

H.W

Question: 18

Probabilities for net cash flows for 3 years of a project are as follows:

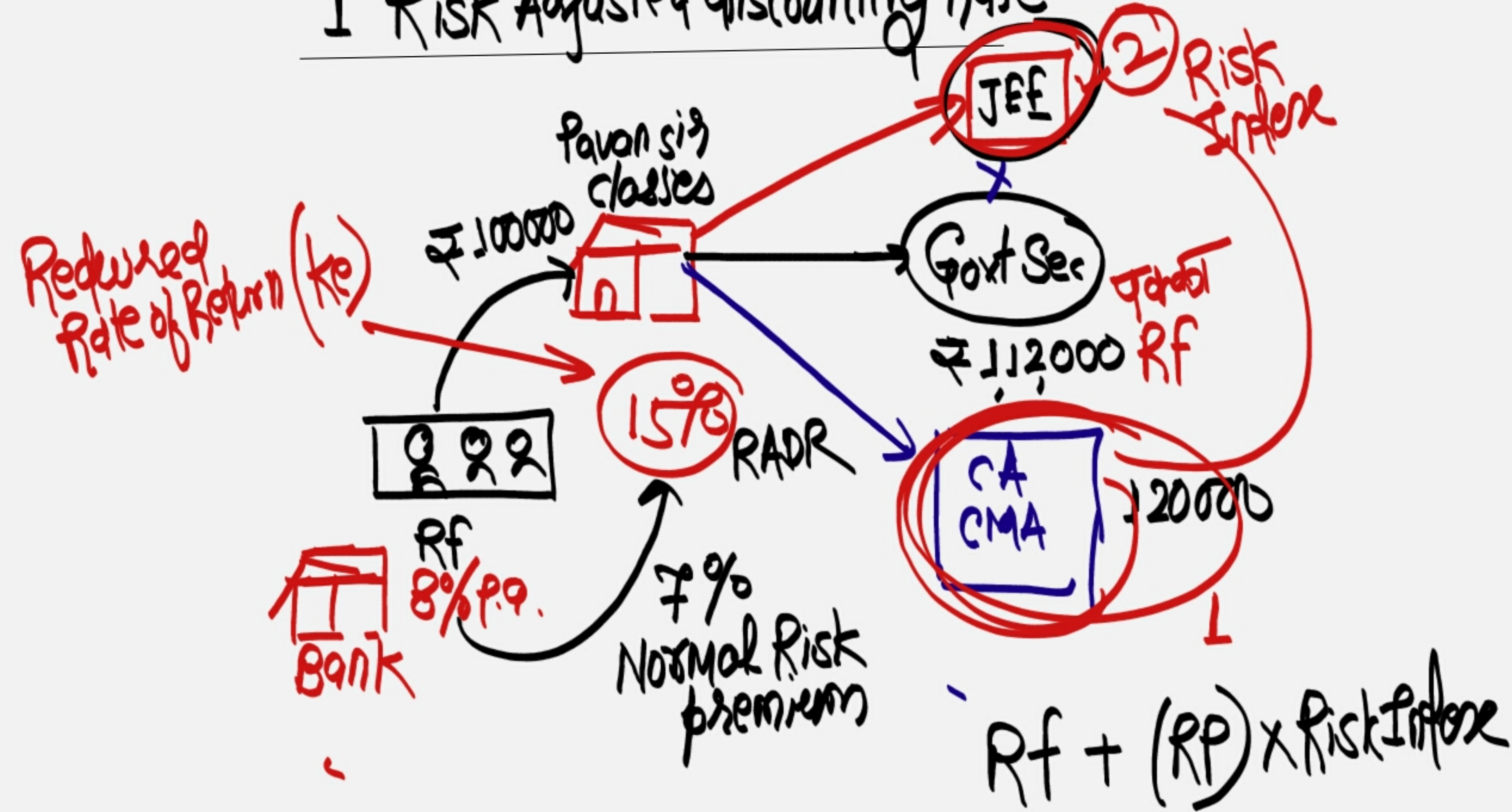
Year 1		Year 2		Year 3	
Cash Flow (₹)	Probability	Cash Flow (₹)	Probability	Cash Flow (₹)	Probability
2,000	0.1	2,000	0.2	2,000	0.3
4,000	0.2	4,000	0.3	4,000	0.4
6,000	0.3	6,000	0.4	6,000	0.2
8,000	0.4	8,000	0.1	8,000	0.1

Calculate the expected net present value of the project using 10 per cent discount rate if the Initial Investment of the project is ₹ 10,000.

2. Conventional Techniques

- ① Risk Adjusted Discounting Rate (RADR)
- ② Certainty Equivalent

1 Risk Adjusted discounting Rate



Following steps are applied to calculate
NPV in RADR Method

$$R_f + R_P \times C.V. \times R.I$$

① Calculate RADR

- $RADR = R_f + \text{Risk premium (Same Business)}$
- $RADR = R_f + (\text{Risk premium}) \times \text{Risk Index (Other Business)}$
- RADR depends on C.V.
[Higher C.V. then Higher RADR]

② Calculate NPV using RADR as a discounting
Rate

H.W

Question: 21

Determine the risk adjusted net present value of the following projects:

	X	Y	Z
Net cash outlays (₹)	2,10,000	1,20,000	1,00,000
Project life	5 years	5 years	5 years
Annual Cash inflow (₹)	70,000	42,000	30,000
Coefficient of variation	1.2	0.8	0.4

The Company selects the risk-adjusted rate of discount on the basis of the coefficient of variation:

Coefficient of Variation	Risk-Adjusted Rate of Return	P.V. Factor 1 to 5 years At risk adjusted rate of discount
0.0	10%	3.791
0.4	12%	3.605
0.8	14%	3.433
1.2	16%	3.274
1.6	18%	3.127
2.0	22%	2.864
More than 2.0	25%	2.689

Question: 22

New Projects Ltd. is evaluating 3 projects, P-I, P-II, P-III. Following information is available in respect of these projects:

	P-I	P-II	P-III
Cost	₹ 15,00,000	₹ 11,00,000	₹ 19,00,000
Inflow	6,00,000	6,00,000	4,00,000
Year 1	6,00,000	4,00,000	6,00,000
Year 2	6,00,000	5,00,000	8,00,000
Year 3	6,00,000	2,00,000	12,00,000
Year 4	1.80	1.00	0.60
Risk Index			

Minimum required rate of return of the firm is 15% and ~~applicable tax rate is 40%~~. The risk free interest rate is 10%.

Required:

- Find out the risk-adjusted discount rate (RADR) for these projects.
- Which project is the best?

Calculation of RADR

$$RADR = R_f + (k_e - R_f) \text{Risk Index}$$

$$A = 10 + (15 - 10) 1.80$$
$$= 19\%$$

$$B = 10 + (5 \times 1) = 15\%$$

$$C = 10 + (5 \times 0.60) = 13\%$$