The following information relates to potential investment proposals that ABC plc is considering in 2022.

|  |  |  |  |
| --- | --- | --- | --- |
| Project | Initial investment (£) | Annual cash net inflow (£) | Project duration (in years) |
| 1 | 2,000,000 | 650,000 | 7 |
| 2 | 100,000 | 30,000 | 5 |
| 3 | 620,000 | 100,000 | 9 |
| 4 | 470,000 | See note 1 | 6 |

Notes:

1. Investment proposal 4 above has £200,000 per annum for the first 2 years and then £100,000 for the remaining 4 years.
2. All other investment proposals are annuities for the project duration.
3. Assume all project annual cash net inflows arise at the end of each year except for the initial investment, which arise in year 0 for all investment proposals.
4. Payback target set is 3.5 years.
5. Cost of capital for all investment proposals is 10 %.

**Required:**

**a) Payback period for all projects.**

**b) Net present value for all projects.**

**c) Rank the projects using both payback and net present value.**

**d) Which project may be selected if projects are mutually exclusive? Explain your recommendation.**

**e) Discuss the strengths and weakness of payback and net present value methods in the**

**context of investment appraisal.**

**f) Discuss five qualitative factors which the directors may need to consider before making a final decision.**

**a) Payback for investment proposals:**

Proposal 1: Payback period = Initial investment / Annual cash flow

= £2,000,000 / £650,000 = 3.08 years

Proposal 2: Payback period = £100, 000 / £30,000 = 3.33 years

Proposal 3: Payback period = 6.2 years

Proposal 4

Cumulative cashflows for year 2 = £400,000

Cumulative cashflows for year 3 = £500,000

Payback must be between years 2 and 3

|  |
| --- |
| Payback = 2 + [ 70,000/100,000] = 2.7 years |
|  |

b) NPV @10%:

Proposal 1: £650,000 x 4.868 - £2,000,000 = £3,164,200 - £2,000,000 = £1,164,200

Proposal 2: £30,000 x 3.791 - £100,000 = £113,730 - £100,000 = £13,730

Proposal 3: £100,000 x 5.759 - £620,000 = £575,900 - £620,000 = £ (44,100)

Proposal 4: £200,000 x 1.736 + £100,000 x (4.355 - 1.736) - £470,000

= 347,200 + 261,900 – 470,000 = £139,100

c) Ranking of projects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Proposal | 1 | 2 | 3 | 4 |
| Payback ranking | 2 | 3 | ----- | 1 |
| NPV ranking | 1 | 3 | ---- | 2 |

d) All investment proposals should rely on any discounted cash flow [DCF] method [either NPV or IRR]. Explain why? Non DCF methods can be used but not as the MAIN method of selection. Explain why?

If the proposals are mutually exclusive, based on the NPV method, proposal 1 is the best. This Proposal 1 is recommended as it has the highest/largest NPV. This will increase the value of the company and the shareholders’ wealth by the largest i.e. by £1,164,200