

SAMPLE PAPER 6: PAPER 1

QUESTION 4 (25 MARKS)

Question 4 (a)

$$x : y = 3 : 2 \Rightarrow \frac{x}{y} = \frac{3}{2}$$

$$\therefore x = \frac{3y}{2}$$

$$x - y = 8$$

$$\frac{3y}{2} - y = 8$$

$$3y - 2y = 16$$

$$\therefore y = 16$$

$$x = \frac{3(16)}{2} = 24$$

Question 4 (c)

$$\begin{aligned} & (x+a)(x+b)(x+c) \\ &= (x+a)(x^2+bx+cx+bc) \\ &= x^3+bx^2+cx^2+bcx+ax^2+abx+acx+abc \\ &= x^3+(a+b+c)x^2+(ab+ac+bc)+abc \end{aligned}$$

Question 4 (c) (i)

$$\begin{aligned} & (x+1)(x+2)(x+3) \\ &= x^3+(1+2+3)x^2+(2+3+6)x+6 \\ &= x^3+6x^2+11x+6 \end{aligned}$$

Question 4 (b)

V_1 = Volume of small bucket

V_2 = Volume of large bucket

$$\therefore \frac{V_1}{2} = \frac{3V_2}{8} \Rightarrow \frac{V_2}{V_1} = \frac{8}{6} = \frac{4}{3}$$

Question 4 (c) (ii)

$$\begin{aligned} & (x-1)(x-5)(x+7) \\ &= x^3+(-1-5+7)x^2+(5-7-35)x+35 \\ &= x^3+x^2-37x+35 \end{aligned}$$
