Q2)

Peak Order	Diffraction Angle (2θ)	$\sin^2\theta$	$\frac{\sin^2\theta_2}{\sin^2\theta_1}$	$h^2+k^2+l^2$ Value	h, k, l
1st	38.6	0.10923	1	2/3	(1 1 0)/(1 1 1)
2nd	55.7	0.21821	1.998	4/6	(2 0 0)/(2 1 1)
3rd	70.0	0.32898	3.011	6/9	(2 1 1)/(3 0 0),(2 2

Values of $\frac{\sin^2\theta}{h^2+k^2+l^2}$	For 2 : 4 : 6	For 3 : 6 : 9
1st	0.0546	0.0364
2nd	0.0546	0.0364
3rd	0.0546	0.0364

By Braggs eqn we know $\Rightarrow$ $\lambda = 2d \sin\theta$

and $$d_{hkl} = \frac{a}{\sqrt{h^2+k^2+l^2}}$$

$$\therefore \quad \lambda^2 = \frac{4a^2 \sin^2\theta}{h^2+k^2+l^2} \Rightarrow \frac{\lambda^2}{4a^2} = \frac{\sin^2\theta}{h^2+k^2+l^2}$$

So since for BCC 1st Peak is at (110) and for second and third peak at (200) and (211), $\frac{\sin^2\theta}{h^2+k^2+l^2}$ is a constant too

the given crystal is of type **BCC**

For FCC, this ratio is not a constant as considering first peak at (111), (211) and (300) or (221) do not show peaks in FCC crystal