

SAMPLE PAPER 3: PAPER 1

QUESTION 8 (50 MARKS)

Pure silver is, of course, 100% pure silver.
 Britannia silver contains 95.8% pure silver.
 Sterling silver contains 92.5% pure silver.

Question 8 (a)

Pure silver: 14 g
 Mass of coin = 15 g

$$\text{Purity} = \frac{14 \text{ g}}{15 \text{ g}} = 93.3\%$$

Question 8 (b)

Let x = Mass of Sterling silver
 Let y = Mass of Britannia silver
 Mass of ring = 28 g
 $x + y = 28$ ($\times 0.925$)
 $0.925x + 0.958y = 26.3224$

$$\begin{aligned} 0.925x + 0.925y &= 25.9 \\ 0.925x + 0.958y &= 26.3224 \\ \hline 0.033y &= 0.4224 \Rightarrow y = 12.8 \text{ g} \\ \therefore x &= 28 - 12.8 = 15.2 \text{ g} \end{aligned}$$

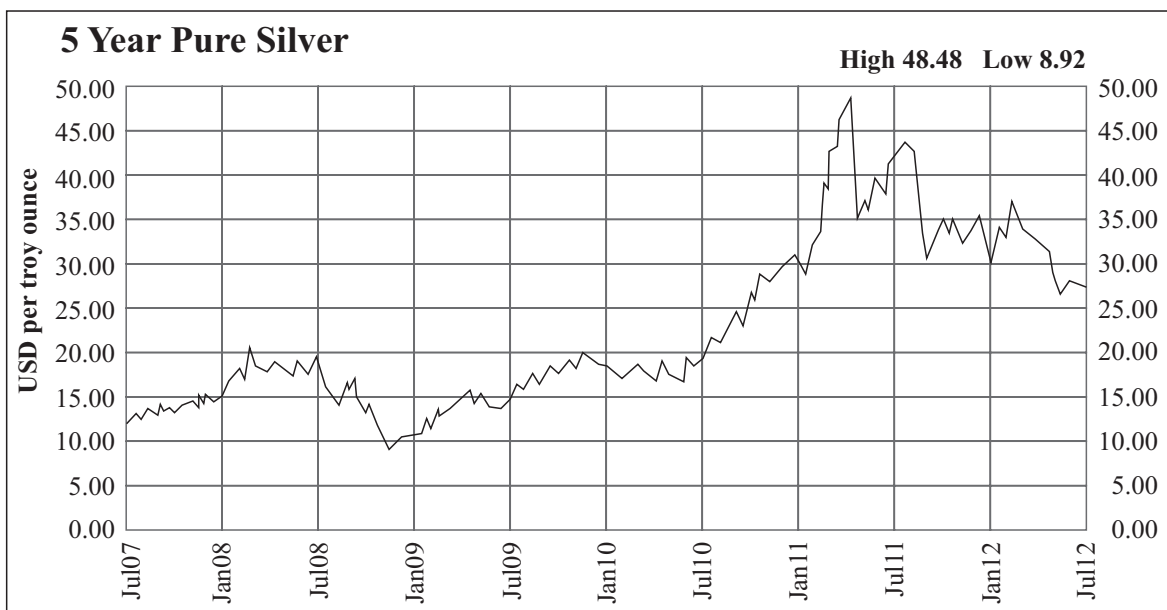
Question 8 (c)

1 T = 31.1034768 g
 $\frac{1}{31.1034768} \text{ T} = 1 \text{ g}$
 $\frac{40}{31.1034768} \text{ T} = 40 \text{ g}$
 $\therefore 40 \text{ g} = 1.286 \text{ T}$

Question 8 (d)

$$\begin{aligned} S &= C \times T \times p \\ C &= 0.94 \\ T &= \frac{28}{31.1034768} = 0.9 \\ p &= \$26 \\ S &= 0.94 \times 0.9 \times 26 = \$22 \end{aligned}$$

Question 8 (e)



Question 8 (e) (i)

$$S = C \times T \times p$$

$$C = 0.96$$

$$T = \frac{60}{31.1034768} = 1.93$$

$$p = \$12.50$$

$$S = 0.96 \times 1.93 \times 12.5 = \$23.16$$

Question 8 (e) (ii)

$$S = C \times T \times p$$

$$C = 0.96$$

$$T = 1.93$$

$$p = \$27.50$$

$$S = 0.96 \times 1.93 \times 27.5 = \$50.95$$

Question 8 (f)

Minimum value = \$8.92

Maximum value = \$48.48

$$\% \text{ change} = \frac{(48.48 - 8.92)}{8.92} \times 100\% = 443.5\%$$

Question 8 (g)

$$S = C \times T \times p$$

$$C = ?$$

$$T = 1$$

$$p = \$30$$

$$S = \$25$$

$$25 = C \times 1 \times 30$$

$$\therefore C = \frac{25}{30} = 83.33\%$$

$$\frac{90}{25} = 3.6 \quad T = 3.6 \times 31.1034768 = 111.97 \text{ g}$$

$$\frac{93.2}{111.97} = 0.83 = 83.3\%$$

You thought you were not getting the full market value for pure silver. The scrap dealer was right.