

IIT Patna
HS301 (Financial Economics)-Final Exam
Marks=25% Duration-48 Hours
Date: 29 November, 2020

(Answer ALL questions)

- 1) Consider a call option (European) where the underlying stock price is 49\$ and strike price is 50\$. If the risk free rate is 5% then for a stock with 20% volatility and option with 20 weeks' maturity, calculate the Theta and Gamma (Greek letters) of the option. (5+5=10)
- 2) Establish the Put-Call parity equation. (5)
- 3) If S (stock price) follows a geometric Brownian motion represented by-
 $dS = \mu S dt + \sigma S dz$, then using Ito's lemma derive the process followed by $\ln(S)$. Notations have standard meanings. (10)