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| Question  No | WRT | **1 Mark Questions** | 7 | 5 |  |
| 1 |  | What is a random variable? |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 2 |  | Define a continuous random variable. |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 3 |  | State the formula for the n-th moment of a random variable. |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 4 |  | What does it mean when two random variables are uncorrelated? |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 5 |  | What is the value of autocorrelation function at τ = 0? |  | 1 | CO-2 |
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| Question  No | WRT | **2 Mark Questions** | 4 | 2 |  |
| 1 |  | Define the expectation of a Random Variable. |  | 2 | CO-2 |
|  |  |  |  |  |  |
| 2 |  | Explain the moments of a random variable. |  | 2 | CO-2 |
|  |  |  |  |  |  |
| 3 |  | What is the difference between mean and variance? |  | 2 | CO-2 |
|  |  |  |  |  |  |
| 4 |  | Define the autocorrelation function. |  | 2 | CO-2 |
|  |  |  |  |  |  |
| 5 |  | What does the cross-correlation function measure? |  | 2 | CO-2 |
|  |  |  |  |  |  |
| 6 |  | What is the significance of the Central Limit Theorem in communication systems? |  | 2 | CO-2 |
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| Question  No | WRT | **5 Mark Questions** | 4 | 2 |  |
| 1 |  | What is correlation? Explain about auto and cross-correlation. |  | 5 | CO-2 |
|  |  |  |  |  |  |
| 2 |  | Define the probability of an event. Give an example. |  | 5 | CO-2 |
|  |  |  |  |  |  |
| 3 |  | Explain about probability density function. |  | 5 | CO-2 |
|  |  |  |  |  |  |
| 4 |  | Discuss about the normal distribution. |  | 5 | CO-2 |
|  |  |  |  |  |  |
| 5 |  | Write the properties of the normal distribution. |  | 5 | CO-2 |
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| Question  No | WRT | **12 Mark Questions** | 4 | 2 |  |
| 1 |  | Explain about central limit theorem. |  | 12 | CO-2 |
|  |  |  |  |  |  |
| 2 |  | Define the following for a discrete random variable.   1. Mean 2. Variance 3. Standard deviation 4. Covariance |  | 12 | CO-2 |
|  |  |  |  |  |  |
| 3 |  | What is a Random variable? Explain the types of random variables. |  | 12 | CO-2 |
|  |  |  |  |  |  |
| 4 |  | Write the properties of the Gaussian Random process. |  | 12 | CO-2 |
|  |  |  |  |  |  |
| 5 |  | Define the following for a continuous random variable.   1. Mean 2. Variance 3. Standard deviation 4. Covariance |  | 12 | CO-2 |
|  |  |  |  |  |  |