

## Formulas provided on your Final Exam :

Binomial distribution:  $P(X = k) = \binom{n}{k} p^k (1-p)^{n-k}$ ,  $E(X) = np$ ,  $V(X) = np(1-p)$ .

Geometric distribution:  $P(X = k) = p(1-p)^{k-1}$ ,  $E(X) = \frac{1}{p}$ ,  $V(X) = \frac{1-p}{p^2}$ .

Poisson distribution:  $P(X = k) = e^{-\lambda} \frac{\lambda^k}{k!}$ ,  $E(X) = \lambda$ ,  $V(X) = \lambda$ .

Uniform [a,b]:  $f(x) = \frac{1}{b-a}$ ,  $E(X) = \frac{a+b}{2}$ ,  $V(X) = \frac{(b-a)^2}{12}$ .

Standard Normal:  $f(x) = \frac{1}{\sqrt{2\pi}} e^{-x^2/2}$ ,  $E(X) = 0$ ,  $V(X) = 1$ .

Exponential:  $f(x) = \lambda e^{-\lambda x}$  for  $x > 0$ ,  $E(X) = \frac{1}{\lambda}$ ,  $V(X) = \frac{1}{\lambda^2}$ .