Section A- This ONE question is compulsory and MUST be attempted

Question one (compulsory)

1. Dream Services (DS), a listed company, provides facilities management (FM) services where it manages such activities as cleaning, security, catering and building services on behalf of its clients. Clients can outsource to DS a single activity or often outsource all of these aspects in a full service contract.

The mission of DS is 'to give the shareholders maintainable, profitable growth by developing the best talent to provide world-class services with maximum efficiency.'

The board has asked the chief executive officer (CEO) to review the effectiveness of Dream's systems for performance measurement and management. She has turned to you to begin this process by considering the strategic performance dashboard of DS. She has supplied the most recent example in Appendix 1.

She wants a report to the board which will cover three aspects of strategic performance reporting at DS. First, it should address whether the current set of key performance indicators (KPIs) measure the achievement of the mission by showing how each one links to all or part of the mission. She does not want suggestions of new indicators. Second, taking each of the current indicators in turn she wants the assumptions underlying the calculation of the indicators examined. There has been a suggestion made in the press that DS is producing a biased set of results aimed to mislead the markets. This would then artificially boost the share price and so boost the value of the senior management's share holdings. Third, the report should evaluate the other presentational aspects of the dashboard against best practice.

The idea of employee share ownership has always been at the heart of DS' remuneration schemes. Its aim is to support an entrepreneurial culture and is a key differentiator in the market for new employees. The current reward system grants shares based on the appraisal of the individual by the line manager against vague categories such as leadership and entrepreneurship. The results of this scheme have been that only about 5% of staff received their maximum possible bonus in previous years and half of them received no bonus at all. Increasingly, this has led to the staff ignoring the reward scheme and describing it as 'only for the bosses' favorite people'.

In response to this, the board has been discussing methods of analyzing and improving the rewards system at DS.

One non-executive director suggested using Fitzgerald and Moon's building block model. The CEO was asked to consider this as a project separate from the issues of performance measurement mentioned above. She will select suitable indicators from the dimensions but currently needs you to explain to the board what is meant by results and determinants in this context and how the dimensions link to standards and targets. Finally, she believes that there are two types of reward scheme which might suit DS and wants an evaluation of their relative strengths and weaknesses. The scheme details are given in Appendix 2.

<u>Required:</u>

Write a report to the board to:

1) **Evaluate the links between the current key performance indicators at DS in Appendix 1 and its mission.**

   (8 marks)

2) **Assess the assumptions and definitions used in the calculation of the current set of key performance indicators in Appendix 1.**

   (12 marks)

3) **Evaluate the other aspects of reporting in the DS performance dashboard given at Appendix 1.**

   (8 marks)

4) **Explain how the building block model works as required by the CEO.** (6 marks)
5) **Assess the two reward schemes given in Appendix 2.**

   (12 marks)

Professional marks will be awarded for the format, style and structure of the discussion of your answer.

(4 marks)

Total (50 marks)

Appendix 1
Dream Services: Strategic performance dashboard
Year to 31 December 2016

	Cleaning	Security	Catering	Building service	Full service	Total	Total 2015
Operating profit margin	6.5%	6.4%	6.5%	4.9%	5.9%	5.9%	5.8%
Secured revenue	76%	85%	92%	88%	93%	88%	87%
Management retention	86%	74%	87%	82%	89%	85%	87%
Order book ($m)	1,160	875	357	1.553	3.359	7,304	6,807
Organic revenue growth	7.1%	4.3%	5%	8.1%	7.9%	7.2%	4.6%
ROCE						17.2%	16%

KPI definitions and notes

1. Cleaning, security, catering and building services headings are for single service contracts.
2. No commentary is provided as the CEO talks the board through the dashboard at each board meeting.
3. Secured revenue is long-term recurring revenue. This is the percentage of budgeted revenue which is already contracted. The budget is often not completed until well into the year as it is a complex process. In 2016, the original budget showed revenue of $1,565m with the final budget signed off at the end of Q1 showing $1,460m. The secured (contracted) revenue for the period was $1,285m. The accounts show a year end revenue of $1,542m.
4. Management retention is the percentage of managers who were still employed throughout the whole year. The figure only includes those employees on full-time contracts (about 65% of all managers).
5. Order book is the total cash value of future contracted revenue. DS has contracts which run up to 10 years into the future.
6. Operating profit margin. This excludes exceptional items such as the reorganization of the catering business which cost $55m in 2016, where revenue was $245m.
7. Organic revenue growth is calculated by using the total revenue figure as reported in the accounts. It includes net acquisitions which brought in revenue of $48m in 2016.
8. Return on capital employed (ROCE). Capital employed is total assets less current liabilities from the statement of financial position.

Appendix 2

The CEO is considering two schemes, one based on the current scheme and a new scheme.

Scheme 1 (based on the current scheme)

The reward system grants shares in DS based on the appraisal of the individual by the line manager against vague categories (leadership and entrepreneurship). The line managers have been informed that their bonus will in turn be partly dependent on how well they perform this appraisal. The expectation will be that as a result, 20% of staff will receive their maximum possible bonus and 20% will receive no bonus.

Scheme 2 (the new one)

Under scheme 2, employee targets are to be derived from the strategic indicators depending on the employee’s area of responsibility. The senior management (with help from line management where appropriate) will cascade down the strategic indicators to the relevant operational or tactical level for that employee.

There will be five targets set by senior and line management in consultation and the employee will then get up to 50% on top of their basic salary as a bonus (10 percentage points for each of the targets achieved).

Section B – TWO questions ONLY to be attempted

Question Two:

SAMSUNG Electronics (SAMSUNG) manufactures a range of electronic goods. Its business has grown rapidly over the last ten years and is now complex and international. SAMSUNG manufactures over 100 different products, selling into 25 different countries. There is a supplier base of over 200 companies from which SAMSUNG sources. As the business has become more complex, the board has found it difficult to pull together all the information that they require in order to make decisions.

The current information systems are developed in-house and are based in the functional departments (such as purchasing, manufacturing, warehousing and delivery, selling and marketing). The organisation uses the financial system as a means of bringing together information for an overview of corporate performance.

There have been a number of examples of problems encountered with information in SAMSUNG:

– There are inefficiencies arising from ordering the wrong amount of subcomponents;

– There are often stock-outs or obsolescence of unsold goods in the warehouses, although the marketing department prepares good sales forecasts; and

– Sometimes, there are insufficient delivery vehicles available to meet customer deadlines.

The board of SAMSUNG believes the problems arise from poor information sharing within the company. They are considering the purchase of an enterprise resource planning system (ERPS) to be the single information system for the whole organization.

Also, SAMSUNG is planning to launch a Smartphone. However, in order to make it competitive they need to have high-visibility, durable screens. As the cost of screen development is considerable, it has been decided to form a strategic alliance with a well-known screen manufacturer to provide this key component for the new Smartphone. HD Screens (HDS) has been chosen as the strategic ally, as they have a strong reputation for their quality of manufacturing and new product development. HDS has been trying to break into the Smartphone market for several years.

The alliance agreement has stipulated three critical areas of performance for HDS' supply to SAMSUNG:

1. Quality of manufacturing, measured by fault rates of screens supplied being within agreed tolerances (so that they fit SAMSUNG's phone-bodies);
2. Time of delivery, measured by the number of times a shipment is more than one day overdue; and
3. The ability to provide technical upgrades to the screens as the market demands.

The service level agreement (SLA) will be based on these three points and there will be financial penalties built into the agreement if HDS fails to meet these.

Required:

1) Discuss the integration of information systems in an ERPS and how the ERPS may impact on performance management issues at SAMSUNG.

(10 marks)

2) Evaluate, from SAMSUNG's viewpoint, the usefulness of the three critical areas in the alliance agreement for measuring the performance of HDS.

(8 marks)

3) Evaluate the relative reliability of financial and non-financial data from internal and external sources in the context of the alliance between SAMSUNG and HDS.

(7 marks)

Total (25 marks)

Question Three:

Amipharma Drugs Co (ADC) is a developer and manufacturer of pharmaceuticals medical drugs in Beeland. It is one of the 100 largest listed companies on the national stock exchange. The company focuses on buying prospective products drugs from small bio-engineering companies that have shown initial promise in testing from small bioengineering companies. ADC then leads these through three regulatory stages to launch in the general medical market.

The three stages are:

1. to confirm that the safety of the drug product (does it harm humans?), with small scale trials;,
2. to test the efficacy of the product (does it help cure?), again in small scale trials; and
3. Finally, large scale trials to definitively decide on the safety and efficacy of the product.

The drugs are then marketed through the company's large sales force to health care providers and end users (patients).

The health care providers are paid by either health insurance companies or the national government dependent on the financial status of the patient.

The Beeland Drug Regulator (BDR) oversees this testing process and makes the final judgment about whether a product can be sold in the country.

Its objectives are to protect, promote and improve public health by ensuring that:

- Medicines have an acceptable balance of benefit and risk;,
- The users of these medicines understand this risk-benefit profile; and
- New beneficial product development is encouraged.

The regulator is governed by a board of trustees appointed by the government. It is funded directly by the government and also, through fees charged to drug companies when granting licenses to sell their products in Beeland.

ADC has used share price and earnings per share as its principal measures of performance to date. However, the share price has underperformed the market and the health sector in the last 2 two years. The chief executive officer (CEO) has identified that these measures are too narrow and is considering implementing a balanced scorecard approach to address this problem.

A working group has drawn up a suggested balanced scorecard. It began by identifying the objectives from the board's medium term strategy:

- Create shareholder value by bringing commercially viable drugs to market
- Improve the efficiency of drug development
- Increase shareholder value by innovation in the drug approval process

The working group then considered the stakeholder perspectives:

- Shareholders want a competitive return on their investment
- Payers Purchasers (governments, insurers and patients) want to pay a reasonable price for the drugs
- Regulators want an efficient process for the validation of drugs
- Doctors want safe and effective drug products
- Patients want to be cured

Finally, this leads to the proposed scorecard of performance measures:

- Financial – share price and earnings per share
- Customer – number of patients using ADC products

- Internal business process – above exceed industry-standard quality of on design and testing; time to regulatory approval of a product
- Learning and growth – training days undertaken by staff; time to market of new product; percentage of drugs bought by ADC that gain final approval.

This balanced scorecard now needs to be reviewed to ensure that it will address the company's objectives and the issues that it faces in its business environment.

Required:

1) Evaluate the performance measures proposed for ADC's balanced scorecard.
(10 marks)
2) Briefly describe a method of analyzing stakeholder influence and analyze the influence of four different external stakeholders on the regulator (BDR).
(8 marks)
3) Describe how the application of the balanced scorecard approach at BDR would differ from the approach within ADC.
(7 marks)

Total (25 marks)

Question Four:

Sweet Factory (SF) manufactures sweets and confectionery and has delivered stable but modest increases to the shareholder wealth for many years. Following a change in ownership, the new shareholders are keen to increase the long-term performance of the business and are prepared to accept a high level of risk to achieve this.

SF is considering setting up a factory to manufacture chocolate. There are three options (1, 2 and 3) for the size and output capacity of the new chocolate factory. SF must choose a size most suited to the expected demand for its products. As well as the impact of the quality, branding and pricing of its products, demand for SF chocolate will be influenced by external factors such as consumer tastes for chocolate over other sweets, and even the suggested health benefits of certain types of chocolate.

A high-cost ingredient in chocolate is cocoa, a commodity traded on international markets. The market price of cocoa fluctuates with worldwide demand. Due to economic growth, chocolate consumption is rising in many countries, where it was once considered a luxury. In some countries, however, governments are considering introducing additional taxes on products containing sugar in order to reduce the consumption of chocolate and confectionery products. Being derived from an agricultural crop, the availability and price of cocoa is also influenced by climatic conditions, soil erosion, and disease. Conflicts and political instability in cocoa growing regions can also restrict its availability. Recent technological advances in the production of cocoa, such as the use of genetically modified crops, promise higher yields from cocoa plants in the near future.

You have been asked to help SF choose one of the three options for the new chocolate factory. One board member told you: 'The board proposed expanding into cake manufacturing several years ago. With hindsight, our planning on that proposal was poor. We sold only slightly fewer cakes than expected, but hadn't realized how sensitive our operating profit would be to a small change in demand. The previous shareholders thought problems in the cake business would put their dividends at risk, so SF stopped manufacturing cakes, barely a year after it started. The board does not want to repeat these mistakes. We want to minimize the opportunity cost of making the wrong decision about the size of the new chocolate factory.'

Appendix 1 shows the net present values for the three options discounted at SF's current cost of capital.

Appendix 2 shows the expected operating profit generated by the three options in the first year of the project, according to the market price of cocoa, and assuming an annual demand of 70 million chocolate.

Required:

1) Advise SF why decisions, such as what size of chocolate factory to build, must include consideration of risk and uncertainty, and evaluate the use of PEST analysis in managing the risk and uncertainty surrounding the project.

(14 marks)

2) Using the data in Appendix 1, explain which of the three options for the new chocolate factory would be preferred by the board and the new shareholders according to their respective risk appetites.

(6 marks)

3) Using the data in Appendix 2, recommend which of the three options for the new chocolate factory a risk neutral investor would choose, and explain any problems with the approach used to make the choice.

(5 marks)

Total (25 marks)

Appendix 1

Net present values for the three options discounted at SF's current cost of capital ($m)

Annual demand for chocolate	Option 1	Option 2	Option 3
50 million	4	(8)	(32)
60 million	6	16	(24)
70 million	6	16	17

Appendix 2

Expected operating profit generated by the three options in the first year of the project, assuming an annual demand of 70 million chocolate ($m)

Probability	Market price of cocoa ($ per ton)	Option 1	Option 2	Option 3
0.3	2,500	3	5	7
0.4	3,000	0.5	126	1.5
0.3	3,500	(2)	(1)	(2)

P5 Advance Performance Management
December 2018 Exam Answers

Question one

Report
To: The board of DS
From: An Accountant
Date: March 2017
Subject: Strategic performance reporting and reward systems at DS
This report assesses the coherence of the choice of key performance indicators (KPIs) with the mission of DS followed by the assumptions used in their calculation. Other aspects of the presentation of the dashboard report are then evaluated. Finally, an overview of the operation of the building block model and an assessment of two proposed reward schemes are provided.

1. **Linking the mission to the current KPIs**

The mission statement can be broken into several parts. The principal aim is maintainable, profitable growth which is supported by three further goals: developing the best talent; providing world-class services; and being efficient. The KPIs are linked to elements of this statement as follows:
– Operating profit margin shows that the organization is profitable and also as a margin, it indicates efficiency in cost control.
– Secured revenue indicates the amount of revenue which is contracted and so has greater likelihood of being earned.
Contracts give an indication of maintainability though here only in the short term.
– Management retention links to the need for best talent though it does not measure the developing of that talent.
– Order book shows the maintainability into the future of the business though it does not show the average length of the contracts.
– Organic revenue growth shows historic growth and may indicate what the management is capable of into the future.
– ROCE demonstrates the efficiency of profit-generation from the capital base of DS.
None of the measures are external, looking at the competitive environment and so it is not possible to indicate if DS has ‘world-class services’.

2. **Assumptions underlying the current KPI calculations**

Every KPI will involve some assumptions in its calculations. The aim of this section is to highlight how each indicator could be manipulated to show a better picture so that the business can avoid this in the future and the subsequent bad image portrayed in the investing community.

Operating profit margin is a standard performance measure and the only area which can be questioned is the categorization of costs below this line, for example, the movement of operating costs into ‘exceptional costs’ below this line in order to artificially inflate this indicator. If the $55m reorganization cost was included in overall operating profit which was $91m (=5·9% of $1,542m) then the business would show an operating margin of 2·3%. The catering business would show a loss of $39m.

Secured revenue represents long-term recurring revenue streams. A good picture will show a high percentage of secured revenue but will be below 100% so that management can indicate that budget targets are being exceeded. It is worrying that the budget is completed well after the year start as this may indicate such manipulation. If the original budgeted revenue figure is used then the secured revenue for 2016 was 82%.

Management retention only includes retention of employees on full-time contracts which at 65% of all managers excludes a material number. Poor treatment (and thus retention) of part-time managers is therefore ignored. This may be a particular issue for managers with young children who often take advantage of such contracts.

Order book is a ‘total ‘value’ figure but is this cash or present value figure? By choosing cash value of the contract, this will give a much larger figure than the discounted present value, especially where some revenues will not be received for 10 years.

Organic revenue growth is calculated by using the total revenue figure as reported in the accounts. The main purpose of stating organic is that it is growth from within the organization as it stands and so acquisitions should be ignored. The current figure would fall from 7·2% overall to a less impressive 3·9%.

Return on capital employed (ROCE). Capital employed is being calculated using the statement of financial position figures which may exclude many intangible assets. As such it may overemphasize the tangible capital base which is not as important in a service business such as DS. The focus on this measure can lead to suboptimal decisions.

3. **Evaluation of the strategic performance dashboard**

The current information used by the board is both financial and non-financial allowing different elements of the mission to be measured. However, none of the measures are external; looking at the competitive environment and so it is not possible to indicate if DS has ‘world-class services’. Also, the measures do not focus on shareholder concerns although the mission statement indicates that they are the principal stakeholders. Other measures beyond ROCE might have been expected given that priority, such as EPS or dividend per share. No breakdown of ROCE is provided for each business unit, this may be due to the

lack of availability of capital employed figures for the units but it does seem an odd inconsistency since ROCE is the best KPI provided for shareholder use.
No revenue figures are given and as most figures are ratios it is not possible to gauge the absolute scale of the business. It is particularly surprising that an absolute profit measure is not included on the dashboard given the importance of profitable growth to shareholders.
Generally, there is a lack of external figures to allow benchmarking or the assessment of the competitive position of DS.
The breakdown of results into business sectors will help in the judgement of performance of the managers of those units but they may not be comparable, for example, comparing building services and security, it seems that building services is growing more rapidly but with weaker margins. Also, it may be that the employment market is different between each sector and so no comparison of management retention figures is sensible. Again, it may be helpful to provide either an external benchmark through industry averages or an internal one through a historic trend for these sector specific indicators.
The report does have good qualities as it is brief and clearly presented. The use of ratios makes for easy understanding.

4. **<u>The building block model</u>**

The model takes the important step of distinguishing within the dimensions of performance between what is the desired outcome (results) and what are the drivers of those results (determinants). It then highlights the need to measure both within the performance reporting systems of an organization.
The standards are the target level for the specific measures chosen for each dimension appropriate to an employee's performance. Employees must take ownership so they need to be persuaded to accept the target and be motivated by the targets. Targets must be achievable and so challenge the employee without being viewed as impossible to achieve and so be de-motivating. For example, they must take account of external market conditions which will be beyond the control of the employee, but this can be managed by benchmarking against an industry average. Targets must be fair, for example, different businesses within DS must be measured against their sector (catering, security, etc).

5. **<u>Assessment of the proposed reward schemes</u>**

As the board is already considering using the building block model, it is appropriate to outline the main criteria in the model for reward schemes.
Rewards must be
– Clear, that is, understood by the managers;
– motivating, that is, of value to the employee; and
– Controllable, that is, related to their area of responsibility.

Scheme 1
The scheme has the benefit that it continues with the successful policy of offering an equity share in DS. It continues to utilize the knowledge of the line manager in performing the appraisal. It attempts to address a problem of the current scheme which is that the breadth of the categories gives the line manager scope to continue to show favoritism to specific employees. This is addressed as the bonus for line management will be affected by their appraisal according to performance on this new scheme and it will be helped practically by giving them an expectation of the distribution of bonus shares. This will also mean that forecasting staff costs will be simpler.
However, this scheme does not address the problem that the appraisal categories are vague and do not reflect the KPIs of DS. It also could create a problem as line managers will give bonuses according to the stated expectation, for example, even where all staff are, in absolute terms, performing brilliantly only 20% will get the maximum. Also, there is no mention of the scale of the scheme bonuses as there is for Scheme 2, where the maximum is stated as 50% of basic salary.
Scheme 2
Scheme 2 loses a key benefit of the current scheme in not rewarding in shares but cash is an acceptable alternative. Cash may well be a preferred option for the managers as it offers a certain value to them. This form of benefit also reduces the desire to manipulate share prices. It sets standards based on the KPIs and so should lead to greater focus by each employee on the goals of DS. Involvement of both strategic and line management in this process should lead to a better set of measures being used.
It is not clear, however, why five targets are being chosen. This seems an arbitrary figure and it may be more sensible to suggest a range from three to six (the number of strategic KPIs) to be decided by the managers in consultation. The size of the maximum reward seems likely to motivate but the equal weighting for each heading may not be effective. It requires that, say; operating profit margin has the same importance as management retention.

Question Two

4. Enterprise Resource Planning Systems (ERPS) are software systems designed to support and automate the business processes of large

enterprises. ERPS help in identifying and planning the use of resources across the organization in all activities. As a unified database of corporate information, ERPS will aid the flow of information between all functions both within SAMSUNG and also with key outside stakeholders (e.g. suppliers such as HDS).

ERPS handle many aspects of operations including manufacturing, inventory, distribution, invoicing and accounting. They also cover support functions such as human resource management and marketing. These all seem appropriate for SAMSUNG.

ERPS can also contain SCM (supply chain management) and CRM (customer relationship management) software. Automated systems would seem appropriate at SAMSUNG given the number of customer and supplier relationships which SAMSUNG has to manage.

An ERPS also addresses the common issue of poor communication between departments. It will help across the three problems mentioned.

The inefficiencies arising from ordering the wrong volume of subcomponents would occur because purchasing and manufacturing are not using a common database so that purchasing may be using erroneous or out-of-date information. This will lead to extra costs in inventory handling and storing. The stock-outs will result in poor customer service as goods are not available for immediate shipment. The obsolescence problems will result in direct financial losses as inventory is written off. Both of these problems will be the result of poor integration of the manufacturing schedule with the expected level of orders. ERPS will be welcomed as it will make use of the expertise of the marketing department in forecasting and making this available to manufacturing managers when setting their production plans.

The lack of vehicles available to meet delivery deadlines could be aided by the manufacturing schedule linking in to the delivery schedule so that optimal use can be made of the delivery fleet. This would also allow the delivery managers to plan for use of subcontractors to do delivery if there is not internal transport available and so avoid customer disappointment.

5. Considering the points raised overall, it is surprising that they seem to be addressing the strengths of HDS. HDS will have been chosen as an ally because it is a good company. However, it may be worth considering if there are weaknesses and if measures should be put in place in the agreement to guard against these. The points seem reasonable given the critical nature of the screen in the production process of a smartphone and the setting of penalties is wise.

Taking each point in turn:

Manufacturing quality would be expected to be high given HDS’ reputation; however, it will be a critical part of the assembly process and faults will lead

to either delayed delivery (if spotted in internal inspection) or else lead to customer dissatisfaction and rework costs to repair faulty items.
The time of delivery will dictate the volume of screen inventory which SAMSUNG has to hold and so impact on any attempt to run a just-in-time system of manufacturing. It may be necessary to give HDS access to SAMSUNG's production scheduling system (via the new ERPS possibly) in order to achieve such a close working relationship.
Unlike the other two issues, the point on the provision of technical upgrades does not provide a metric for measuring this. It will be difficult to set a minimum performance level as such upgrades will be difficult to predict and it would be reasonable for HDS to reject (or ignore) a vaguely worded clause which would not be enforceable.
The size of the penalties would need to be commensurate with damage to the reputation of the product from HDS' failure.
Mobile phone customers are notable for having rapidly dropped previous market leaders when their products fail to deliver (e.g. Nokia, Blackberry). Therefore, it would be reasonable for potentially large penalties to be payable. SAMSUNG should note that these will only be claimable if they hold to their side of the agreement and so must carefully attend to the information and resources which need to be provided to HDS.

6. ***Financial and non-financial data***

Financial data has the advantage of being heavily checked and policed as part of the annual audit regime operating in most organizations. Financial data also has the advantages of being quantitative and so objective, whereas it can be difficult to judge the relative value of, for example, two customer complaints. For the accountant, the collection and interpretation of financial data is thus straightforward and an everyday activity.
Qualitative, non-financial data will often require to be transformed into quantitative data by applying 1–5 scales but it will never escape from the problem of being judgmental and subjective. Not all non-financial data is qualitative; however, the planning and scheduling data will be quantitative.

Internal and external sources

SAMSUNG will have greater control over the accuracy of internal data within its own ERPS than the external data, such as might be supplied by suppliers for their deliveries. External sources of data such as for the SLA will obviously be highly contentious if there is the possibility of penalty payments resulting from breaches of the agreement. Therefore, SAMSUNG may want to put in place its own inspection regime in order to confirm such data. Unreconciled differences between information systems are often a source of dispute in alliances such as the one with HDS.

Question Three:

- ***Evaluation of proposed performance measures***

The financial perspective has not been altered from the existing measures of strategic performance. These are appropriate to address the objectives of enhancing shareholder wealth although it has been argued that measures such as economic value added or shareholder value added are better long long-term measures of this topic. Also, it is more common to use share price and dividend per share to reflect total shareholder return. Additionally, measures of survival (cashflows) and growth (in eps) could also be considered.
The customer perspective mainly seems to address the patient (end user) viewpoint. However, it should also reflect the concerns of those paying for the products (the government and insurers). Therefore, measures of cost in comparison to competitors would be appropriate.
The internal process perspective reflects appropriate measures of manufacturing excellence and efficiency in the testing process.
This directly addresses the second of the board's objectives.
The learning and growth perspective would appear to be an obvious area to address the third objective on innovation. Again, the ranking of the measures is unclear and it would be surprising if training days were considered the principal measure. From the learning perspective of learning, it would be the improvement in the time to market from product to product that would better indicate learning and the improvement in percentage of drugs finally approved that would indicate learning. It may be appropriate to benchmark these measures against industry competitors as well as internally.
It is not clear if the points in the proposed scorecard are already prioritized and it may be appropriate to reconsider the order of measures, for example, in the internal perspective, the measure of time to gain approval seems to be more directly relevant to the objective of efficiency of the development process.
The suggested scorecard does not consider the difficulty of collecting data on some of the non-financial measures. For example, the measurement of above-industry standard design and testing is likely to be subjective unless the company undergoes a regular quality audit which can be scored.

- ***Stakeholders and their influence***

The key stakeholders of BDR are the government, the drug companies being tested, the healthcare providers and their funders, and the patients.
A measure of influence of different stakeholders could be obtained by considering the degree to which they have power to affect decisions in the

company and the likelihood that they would exercise their power (their degree of interest in the decisions).
(Mendelow's matrix would be a suitable technique to perform this analysis.)
The government is an influential stakeholder on this basis as they have power over senior appointments and the funding of BDR. They are unlikely to use this power having delegated authority to the trustees, unless they are provoked by some financial or medical scandal.
The drug companies will be highly interested in the day-to-day workings of BDR as it sets the testing environment without which the drug companies will not have products. However, they will have little influence in the decisions within BDR as BDR must be seen to be independent of them. Nevertheless, it is in BDR's interest to have a successful drug development industry in order to achieve its goal of encouraging new drug development.
The healthcare providers will have interest principally in the quality of the approval process so they can have confidence about the cures that they dispense. They will have limited influence mainly through the pressure that they can bring to bear through the government.
The patients will be concerned that there is innovation as new cures are quickly and safely brought to market. They have limited secondary influence on decisions decision-making in BDR, as for the healthcare providers. Their influence will mainly be felt by affecting the actions of the government.

- ***Differences in the application of the balanced scorecard***

The objectives at BDR are less obviously financial than at ADC. The use of the balanced scorecard approach will be of great use to BDR as it emphasises non-financial performance which fits with BDR's objectives relating to quality of drugs and the relationship with key stakeholders. This can lead to difficulty in setting quantifiable measures due to the soft issues involved, e.g. measuring the level of user understanding of the risk/benefit profile of products. There is also the danger of setting quantifiable measures which are then obsessively pursued without regard to the softer aim of the organisation. An example could be the need to encourage drug innovation at the expense of making sure that each new product was a material improvement on existing drug products.
BDR will have a more complex balanced scorecard than ADC due to the diverse nature of important stakeholders. As a public service organisation, the customer perspective may be more significant. The principal stakeholder is the government and so there will be a complex, political dimension to measuring performance.
The primary objective at ADC is financial while at BDR there are several key objectives among which there is no clear ranking.

Stakeholders may have conflicting objectives, for example, patients want effective drugs but the same individuals as taxpayers/ insurance premium payers may not be willing to foot the bill if the price is too high. This will lead to difficulties in setting priorities among the various measures identified on the balanced scorecard.

Question Four

- **Importance of incorporating risk and uncertainty in making long-term decisions**

Risk relates to the variability of outcomes, the probabilities of which are known, or can be estimated. Uncertainty occurs where the outcomes and their probabilities are unknown. The variability of demand for SF's chocolate is a risk, and the probabilities of different levels of demand can be estimated. The outbreak of conflict in a cocoa growing region affecting cocoa prices cannot be assigned a probability, and so is an uncertainty.
The market price of cocoa and the demand for chocolate are examples of exogenous variables which significantly affect the performance of SF. Exogenous variables arise from outside the business, but over which the business has no control. Climatic conditions, soil erosion, for example, all affect the price of cocoa, and therefore the performance of SF.
When investors evaluate businesses, they take into account prospective returns and the level of risk involved. Therefore, managers should consider risk and return when evaluating projects on their behalf. Long-term strategic planning requires forecasts to make about future events, such as the price of cocoa. These future events are by definition unknown, and subject to risk and uncertainty. Risk and uncertainty must, therefore, be considered when making long-term plans, such as opening the new factory. The further into the future the plans project, the riskier, and more uncertain, events are likely to be, as it is harder to predict what conditions will be. This mean consideration of risk and uncertainty is even more important when making long-term decisions than for short-term decisions.
Use of PEST analysis
To incorporate risk and uncertainty into long-term strategic planning, SF must identify and monitor the most important exogenous variables, taking action to manage the risks they present. As a traded commodity, the risks of rising cocoa prices could be managed (hedged), for example, by using cocoa futures. The board member's comments suggest planning for the cake business was poor, and did not adequately consider the importance of exogenous variables. Risks in the macro environment could be identified using a PEST analysis.
Political factors

The market price of cocoa is affected by conflicts and political uncertainty, so consideration of these external factors is needed to incorporate risk and uncertainty into long-term planning. By identifying factors such as political instability or conflict, SF can improve its long-term performance by sourcing cocoa from more stable regions. The political situation in a region can change rapidly, which might make it difficult to incorporate these risks into long-term planning, as there is a high degree of uncertainty.

The introduction of increased taxes on products containing sugar is a political factor affecting the long-term demand for SF's products. Once introduced, this factor is likely to operate in the long term and be more predictable. Identifying this, SF could develop products containing less sugar and so reduce the amount of these additional taxes on its products.

Economic factors

Economic factors such as the variation in long-term interest rates can influence SF's performance by affecting exchange rates or overall consumer demand. By identifying these factors, SF could hedge against currency exchange rates. In the longer term,

SF could locate its operations in a country where the risks from exchange rate fluctuations are lower, or diversify geographically to spread the risk.

Social factors

Overall demand for chocolate products will be influenced by social factors such as consumer tastes or increased awareness of healthy eating. SF can improve its long-term performance by not investing in a chocolate factory at all, if it believes demand for its products will fall sufficiently to make the venture unprofitable.

Technological factors

The increased cocoa yields from genetically modified crops may reduce long-term cocoa prices and SF could incorporate this into the net present value calculations for the factory. There may be unpredictable consequences which are harder to plan for, such as the acceptance by consumers of genetically modified foods.

- **Board**

The board wants to minimise the opportunity cost of making the wrong decision about the size of the new chocolate factory, which means to minimise the regret of making the wrong decision. The minimax regret rule would be the appropriate method to use so they would choose the project with the lowest maximum regret.

The regret table is as follows:

Option 1 Option 2 Option 3

Annual demand

50 million	0	(12·0)	(36·0)
60 million	(10·0)	0	(40·0)
70 million	(11·0)	(1·0)	0·0
Maximum regret	(11·0)	(12·0)	(40·0)

Option 1 is the option with the lowest maximum regret ($11m), and that would be the option preferred by the board according to their risk appetite. A drawback of using the minimax regret rule is that the probabilities of the outcomes are not considered.

New shareholders

The new shareholders are keen to increase the long-term performance of the business and are prepared to accept a high level of risk to achieve this. They will choose the option with the maximum possible outcome, which is option 3, with a maximum possible net present value of $17m. This is known as the maximax rule. This also takes no account of the probabilities of the outcomes, and also tends to be over-optimistic. It also ignores the fact that even risk seekers have a risk–return trade off.

- **Expected value of each option**

Option 1 – (0·3 x 3·0) + (0·4 x 0·5) + (0·3 x –2·0) = $0·5m
Option 2 – (0·3 x 5·0) + (0·4 x 2·0) + (0·3 x –1·0) = $2·0m
Option 3 – (0·3 x ·7·0) + (0·4 x 1·5) + (0·5 x –2·0) = $2·1m

The risk neutral investor's choice, for year 1 only, would be option 3, with an expected value of $2·1m.

Problems of using an expected value approach

A risk neutral investor would use the expected value approach to choose between the three options. The expected value is a long run average, and is only appropriate where a decision is repeated many times. This does not appear to be the case at SF which has made only one attempt at strategic expansion in the last several years. For the same reason, the expected value will not equal the actual outcome.

Determining the probabilities, of the market price of cocoa for example, is subjective. Even analysis of historical market prices is not necessarily a guide to what will happen in the future. The expected value approach is suitable for a risk neutral investor.

This does not apply to the key stakeholders at SF, and hence this approach is inappropriate for use in the decision on the three options. Determining the payoffs is also difficult when demand is subject to uncertainty. SF should not make a decision on the factory based only on the first year's operating profits, and should take a longer term view, for example, based on discounted cash flows.