

18, 5

$a + aq + aq^2 = 11 \Rightarrow \frac{1}{q}(1 + q + q^2) = 11 \Rightarrow 1 + q + q^2 = 11q \Rightarrow q^2 - 10q + 1 = 0$ (سؤال 1) (2)
 $a \times aq \times aq^2 = 44 \Rightarrow a^3 q^3 = 44 \Rightarrow aq = 4 \Rightarrow a = \frac{4}{q}$ (I)
 $q^2 - 10q + 1 = 0$
 $(q-1) \Rightarrow q = \frac{1}{4}$
 $(q-14) \Rightarrow q = 14$

$S_5 = a + aq + aq^2 + aq^3 + aq^4 \Rightarrow a(1 + q + q^2 + q^3 + q^4) = \frac{11 \times 121}{11} \Rightarrow 11 \times 11 = 121$ (سؤال 3) (3)

$x^2 = (x^2 - 2)(x^2 + 2) \Rightarrow x^2 = x^2 + 2x^2 - 4 \Rightarrow 0 = x^2 - 2x^2 - 4$ (سؤال 2) (2)
 $-x^2 - 2x^2 - 4 \Rightarrow (x-2)(x+2) \Rightarrow x = 2 \text{ or } x = -2$
 $1, 2, 4, \dots$
 $a \cdot \frac{(q^n - 1)}{q - 1} \Rightarrow \frac{11 \cdot (1 - (\frac{1}{4})^5)}{1 - \frac{1}{4}} = \frac{11 \times 147}{144} = \frac{147}{12}$

$\frac{4x-1}{x+1} = \frac{1}{x} \Rightarrow d \Rightarrow 1 + (x-1)4 = \dots$ (سؤال 4) (1)
 $\frac{1}{1} = r^4 \Rightarrow r = \frac{1}{2} \Rightarrow aq^3 = 1 \Rightarrow N$
 $r = -\frac{1}{2} \Rightarrow B = -1$

$\frac{-90}{x} + \frac{44}{x} = \frac{1}{x} = d$ (سؤال 5) (2)
 $t_{1,1} = 1 \cdot d + a = 40 - 44 = 13$
 $aq^4 = 1 \Rightarrow 11 \times q^4 = 1 \Rightarrow q = \frac{1}{11}$

t_r, t_v, t_q
 $(a + rd)(a + rd) = (a + rd)^2 \Rightarrow a^2 + 1 \cdot ad + rd^2 = a^2 + 2rd + rd^2 \Rightarrow -2ad = 2 \cdot d^2$ (سؤال 6) (2)
 $0 = 2 \cdot d^2 + 2ad \Rightarrow d(2 \cdot d + 2a) \Rightarrow d = 0$
 $2 \cdot d = -2a \Rightarrow d = -\frac{1}{2}a$

$if(d=0) \Rightarrow a, a, a \Rightarrow d = 0$
 $if(d = -\frac{1}{2}a) \Rightarrow \frac{1}{10}a, \frac{1}{10}a, \frac{1}{10}a \Rightarrow d = -\frac{1}{10}a$
 t_r, t_v, t_q
 rd, rd

t_r, t_f, t_n
 $(t_f)^r = t_r \times t_n \Rightarrow (a+rd)^r = (a+d)(o+vd) \Rightarrow a^r + rad + rd^r = a^r + rad + vd^r$ سوال ۷ (۲)

$rad = rd^r \Rightarrow d^r + ad = 0 \Rightarrow d(a+d) = 0 \Rightarrow \underbrace{d \neq 0}_{\text{متمايز اند}} \Rightarrow \underbrace{a = -d}$

$a+d = \frac{1}{r} \rightarrow rd = \frac{1}{r} \Rightarrow d = \frac{1}{r^2} / a = \frac{1}{r} \Rightarrow$ تصاعد هارموني

t_r, t_f, t_n
 $1, 2, f \Rightarrow q=2$ $t_n = aq^q = \frac{1}{r^2} \times 2^q = 128$ ✓

$3t_r, 2t_r, t_r$

$r(aq^r) = 3aq + aq^3 \Rightarrow 3aq^r = aq(r^3 + q^r) \Rightarrow 3q = r^3 + q^r \Rightarrow q^r - 3q + r^3 = 0$ سوال ۸ (۲)
 $\rightarrow (q-1) \rightarrow q=1$
 $\rightarrow (q-3) \rightarrow q=3$ ✓

$\Rightarrow \frac{1}{f}, \frac{1}{r}, \dots$

$t_n = -\frac{1}{f}n + \frac{4}{f}$

t_r, t_A, t_{13}
 $\frac{1}{f}, \frac{1}{r}, \frac{1}{13}$

سوال ۹ (۲)

$(x + \frac{d}{f})(x-1) = (x + \frac{1}{f})^r \Rightarrow x^r + \frac{1}{f}x - \frac{d}{f} = x^r + \frac{1}{f}x + \frac{1}{f^2} \Rightarrow -\frac{21}{14} = \frac{1}{f}x \Rightarrow x = -\frac{21}{f}$

$\frac{\frac{1}{f} - \frac{21}{f}}{\frac{d}{f} - \frac{1}{f}} = \frac{-\frac{20}{f}}{-\frac{14}{f}} = \frac{5}{7}$ ✓

$\frac{a}{1} + \frac{aq^r}{r} + \frac{aq^4}{1} = vr^3 \Rightarrow a(1+q^r+q^4) = vr^3 \Rightarrow a=1$

سوال ۱۰ (۱، ۵)

$\frac{aq^4 - aq^r}{\dots} = aq^r \cdot a^2 \Rightarrow \frac{aq^r(q^4 - 1)}{1} = a(q^r - 1) \Rightarrow \frac{q^4}{1} = 1 \Rightarrow q=2$

$d = \frac{4f - 1}{1} = v \leq 1-1 = v$ ✓

حالت دوم (بنابه ثابت) $\rightarrow q=1$ $d=0$