1 - Let $X_1, X_2, \ldots, X_n$ be a random sample of size n from uniform

distribution $Uni(0, \theta)$, find the distribution of sample median.

2   2 - Let the random variable X has Binomial distribution with parameter θ,

is $\theta = \dfrac{x}{n}$ a consistent estimator for the parameter θ.

3 - Let $X_1, X_2, \ldots, X_n$ be a random sample of size n from Normal distribution $N(\theta, \sigma^2)$, show that the family of X is complete.

4 - In a random sample of size n from Geometric distribution $Geom(\theta)$,

show that $T = \Sigma x_i$ is sufficient estimator for θ

5- Let $X_1, X_2, \ldots, X_n$ be a random sample of size n from Gamma distribution $\Gamma(2, \theta)$, Find $GRLB$ for $\phi(\theta) = \ln \theta$.

Let $X_1, X_2, \ldots, X_n$ be a random sample of size n from the following distributions

1) $Pois(\theta)$
2) $Bern(\theta)$

Find a maximum likelihood estimator for the parameter θ.

Let $X_1, X_2, \ldots, X_n$ be a random sample of size n taken from Uniform distribution $Exp(\theta)$, find maximum likelihood estimator for the function $u(\theta) = \dfrac{\ln(\theta)}{\theta}$ method.

In a random sample of size n from Normal distributions $N(\theta, \sigma^2)$. Find Bayes estimator for mean and variance $\theta \& \sigma^2$, using Non-informative prior probability.

Find Bayesian Estimator for θ the parameter of Bernoulli distribution $Bern(\theta)$, using informative prior probability with Beta $(\alpha_0 = 3, \beta_0 = 1)$.

Let $X_1, X_2, ..., X_n$ be a random sample of size n from Normal distribution $N(\theta, \sigma^2)$, estimate the parameters θ and σ^2 using moment's estimation method.

Let $X_1, X_2, ..., X_n$ be a random sample of size n from Gamma distribution $x \sim \Gamma(\alpha, \beta)$, estimate the parameters β , α using moment's estimation method.