(i) ₹ 68 per US $.

(ii) ₹ 62 per US $.

(iii) ₹ 70 per US $.

(iv) ₹ 65 per US $.

(SM TYK – 23 & Exam November – 2016)

Solution:

Calculation of Cost of Hedging

Premium Amount	= $ 60,000 × 64 × 2%	= ₹ 76,800
(+) Opportunity Cost	= 76,800 × 12% × $\frac{6}{12}$	= ₹ 4,608
Cost of Hedging		₹ 81,408

Calculation of Profit /Loss to the Company

(i)	Exchange Rate ₹ 68 per $	
	Profit (68 – 64) × $ 60,000	= ₹ 2,40,000
	(–) Hedging Cost	= ₹ 81,408
	Net Profit	= ₹ 1,58,592
(ii)	If Exchange Rate ₹ 62 per $	
	Loss = (₹ 62 – ₹ 64) × $60,000	= ₹ 1,20,000
	(+) Hedging Cost	= ₹ 81,408
	Net Loss	= ₹ 2,01,408
(iii)	If Exchange Rate ₹ 70 per $	
	Profit = (₹ 70 – ₹ 64) × $ 60,000	= ₹ 3,60,000
	(–) Hedging Cost	= ₹ 81,408
	Net Profit	= ₹ 2,78,592

(iv) If Exchange Rate is ₹ 65 per $

Profit = (₹ 65 – ₹ 64) × $ 60,000	= ₹ 60,000
(–) Hedging Cost	= ₹ 81,408
Net Loss	= ₹ 21,408

Question – 13

ZX Ltd. has made purchases worth USD 80,000 on 1st May 2020 for which it has to make a payment on 1st November 2020. The present exchange rate is INR/USD 75. The company can purchase forward dollars at INR/USD 74. The company will have to make an upfront premium @ 1 per cent of the forward amount purchased. The cost of funds to ZX Ltd. is 10 per cent per annum.

The company can hedge its position with the following expected rate of USD in foreign exchange market on 1st May 2020:

	Exchange Rate	**Probability**
(i)	INR/USD 77	0.15
(ii)	INR/USD 71	0.25
(iii)	INR/USD 79	0.20
(iv)	INR/USD 74	0.40

You are required to advise the company for a suitable cover for risk.

(Exam November – 2020)

Solution:

(i) ZX Ltd. not takes Forward Position

Expected rate = (77 × 0.15) + (71 × 0.25) + (79 × 0.20) + (74 × 0.40)

= 74.70

Expected amount payable = $ 20,000 × 74.70

= ₹ 59,76,000

(ii) Hedge Position by Forward Cover

Company purchase $ 80,000 forward premium 59,200

(80,000 × 74 × 1%)	
Interest on forward premium (59,200 × 10% × 6/12)	2,960
Total hedging cost	62,160
Amount to be paid for $ 80,000 ($ 80,000 × 74)	₹ 59,20,000
Total	₹ 59,82,160

No hedging is better due to lower cash outflow.

Question – 14

Excel Exporters are holding an Export bill in United States Dollar (USD) 1,00,000 due 60 days hence. They are worried about the falling USD value which is currently at ₹ 45.60 per USD. The concerned Export Consignment has been priced on an Exchange rate of ₹ 45.50 per USD. The Firm's Bankers have quoted a 60-day forward rate of ₹ 45.20.

Calculate:

(i) Rate of discount quoted by the Bank

(ii) The probable loss of operating profit if the forward sale is agreed to.

(SM TYK – 19)

Solution:

(i) Rate of discount (1 year = 365 days)

$$\text{Premium/(Discount)} = \frac{F-S}{S} \times 100 \times \frac{365}{60}$$

$$= \frac{₹\ 45.20 - 45.60}{45.60} \times 100 \times \frac{365}{60}$$

$$= 5.34\%$$

(ii) Probable loss of operating profit if hedging is done

Probable loss = (45.20 – 45.50) × $ 1,00,000

= ₹ 30,000

Question – 15

ABC Co. have taken a 6 month loan from their foreign collaborators for US Dollars 2 millions. Interest payable on maturity is at LIBOR plus 1.0%. Current 6-month LIBOR is 2%.

Enquiries regarding exchange rates with their bank elicit the following information:

Spot USD 1 ₹ 48.5275

6 months forward ₹ 48.4575

(i) What would be their total commitment in Rupees, if they enter into a forward contract?

(ii) Will you advise them to do so? Explain giving reasons.

(SM TYK – 18)

Solution:

(i) Calculation of total commitment in ₹

Loan Amount	$ 20,00,000
Interest ($ 20,00,000 × 3% × 6/12)	$ 30,000
$ Payable after 6 months	$ 20,30,000

Buy $ 20,30,000 at 6 months FR

Total commitment in ₹ = $ 20,30,000 × 48.4575

= ₹ 9,83,68,725

(ii) If expected SR is less than forward rate then ABC Co. Should enter into forward Contract. If ABC Co. do not want to take any risk then in any situation it should take forward contract.

Question – 16

Following information relates to AKC Ltd. which manufactures some parts of an electronics device which are exported to USA, Japan and Europe on 90 days credit terms.

Cost and Sales information:

	Japan	USA	Europe
Variable cost per unit	₹ 225	₹ 395	₹ 510
Export sale price per unit	Yen 650	US$10.23	Euro 11.99
Receipts from sale due in 90 days	Yen 78,00,000	US$1,02,300	Euro 95,920

Foreign exchange rate information:

	Yen/₹	US$/₹	Euro/₹
Spot market	2.417 – 2.437	0.0214 – 0.0217	0.0177 – 0.0180
3 months forward	2.397 – 2.427	0.0213 – 0.0216	0.0176 – 0.0178
3 months spot	2.423 – 2.459	0.02144 – 0.02156	0.0177 – 0.0179

Advise AKC Ltd. by calculating average contribution to sales ratio whether it should hedge its foreign currency risk or not.

(SM TYK – 24 & Exam Nov – 2019)

Solution:

Calculation of sales & Contribution

		Japan	USA	Europe
i)	Receipt	¥ 78,00,000	$1,02,300	€ 95,920
ii)	Selling Price per unit	¥ 650	$ 10.23	€11.99
iii)	No. of Unit (i/ii)	12,000 Unit	10,000 Unit	8,000 Unit
iv)	Variable cost per unit	₹ 225	₹ 395	₹ 510
v)	Variable Cost (iii × iv)	₹ 27,00,000	₹ 39,50,000	₹ 40,80,000
vi)	Forward Rate	2.427	0.0216	0.0178
vii)	Sale if hedging (i/vi)	₹ 32,13,844	₹ 47,36,111	53,88,764
viii)	Expected SR	2.459	0.02156	0.0179
ix)	Sales if hedging not done	31,72,021	47,44,898	53,58,659

Total VC (27,00,000 + 39,50,000 + 40,80,000) = 107,30,000

Sales FC (32,13,844 + 47,36,111 + 53,88,764) = 13,338,719

Sales ESR (31,72,021 + 47,44,898 + 53,58,659) = 1,32,75,578

Average Contribution to Sales Ratio

If hedging is done (Forward Contract)

$$\frac{1,33,38,719 - 1,07,30,000}{1,33,38,719} \times 100 = 19.56\%$$

If Hedging is not done $\frac{1,32,75,578 - 1,07,30,000}{1,32,75,578} \times 100 = 19.17\%$

Forward cover is better due to higher contribution to sales ratio.

Question – 17

You have following quotes from Bank A and Bank B:

	Bank A	Bank B
SPOT	USD/CHF 1.4650/55	USD/CHF 1.4653/60
3 Months	5/10	
6 Months	10/15	
SPOT	GBP/USD 1.7645/60	GBP/USD 1.7640/50
3 Months	25/20	
6 Months	35/25	

Calculate:

(i) How much minimum CHF amount you have to pay for 1 Million GBP spot?

(ii) Considering the quotes from Bank A only, for GBP/CHF what are the Implied Swap points for Spot over 3 months?

(SM TYK – 47)

Solution:

(i) Calculation of CHF Amount to pay £ 1 Million

Buy $ from Bank A	= CHF/$	1.4655
Sell $ & Buy £ from Bank B	= $/£	1.7650
Calculation = CHF/£	= 1.4655 × 1.7650	
	= 2.5866	

Minimum CHF required to buy £ 10,00,000

£ 10,00,000 × 2.5866 = CHF 25,86,600

(ii) Calculation of 3 months Swap

Spot Rate

CHF/$ 1.4650/1.4655

$/£ 1.7645/1.7660

Bid Rate

CHF/£ 1.4650 × 1.7645 = 2.5850

1.4655 × 1.7660 = 2.5881

3 Months FR

CHF/$ 1.4655/1.4665

$/£ 1.7620/1.7640

Bid Rate

CHF/£ 1.4655 × 1.7620 = 2.5822

1.4665 × 1.7640 = 2.5869

Swap Points

3 Month FR	2.5822/2.5869
(–)Spot	2.5850/2.5881
	–0.0028/–0.0012

3 Month Swap Points = 28/12.

Question – 18

An importer customer of your bank wishes to book a forward contract with your bank on 3rd September for sale to him of SGD 5,00,000 to be delivered on 30th October.

The spot rates on 3rd September are USD/INR 49.3700/3800 and USD/SGD 1.7058/68. The swap points are:

USD/INR		USD/SGD	
Spot/September	0300/0400	1st Month Forward	48/49
Spot/October	1100/1300	2nd Month Forward	96/97

Spot/November Spot/December Spot/January	1900/2200 2700/3100 3500/4000	3rd Month Forward	138/140

Calculate the rate to be quoted to the importer by assuming an exchange margin of 5 paisa.

(SM TYK – 16 & Exam May – 2018)

Solution:

Calculation of 2 Month FR

₹/$

SR	49.3700/49.3800
(+) Swap	0.1100/0.1300
	49.4800/49.5100

SGD/$

SR	1.7058/1.7068
(+) Swap	0.0096/0.0097
	1.7154/1.7165
₹/SGD	= 49.5100 × 1/1.7154
	= 28.8621
Customer Rate	= 28.8621 + 0.05
	= 28.9121

Question – 19

In International Monetary Market an international forward bid for December, 15 on pound sterling is $ 1.2816 at the same time that the price of IMM sterling future for delivery on December, 15 is $ 1.2806. The contract size of pound sterling is £ 62,500. How could the dealer use arbitrage in profit from this situation and how much profit is earned?

(SM TYK – 20)

Solution:

In this situation, we should buy £ 62500 from future & sell in forward market.

Calculation of arbitrage gain

Buy £ 62,500 in forward market (£ 62,500 × 1.2806)	$ 80,03,750
Sell £ 62,500 in future market (£ 62,500 × 1.2816)	$ 80,100.00
Arbitrage Gain	$ 62.50

Question – 20

The current spot exchange rate is $1.35/£ and the three-month forward rate is $1.30/£. According to your analysis of the exchange rate, you are quite confident that the spot exchange rate will be $1.32/£ after 3 months.

(i) Suppose you want to speculate in the forward market then what course of action would be required and what is the expected dollar Profit (Loss) from this speculation?

(ii) What would be your Profit (Loss) in Dollar terms on the position taken as per your speculation if the spot exchange rate turns out to be $1.26/£.

Assume that you would like to buy or sell £1,000,000.

(RTP November – 2020)

Solution:

(i) Since expected spot rate is more than forward rate hence we should buy £ at forward rate i.e., long position on £.

Expected Profit = ($1.32 – $1.30) × £ 10,00,000

= $ 20,000

(ii) If actual spot rate is $/£ in 1.26 than loss on long position of pound

Loss = ($1.26 – $1.30) × £ 10,00,000

= $ 40,000

Question – 21

On April 3, 2016, a Bank quotes the following:

Spot exchange Rate (US $ 1)	INR 66.2525	INR 67.5945
2 months' swap points	70	90
3 months' swap points	160	186

In a spot transaction, delivery is made after two days.

Assume spot date as April 5, 2016.

Assume 1 swap point = 0.0001,

You are required to:

(i) Ascertain swap points for 2 months and 15 days. (For June 20, 2016),

(ii) Determine foreign exchange rate for June 20, 2016, and

(iii) Compute the annual rate of premium/discount of US$ on INR, on an average rate.

(SM TYK – 05 & Exam November – 2016)

Solution:

(i) Calculation of swap points for 2 month & 15 days.

	Bid Rate	Ask Rate
2 Month Swap points	70	90
(+) 15 days swap point	$\left(\frac{160-70}{2}\right)$	$\left(\frac{186-90}{2}\right)$
	45	48
2 months & 15 days swap	115	138

(ii) Calculation of 2 months 15 days FR

Spot Rate	66.2525	67.5945
(+) Swap	0.0115	0.0138
Forward rate	66.2640	67.6083

Calculation of Premium/Discount of $