5) from the following information Calculate IRR

Initial investment RS 32,000

Years	1	2	3
Cash inflow	16,006	14,000	12,000

Sol: Avg cash in flow = 14000

take pay back period = $\frac{32000}{14000}$ = 2.285

take 14% to 15%

Year	Cash in flow	% Pr for 14%	Present value	PV factor for 15%	Present Value
1	16000	0.877	14032	0.870	13920
2	14000	0.769	10766	0.756	10584
3	12000	0.675	8100	0.658	7896
			$\overline{32898}$		$\overline{32400}$

$$IRR = \text{Lower rate} + \frac{PV \text{ at lower Rate} - Cash\,out\,flow}{PV \text{ at lower rate} - PV \text{ at Higher rate}} \times \text{differen}$$

$$= R_L + \left[\frac{PV \text{ at } R_L - Cash\,out\,flow}{PV_{CIF} \text{ of } R_L - PV_{CIF} \text{ at } R_H} \right] \times \Delta R \atop (R_H - R_L)$$

$$= 14 + \left[\frac{32898 - 32000}{32898 - 32400} \right] \times (15-14)$$

$$IRR = 15.8$$

10) From the following information Calculate Pay-Back period

Initial investment Rs. 70,000/-

Years	1	2	3	4	5
Cash in flow	10,000	20,000	30,000	45,000	60,000

Sol:-

Year	Cash inflow	Cumulative
1	10,000	10,000
2	20,000	30,000
3	30,000	60,000
4	45,000	1,05,000
5	60,000	1,65,000

pay back period $= 3 + \dfrac{70,000 - 60,000}{45,000}$

$= 3 \cdot 23$ years

Payback period $=$ years $+ \dfrac{\text{Short of initial investum}}{\text{Cash in flow of next yr}}$

Pay back method

20. In how many year you can get back your
    intial investment of 20000

Years	1	2	3	4	5
Cashflow	8000	8000	8000	8000	8000

* Sol: Here cashflow is even

$$\therefore \text{ payback period} = \frac{\text{Initial investment}}{\text{Annual cash flow}}$$

$$= \frac{20000}{8000}$$

$$= 2.5 \text{ years}$$

(or)

Years	Cash flow	Cumulative
1	8K	8K
2	8K	16K
3	8K	24K
4	8K	32K
5	8K	40K

$$PBP = 2 + \frac{4000}{8000}$$

$$= 2.5$$

15) Calculate NPV, profitability index

Investment RS. 9,00,000/-

discount rate 6%.

Year	Cash Inflow	P/factor @ 10%	Present value
1	3,00,000	0.909	272700
2	5,00,000	0.826	413000
3	6,00,000	0.751	450600

Total present value = 1136300

NPV = net present value — cash out flow
(Inital investment)

$$= 1136300 - 9,00,000$$

$$= 236,300$$

NPV +ve project accepted.

Profitability index = $\dfrac{\text{total annual cash present value}}{\text{investment}}$

$$= \dfrac{1136300}{900000}$$

$$= 1.26$$

14) from the following information calculate ARR

Intial investment 4,00,000/- Scrap value 80,000

work capital is 2,00,000/-

Years	1	2	3	4	5
Cash flaws	1,00,000	2,50,000	3,70,000	4,30,000	5,10,000

*

year	Cash in M
1	100,000
2	2,50,000
3	3,70,000
4	4,30,000
5	5,10,000

$$ARR = \frac{Avg \ Anual \ profit \ (cash \ in/+)}{Avg \ investment} \times 100$$

$$Avg \ annual \ flow \ (profit) = \frac{100\,000 + 250\,000 + 370000 + 430000 + 510000}{5}$$

$$= 332000$$

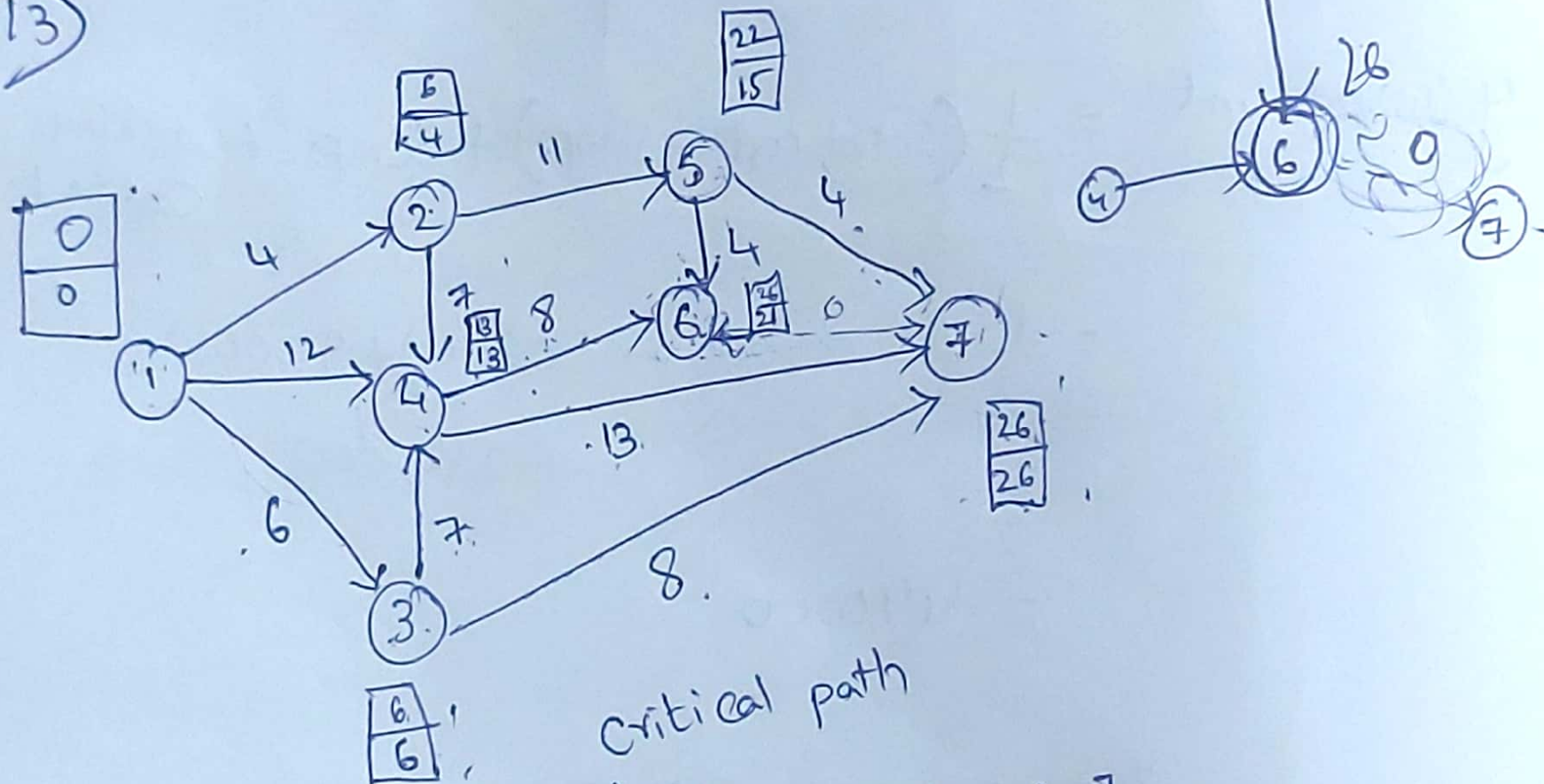$$Avg \ investment = \frac{1}{2}(Intial \ cost - Scrap) + Scrap + working \ Capital$$

$$= \frac{1}{2}(4,00,000 - 80,000) + 80,000 + 2,00,000$$

$$= 440000$$

$$ARR = \frac{382000}{440000} = 0.75.45$$

$$= 75.45\%$$

13)

Critical path

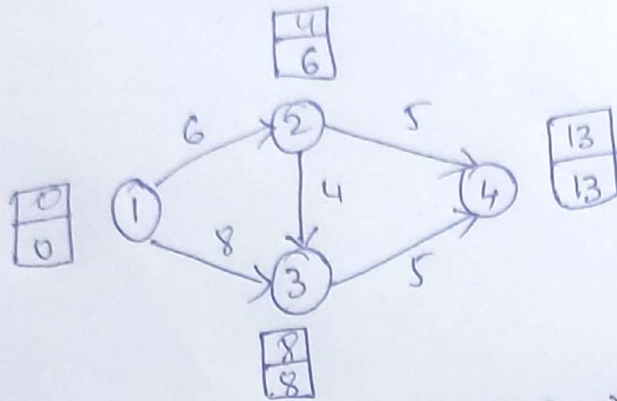$1 \rightarrow 3 \rightarrow 4 \rightarrow 7$

length $6 + 7 + 13$

$= 26$

(9)

Activ	1-2	1-3	2-3	2-4	3-4
time	6	8	4	5	5

Critical path $\quad 1 \to 3 \to 4$

$\qquad$ len $\qquad 8+5 = 13\checkmark$

mim day required for project $13\checkmark$