

3(a)	Using the data in Table 1.3, calculate the payback period for PPP's proposed new machine. Definition of payback: the amount of time it takes for the initial investment cost to be recovered (1 if no valid calculation) (1.9) + 0.5 + 0.6 + 0.8 = 0 payback is 3 years or 36 months (2) 0.5 + 0.6 + 0.8 = 1.9 (1) Correct units needed for full marks – years or months.				
3(b)	Using the data in Table 1.3, calculate the accounting rate of return (ARR) for PPP's proposed new machine. ARR = average annual profit / average investment × 100 (1 if no valid calculation) ARR = 0.2 / 0.95 × 100 = 21.05% or 21.1% or 21% (2) Use of 'old' formula 0.2 / 1.9 × 100 = 10.53% (1) Correct units required for full marks – %				
3(c)	Evaluate whether PPP should invest in the new machine.				
	Level	AO1 Knowledge and understanding 2 marks	AO2 Application 2 marks	AO3 Analysis 2 marks	AO4 Evaluation 6 marks
	3				5–6 marks Developed evaluation in context - A developed judgement/conclusion is made in the business context. - Developed evaluative comments which balance some key arguments in the business context.
	2	2 marks Developed knowledge of relevant key term(s) and/or factor(s) is used to answer the question.	2 marks Developed application of relevant point(s) to the business context.	2 marks Developed analysis that identifies connections between causes, impacts and/or consequences.	3–4 marks Developed evaluation - A developed judgement/conclusion is made. - Developed evaluative comments which balance some key arguments.
	1	1 mark Limited knowledge of relevant key term(s) and/or factor(s) is used to answer the question.	1 mark Limited application of relevant point(s) to the business context.	1 mark Limited analysis that identifies connections between causes, impacts and/or consequences.	1–2 marks Limited evaluation - A judgement/conclusion is made with limited supporting comment/evidence. - An attempt is made to balance the arguments.
	0	0 marks No creditable response.	0 marks No creditable response.	0 marks No creditable response.	0 marks No creditable response.

3(c)	Responses may include: AO1 Knowledge and understanding <i>Limited knowledge [K] will be demonstrated through knowledge of one factor in investment decision / knowledge of impacts of process innovation.</i> <i>Developed knowledge [K] + [K] + will be demonstrated through knowledge of two factors in the investment decision / impacts of process innovation.</i> Knowledge of process innovation and its impacts Definition of process innovation: the move to new methods of production, in this case computer-controlled automation. Less labour required. Knowledge of factors in decision • Investment cost. • Availability of finance. • Impact on employees. • ARR and Payback results. • Technical economies of scale possible. • Reduction in average cost of production. • Impact on quality. AO2 Application <i>Limited application, [APP] applies knowledge to PPP once.</i> <i>Developed application, [APP] + [APP] applies knowledge to PPP twice.</i> • Payback of 3 years – within 4 years of estimated life. • Return of \$800 000 over 4 year period. • ARR of 21.05% • Cost of machine \$1 900 000 • NCL are \$6 million and gearing is 45%, total CE is therefore \$13.3 million • Extra borrowing of \$1.9 m would make gearing $7.9 / 15.2 = 51.97\%$ • Pies have a shelf-life, therefore over-stocking inadvisable
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3(c)	AO3 Analysis <i>Limited analysis [AN] – candidate shows one link in the chain of analysis.</i> <i>Developed analysis [L2/AN] – candidate shows two or more links in the chain of analysis.</i> • Machine is costly, but the relatively high gearing of PPP increases risk of further borrowing [AN] causing cash flow problems for PPP [L2/AN] especially if sales fail to increase at the same rate as capacity increase. • Employee training to deal with computer automated system will result in increased costs [AN], but PPP has a reputation for good employee training, which could be boosted by this [L2/AN] • Automation leads to increased efficiency [AN] and therefore eventually increased profit [L2/AN] • Introducing automation may cause disruption to operations in the short-term reducing output whilst it is installed [AN] possible damage to reputation if orders are not fulfilled resulting in lower sales [L2/AN] • Automation will help PPP fulfil customer orders more quickly resulting in customer satisfaction [AN] and therefore an increase in sales [L2/AN] • Automation may result in a reduction in the number of employees engaged in production which will reduce operating costs [AN] but this will also result in redundancy payments being made [L2/AN] • If automation leads to excess stocks, waste may increase [AN], which could lead to increased production costs [L2/AN] • Work may become more boring for employees resulting in a reduction in motivation and therefore an increase in labour turnover [AN] increasing costs [L2/AN]
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3(c)	AO4 Evaluation Limited evaluation EVAL – limited supported judgement and/or a weak attempt at evaluative comment Developed evaluation L2 EVAL – supported judgement and/or reasonable evaluative comment Developed evaluation in context L3 EVAL – supported judgement in context and/or reasonable evaluative comment in context. • A judgement about whether to invest in automation/process innovation. • Elements that the evaluation/judgement might depend on: - If automation is used, then success greatly depends on increased demand. - How flexible might the machine be in changing from one type of pie to another? - How well does automation fit with the ‘social objectives’ of PPP’s employment practices? - How important might the ‘handmade’ aspect of PPP’s pies be in marketing? • Other factors to consider e.g. - NPV as this considers time value of money. - Depends on availability of finance linked to relatively high gearing and interest rate. - How long will it take to install the automated system? - Will specialist IT employees be required and how expensive is that? - Opportunity cost of this project. • Weighing up of the factors and their relative influence on PPP’s decision whether to invest in the new machine Accept all valid responses
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