**  
**by topic**

1.

- (a) (i) all three of: max. B2
- virtual,
  - upright / erect / same way up,
  - magnified / large(r) (than object)
- award 1 mark for one or two correct description(s) which are not contradicted
- (ii) RS B1
- (iii) eye placed to right of lens B1
- (b) any two correct rays from: max. B2
- ray parallel to axis refracted through F
  - ray passing through centre of lens undeflected
  - ray through added focus to left of lens refracted parallel to axis
- image from intersection of rays clearly shown as inverted B1
- 3 correct rays drawn on Fig. 7.2, from tip of O to intersection of other two rays and refracted correctly at lens
- note: the third ray does not have to be one of those listed above B1
- [Total: 8]**

2.

- (a) (i) A (on principal axis) between the lens and one focal point B1  
AND E somewhere on other side of lens
- (ii) on same side as A **and** further than the principal focus from lens B1
- (iii) **virtual** underlined B1  
**upright** underlined B1
- (b) (i) 1. decreases/becomes smaller B1  
2. stays the same/unchanged B1
- (ii) smaller B1
- [Total: 7]**

3.

- (a) (i) boxes ticked:  
enlarged  
upright  
virtual B3
- (ii) E marked anywhere to right of lens B1
- (iii) magnifying glass(es) or lens / eyepiece of telescope / microscope / binoculars
- (b) object in correct position and correct size and F in correct position from label or correct ray intersection with axis B1  
two correct rays M1  
image between 28 mm and 38 mm from lens and labelled as word or letter A1

**[Total: 8]**

4.

- (b) 2 lines correctly drawn from the top of the pin through the lens  
*allow 1 mark for each* 2
- position of image correct  
*image must be upright* 1

5.

- (a) converging  
or convex 1
- (b) (principal) focus  
or focal point 1
- (c) either (x)1.5 or (x)1½ or 150%  
*unambiguous evidence of appropriate measurements for 1 mark  
only eg 4 and 6 or 8 and 12 or 0.8 and 1.2* 2
- (d) real rays cross to form it / formed at the intersection of real rays  
*accept 'image on the opposite side of the lens to the object'  
accept 'can be put onto a screen'* 1

**[5]**