22. Solution: D

Price for any bond is the present value at the yield rate of the coupons plus the present value at the yield rate of the redemption value. Given r = semi-annual coupon rate and i = the semi-annual yield rate. Let C = redemption value.

Then Price for bond X = $P^X = 1000\ r\ a_{\overline{2n}|i} + C\ v^{2n}$ (using a semi-annual yield rate throughout)

$= 1000\ \frac{r}{i}(1 - v^{2n}) + 381.50$ because $a_{\overline{2n}|i} = \frac{1 - v^{2n}}{i}$ and the present value of the redemption value, $C\ v^{2n}$, is given as 381.50.

We are also given $\frac{r}{i} = 1.03125$ so $1000\frac{r}{i} = 1031.25$. Thus, $P^X = 1031.25\ (1 - v^{2n}) + 381.50$.

Now only need v^{2n}. Given $v^n = 0.5889$, $v^{2n} = (0.5889)^2$.

Thus $P^X = 1031.25\ (1 - (0.5889)^2) + 381.50 = 1055.10$