Random Object	**Complete Statistics**	**Partial Statistics**
Probability Space $(\Omega, \mathcal{F}, P)$	$P(A), \quad \forall A \in \mathcal{F}$	—
Random Variable X	$F_X(x)$ OR $f_X(x)$ OR $\Phi_X(\omega)$	m, σ^2
Uniform Random Variable X	start point a AND end point b	—
Gaussian Random Variable X	m AND σ^2	—
Random Vector $\mathbf{X} = (X_1, X_2, \ldots, X_n)$	joint cdf OR pdf: $F_{\mathbf{X}}(\mathbf{x})$ OR $f_{\mathbf{X}}(\mathbf{x})$	mean vector $\mathbf{m}$, covariance matrix $\mathrm{Cov}(X, X)$
Gaussian Random Vector $\mathbf{X} = (X_1, X_2, \ldots, X_n)$	$\mathbf{m}$ AND $\mathrm{Cov}(X, X)$	—
Random Process $X(t)$	$F_{X(t_1),X(t_2),\ldots,X(t_n)}(x_1, x_2, \ldots, x_n)$ $\forall n \quad \forall t_1, t_2, \ldots, t_n$	$m_X(t)$, $R_X(t_1, t_2)$
WSS Random Process $X(t)$	$F_{X(t_1),X(t_2),\ldots,X(t_n)}(x_1, x_2, \ldots, x_n)$ $\forall n \quad \forall t_1, t_2, \ldots, t_n$	m_X, $R_X(\tau)$
SSS Random Process $X(t)$	$F_{X(t_1),X(t_2),\ldots,X(t_n)}(x_1, x_2, \ldots, x_n)$ $\forall n \quad \forall t_1, t_2, \ldots, t_n$	m_X, $R_X(\tau)$
Gaussian Random Process $X(t)$	$m_X(t)$ AND $R_X(t_1, t_2)$	—
WSS Gaussian Random Process $X(t)$	m_X AND $R_X(\tau)$	—
White (or iid) Random Process $X(t)$	marginal cdf $F_X(x)$	m, σ^2
White Gaussian Random Process $X(t)$	m AND σ^2	—