Shree H.N. Shukla Group of Colleges

M.Sc. Mathematics

Sub. Code: EMT-4011

Elec. Sub. 1 : FINANCILAL MATHEMATICS

Question Bank

Que. 1 Answer following short questions :

1) Write short note on 'FINANCE'

2) Define. Bond markets, Currency markets

3) Define. Call option and Put option

4) Define. Europian option and Cost of option

5) Define. Barrier option and Asian option

6) Write full form of BSE and NSE

7) BUX Index From_____?

8) Explain the terms bid-ask and bid-offer.

9) Giving the example explain the terms asian option and look-back option.

10) Name the two indices of the Indian stock market.

11) Obtain the stochastic differential equation for $f(s) = AS$.

12)Explain the terms: Arbitrage markets and their dealing.

13) Explain the term financial derivatives.

14) Distinguish between Europian option and American option in minimum two points each.

15) Distinguish between call option and put option and put option in minimum two points each.

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16) 'NIFTY' is one of the index form_____?

17) The Volatility is defined by_____?

18) The randomness can be eliminates by _____?

19) Hedging is an action to prevent_____?

20)The Black-Scholes differential equation is_____?

21) The value of portfolio is defined as _____?

Que.2 Answer following questions :

1) How much one should pay now to receive a guaranteed amount E at the figure time T?
2) Why should any one write an option?
3) Explain the simple model for asset prices.
4) How might we model the corresponding return on the asset $\frac{ds}{s}$?
5) Explain. How the call option value is a function of exercise price and time to expiry.
6) Explain: Higher the exercise price more is received for the asset at expiry of put option.
7) Akshar holds an option on 1 march 2017 to purchase 200 shares of pioneer for Rs. 5500 per share after one year. If the cost of option is Rs. 100 per share and price of share is 8000 per share on 1 March 2018 then find the total profit to Akshar on Exercising the option.Also find the profit in percentage corresponding to up-front premium paid.

10)Explain the simple model of asset-prices.

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11)How much one should pay now to receive a guaranteed amount at the future time T.

12) State and prove ITO's Lemma and extend the result for $f = f(s,t)$.

13) Explain in detail: (a) Forward and future contracts (b) Portfolio and Hedging

© Smaller order effect on portfolio (d) Sensitivity to volatility.

14) Derive the Black- Scholes partial differential equation.

15) Discuss the mathematical significance of Black- Scholes equation and derive the boundary and final conditions for the same.

16) |Define the term dividend yield and explain in detail the constant dividend yield structure and derive the black- schools partial differential equation corresponding to it.

17) Explain: Discrete dividend structure and derive the jump conditions for the same.

18) Explain : How the call option value is a function of exercise price and time expiry?

19)Explain : Higher the asset price on expiry of call option

20) Explain in detail the forward and future contracts.

21) How much one should pay now to receive to a guaranteed amount at the future time T>

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22) Explain the simple model of asset prices.

23) What are dividends? Also define the term dividend yield and explain in detail the constant dividend yield structure and derive the black-scholes partial differential equation corresponding to it.

24) Define the following terms: (1) Asian option (2) Look- back option

© Volatility (d) Holder of option (e) Hedging (f)Asset price (g) Exercise price.

25)Explain the terms 'bid- ask' and 'bid-offer'.

26) Explain: Forward and future contracts.

27) Find the stochastic differential equation $f(s) = S^n$

28) Explain in detail the elimination of randomness.

29) Explain discrete dividend pay structure and derive the jump conditions for the same.

Best Of Luck