FREE · NISM SERIES VIII · EQUITY DERIVATIVES

# Formula Sheet

## Futures

Fair futures price (cost of carry)

```
F = S × (1 + r × t) − dividends
```

S ₹1,000, r 8% a year, 3 months: F = 1,000 × (1 + 0.08 × 3/12) = ₹1,020

Basis

```
Basis = Spot price − Futures price
```

Futures profit or loss

```
P&L = (Sell price − Buy price) × Lot size
```

Hedge with index futures

```
Futures value to sell = Portfolio value × Beta
```

```
No. of lots = (Portfolio × Beta) ÷ (Futures price × Lot size)
```

## Option value

```
Call intrinsic value = max(S − K, 0)
```

```
Put intrinsic value = max(K − S, 0)
```

```
Time value = Premium − Intrinsic value
```

Call K ₹500, S ₹530, premium ₹42: intrinsic ₹30, time value ₹12

| Moneyness | Call | Put |
|---|---|---|
| In the money | S > K | S < K |
| At the money | S = K | S = K |
| Out of the money | S < K | S > K |

Put-call parity (European, no dividends)

```
C + K ÷ (1 + r × t) = P + S
```

## Breakeven, max profit, max loss

| Position | Breakeven | Max profit | Max loss |
|---|---|---|---|
| Long call | K + premium | Unlimited | Premium |
| Short call | K + premium | Premium | Unlimited |
| Long put | K − premium | K − premium | Premium |
| Short put | K − premium | Premium | K − premium |

Long call K ₹1,000, premium ₹25: breakeven ₹1,025. Long put K ₹800, premium ₹18: breakeven ₹782.

## Strategies

| Strategy | How | Breakeven |
|---|---|---|
| Long straddle | Buy call + put, same K | K ± total premium |
| Long strangle | Buy OTM call + OTM put | $K_{put}$ − prem, $K_{call}$ + prem |
| Bull call spread | Buy K1 call, sell K2 call (K1 < K2) | K1 + net debit |
| Bear put spread | Buy K2 put, sell K1 put | K2 − net debit |
| Covered call | Own stock + sell call | Stock cost − premium |
| Protective put | Own stock + buy put | Stock cost + premium |

```
Bull call spread: max profit = (K2 − K1) − net debit; max loss = net debit
```

## Option Greeks

| Greek | Measures change in premium for... | Range / sign |
|---|---|---|
| Delta | a ₹1 move in the underlying | Call 0 to 1, put −1 to 0 |
| Gamma | change in delta per ₹1 move | Highest at the money |
| Theta | one day passing (time decay) | Usually negative for buyers |
| Vega | a 1% change in volatility | Positive for buyers |
| Rho | a 1% change in interest rates | Call +, put − |

Deep ITM call: delta close to 1. Deep OTM: close to 0. ATM call: about 0.5.

## Margins and settlement

**SPAN margin**: initial margin from the worst likely one-day loss.

**Exposure margin**: charged on top of SPAN.

**Mark to market**: daily profit or loss settled in cash on T+1.

**Index F&O**: cash settled. **Stock F&O at expiry**: physical delivery.

**Novation**: the clearing corporation becomes buyer to every seller and seller to every buyer.

## Exam pattern (NISM Series VIII)

100 questions · 100 marks · 2 hours · pass at 60%

```
Wrong answer = −0.25 marks
```

Guess after ruling out 2 options: average +0.375 marks, so always answer.

Pure guess from 4 options: average +0.06 marks.

Source: nism.ac.in/equity-derivatives. Check for updates before booking.

## Tax basics

F&O profit or loss for most individuals: **non-speculative business income**.

STT on selling an option: charged on the **premium**.

Rates change with each Budget. Check current STT rates on NSE's website.

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