b) i) [Fo] is the bisector of $M\hat{O}B$
and [OE) is the bisector of $M\hat{O}A$
(tangent theorem (2): the line joining the exterior pt. and the centre is the bisector of the central angle)
and $M\hat{O}B$ and $M\hat{O}A$ are 2 adjacent supplementary angles
(A, O, and B are collinear given O is the center of (C) of diameter [AB])
Thus, $E\hat{O}F = 90°$ (the angle formed between the bisectors of 2 adjacent supplementary angles is 90°).

ii) $M\hat{O}A = 120°$ (proved)
and [OE) is the bisector of $M\hat{O}A$ (proved)
So, $M\hat{O}A = 2M\hat{O}E$.
$M\hat{O}B = 60°$ (central angle intercepting $\overset{\frown}{MB}$, $\overset{\frown}{MB} = 60°$ - given)
and [OF] is the bisector of $M\hat{O}B$ (proved)
So, $M\hat{O}B = 2M\hat{O}F$.
→ $A\hat{O}B = A\hat{O}M + M\hat{O}B$ (2 adjacent supplementary angles)
$180° = 2M\hat{O}E + 2M\hat{O}F$ (proved)
$180° = 2(M\hat{O}E + M\hat{O}F)$
$M\hat{O}E + M\hat{O}F = 90°$
thus, $F\hat{O}E = 90°$ ($M\hat{O}F$ and $M\hat{O}E$ are 2 adjacent angles).

4) a) [OI) is the bisector of $M\hat{O}A$ (O, I, and E are collinear)
So, $I\hat{O}A = \frac{M\hat{O}A}{2} = \frac{120°}{2}$ (proved) $= 60°$.

So, AIO is semi-equilateral at I having (30°-60° angles)
then $A\hat{I}O = 90°$, then (AM) is perpendicular to (IO) at I,
→ $B\hat{M}A = 90°$ (proved), so (BM) is perpendicular to (AM).

(A, I & M are collinear)