Sample Questions for Section on Numerical Value-Mathematics

Q.1: Let $\alpha$ and $\beta$ be two roots of the equation $x^2 + 2x + 2 = 0$, then $\alpha^{15} + \beta^{15}$ is equal to___________.

Answer: $-256$

Q.2: Consider a group of 5 females and 7 males. The number of different teams consisting of 2 females and 3 males, that can be formed from this group, if there are two specific males A and B, who refuse to be the member of the same team, is _______________.

Answer: 300

Q.3: Let $a_1, a_2, a_3,...$ be an A.P., $S = \sum_{i=1}^{30} a_i$ and $T = \sum_{i=1}^{15} a_{2i-1}$. If $a_7 = 37$, and $S - 2T = 75$, then $a_{15}$ is equal to_____.

Answer: 77

Q.4: If $y = y(x)$ is the solution of the differential equation $x \frac{dy}{dx} + 2y = x^2$ satisfying $y(1) = 1$, then $16y(1/2)$ is equal to _______.

Answer: 49

Q.5: If $\vec{a} = i - j$, $\vec{b} = i + j + k$ and $\vec{c}$ be a vector such that $\vec{a} \times \vec{c} + \vec{b} = \vec{0}$ and $\vec{a} \cdot \vec{c} = 4$, then $|\vec{c}|^2$ is equal to_____.

Answer: 9.5