Some of the answers that follow in Sections A and B are fuller and more comprehensive than would be expected from a well-prepared candidate. They have been written in this way to aid teaching, study and revision for tutors and candidates alike.

These Examiner's answers should be reviewed alongside the question paper for this examination which is now available on the CIMA website at www.cimaglobal.com/e2papers

The Post Exam Guide for this examination, which includes the marking guide for each question, will be published on the CIMA website by early October at www.cimaglobal.com/e2PEGS

SECTION A

Answer to Question One

Rationale

This question tests candidates' appreciation of how to handle discipline. It examines learning outcome C2(e) 'compare and contrast ways to deal effectively with discipline problems'.

Suggested approach

The answer could start by explaining the purpose of discipline and then develop to discuss the various points that should be included in the briefing on the disciplinary process and procedures.

A good answer will provide a comprehensive discussion of the points on the disciplinary process and procedures.

A weak answer will focus only on some of the stages in the discipline process without consideration of other important aspects associated with the disciplinary process and procedures.

The first thing the HR advisor should explain to FP is that the overriding purpose of discipline is to encourage improvement in an employee whose performance or conduct is below what is considered to be an acceptable standard. In this sense, the disciplinary process and procedures should be focused on achieving a change in behaviour of the employee so that future action is unnecessary.
FP should be advised that he needs to ensure that he, and indeed his employee, are aware of the actions and behaviours which could lead to disciplinary action. This would include, for example, defective or inadequate work performance, breaking safety or other rules, regulations and procedures, refusing to carry out a legitimate work assignment, poor attitude which influences the work of others or reflects negatively on the public image of the firm, absence/poor timekeeping, misconduct, discrimination, bullying or harassment.

He also needs to know GR Company's disciplinary policy, process and procedures. It is likely that the process will include the following stages:

- The informal talk
- The oral warning
- The written or official warning (first and second)
- Disciplinary layoffs or suspension
- Dismissal

The HR advisor should make sure that FP understands the importance of following the Company's procedure correctly, so as to avoid any employment tribunals. He could be directed towards familiarising himself with the procedure and alerted to the fact that if this is not followed and a case goes to an employment tribunal, it will automatically find the dismissal as unfair. In the UK, the Advisory, Conciliation and Arbitration Service (ACAS) produces advice on disciplinary procedures which FP might find it helpful to refer to.

Another factor the HR advisor should cover in her briefing is the importance of acting promptly when facing potential disciplinary cases. This may involve, for instance, letting the employees know that they are performing below standard and the consequences if they do not improve. In this regard, FP may be able to deal with a performance issue in an informal manner, rather than as part of the formal disciplinary process, in the first instance.

When facing a possible disciplinary case FP should be guided that it is essential that he keeps calm and conducts the investigation with thought and care. He should be advised that an important aspect of discipline is for him to be fair and as objective as possible, rather than pre-judging any performance issues. Consistency of approach is necessary in terms of the application of the same rules and considerations to each case.

The HR advisor should also highlight to FP the importance of good preparation and that the gathering of relevant facts is a vital part of the disciplinary process. He should be advised to keep clear notes relevant to a particular case.

Finally, FP should be made aware that an employee who has gone through the disciplinary process has the right to appeal against the sanction.
**Answer to Question Two**

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<th>Rationale</th>
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<tr>
<td>This question tests candidates' understanding of the importance of national culture in strategic decision making. It examines learning outcome C1(b) 'demonstrate the importance of national culture in strategic decision making'.</td>
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<th>Suggested approach</th>
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<tr>
<td>The answer should start with an explanation of the concept of national culture in the context of strategic decision making. It should then develop to use Hofstede's research to explain the four dimensions on which national culture may vary. A good answer will provide a robust explanation of national culture along with a detailed explanation of the relevance of Hofstede's four dimensions in which national culture may vary and implications for the scenario organisation's decision. A weak answer will provide a limited explanation of the different dimensions in a descriptive manner with no linking to why national culture should be considered in the context of the scenario.</td>
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Strategies involving moving activities to another country can often fail because, whilst financial assessments are sound, insufficient attention has been placed on cultural factors. Just as DV Bank will have developed its own corporate culture which will influence the way it operates and its way of doing business, countries show international differences in how they view the world and develop their own cultures in terms of values and basic assumptions. This is an important concept since it will impact on the ways in which people behave at work and the way in which things are done in organisations.

The effect of different environments is a key factor in determining the cultural compatibility of the Bank’s strategy to move some operations to a different country. A mutual understanding of the different cultures will influence the effectiveness of working relationships and the management styles adopted.

Hofstede’s research was developed to explain national culture by mapping different cultural characteristics. The outcomes from the research suggest that countries can be classified according to four dimensions in which national culture varies and that might influence business behaviour. The dimensions are:

- **Power distance** is the extent to which the society of a country accepts that power in organisations is distributed unequally. In countries with high power distance, managers tend to make autocratic decisions and subordinates do what they are told rather than being involved in decision making.

- **Uncertainty avoidance** is the degree to which members of a country’s society feel comfortable with risk, uncertainty and ambiguity and the extent to which they feel threatened by unusual situations. High uncertainty avoidance will mean risk taking is discouraged and organisations will tend to rely heavily on rules and regulations so people know what they are doing.

- **Individualism** versus collectivism is the extent to which people are supposed to take care of themselves and be emotionally independent from others (individualism), to
one in which people prefer a tight-knit social framework based on involvement (collectivism).

- **Masculinity** relates to the degree to which masculine values predominate. For example, focus on power, achievement, assertiveness and material success as opposed to the stereotypical feminine values of relationships, modesty, sensitivity and concern for others.

Hofstede added a fifth dimension which is that of time orientation (sometimes referred to as Confucian v Dynamism). This relates to the extent to which society values long standing rather than short term values and traditions. For example, a long term orientation means valuing loyalty, education and training whereas a short orientation is associated with making quick profits, where people expect rapid feedback and value fast promotions.

All of these factors need to be considered by DV Bank when deciding on whether to move operations to PQ Country since Hofstede argues that if countries have significantly different ‘scores’ on these dimensions, this may impact negatively on effective cross cultural working relationships and working practices.
Answer to Question Three

<table>
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<th>Rationale</th>
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<tr>
<td>This question tests candidates' understanding of some key management relationship concepts. The question examines learning outcome C1(a) 'discuss the concepts of power, bureaucracy, authority, responsibility, leadership and delegation'.</td>
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<th>Suggested approach</th>
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<tr>
<td>The answer should provide an explanation of each of the four key management relationship concepts, discussing the relationship between them.</td>
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A good answer will provide a comprehensive description of the different concepts, and explain the relationship between the concepts. A weak answer will provide just a brief explanation of some of the concepts, but will not express adequately the relationship between them.

Within an organisation context authority legitimises the power within the structure and rules of the organisation. It is essentially the rights inherent in a manager's position to give orders and to expect the orders to be obeyed. In this regard, authority allows individuals within an organisation to issue instructions for others to follow. All forms of authority, as a basis of social control, rest on the power of the individual being accepted by subordinates.

Authority can be based on charisma, i.e. individuals have some special quality or personality which sets them apart as leaders. Other forms of authority are traditional authority and rational legal authority. The former is where the personality of the leader is irrelevant and the person gains the status because of the long-standing natural right to 'rule', which is sometimes handed down in the organisation. Rational legal authority is where power comes from the individual's position in the organisation chart. In this sense authority is not personal but, rather, is vested in the position held. So the ability to perform particular functions is based on following a set of written rules and, in this regard, is aligned with Weber's view of classic bureaucracy.

Responsibility is about the obligation of an employee who occupies a particular position in the organisation to perform certain duties and tasks or make certain decisions. Leading on from this, responsibility means that subordinates can be held accountable for personal performance and the achievement of the targets specified by the organisation's plans. Responsibility is related to authority in that authority is used by managers to ensure the duties are performed.

The critical point about responsibility is that the scope of responsibility must correspond to the scope of authority given. If given responsibility without the necessary authority a leader may feel powerless to achieve the levels upon which the performance will be judged.

The notion of accountability is related to responsibility in that it describes the need for employees to explain and justify any failure to accomplish their responsibilities to their superiors in the hierarchy. As such it refers to being called to account for one's actions and results.

Delegation is the process of a leader assigning tasks and granting authority for their accomplishment to others. Hence, delegation is related to authority in that managers can assign part of their authority to a subordinate to fulfil their duties. It can only occur if the manager initially possesses the authority to delegate particular activities. The important point here is that responsibility can never be delegated, so the manager is always responsible for the actions of his or her subordinates. Hence, whilst delegation would give staff the discretion to make decisions within a certain sphere of influence or carry out tasks, the manager will remain fully accountable for the decision or tasks undertaken by staff.
Answer to Question Four

Rationale

This question tests candidates' understanding of the contribution of Porter's value chain framework. It examines learning outcome A2(a) ‘discuss concepts in established and emergent thinking in strategic management’.

Suggested approach

The answer should start with an explanation of the purpose of the value chain framework including reference to both primary and support activities. It should then develop to explain the importance of support activities in the context of the scenario organisation.

A good answer will provide a comprehensive and balanced explanation of the support activities with reference to the scenario organisation.

A weak answer will provide a descriptive account of some of the support activities with no reference to the context of the scenario organisation.

The value chain framework, as proposed by Michael Porter can help an organisation better understand its internal activities, and specifically which activities are especially important in adding value or where cost can be reduced to increase margins. In this context the framework could be used to help B4L Supermarkets in assessing how it can sustain its competitive advantage. The value chain distinguishes between primary and support activities.

The primary activities of the value chain are those activities needed for the physical creation of B4L Supermarket's offer, i.e. inbound logistics, operations, outbound logistics, sales and marketing, as well as after sales service.

B4L’s support activities should help the primary activities go more smoothly. They include firm infrastructure, technology development, human resource management, and procurement. Taking each in turn:

**The infrastructure** refers to how B4L Supermarkets is organised. This could be in terms of whether it is centralised or decentralised, along with the systems of planning, finance, quality control and information management. Fundamentally the infrastructure should be designed so that it is most efficient and effective to deliver the B4L Supermarket's business, including for example decisions on the level of autonomy at local supermarket level.

**Technology development** is concerned with how B4L Supermarkets uses technology. This could be important in adding value in a number of different ways, including for instance in the ordering of stock using sophisticated stock control technology, to ensure B4L’s chain of supermarkets have the stock they need but do not have high stock piles and wastage. Another aspect could be the data mining of customer information to support marketing activities both at store level and directly with the customer in terms of customised and targeted offers.

**Human resource management** is associated with all matters to do with the B4L Supermarkets’ employees. This includes HR policies and procedures for recruitment, appraisal, performance management, training and development. All of these are important in the context of having the right staff with the right behaviours, skills and attitudes to deliver the excellent customer service B4L prides itself on.

**Procurement** is concerned with all aspects of purchasing for the company, and the negotiation of contracts on behalf of the B4L Supermarkets. This will be a critical activity for the company in terms of negotiations with its various suppliers on prices and delivery time, to ensure the B4L can meet its objectives on competitively priced products for its customers. Through centralised procurement B4L should be able to gain scale advantages enabling it to offer competitively priced products.
An important concept in value creation is that of the linkages between different parts of the value chain. The various activities of B4L Supermarkets, both support and primary, are interdependent and connected by linkages, which should make it more difficult for its competitors to imitate. Linkages exist when the way in which one activity is performed affects the cost and effectiveness of other activities. For example, investment in HR through training and development could improve not only the way operations are performed, but also add value through outstanding customer service.
Answer to Question Five

Rationale
This question tests candidates' appreciation of the purpose of undertaking feasibility studies in the context of project management. It examines learning outcome B1(e) 'apply key tools and techniques including the evaluation of proposals'.

Suggested approach
The answer could start with an explanation of the purpose of project feasibility and should then develop to explain the different types of feasibility studies that should be carried out for the scenario project.

A good answer will explain the different types of project feasibility with clear links to the scenario project.

A weak answer will identify a couple of types of project feasibility, but will not explicitly make reference to the scenario project.

Project feasibility study should be undertaken during the early stages of the project, once the requirements and specifications of the project have been identified. The overriding purpose of project feasibility for the wind farm project will be to establish if the proposed project can achieve its objective for the government in a cost effective manner. The attainment of project objectives can often be achieved in a number of alternative ways and feasibility studies can also assist the project sponsor and project manager to decide between alternative strategies.

In the case of wind farm project, feasibility will involve collecting sufficient information to enable the government of DI Country to make an informed judgement on whether or not to proceed with the project. Specifically, this will help to identify the key technical and performance objectives that the project must achieve and to ensure that the technology exists to achieve the project deliverables.

Feasibility can be considered in a number of areas for the wind farm project, for example technical, social, environmental, financial and business feasibility.

**Technical feasibility** will vary depending on the type of project being undertaken. In the case of the wind farm project, technical feasibility would need to be undertaken to assess the nature of the technology required both to build and run the wind turbines. Questions will need to be asked such as:

- Do all the necessary technologies exist or is significant innovation needed?
- How specialised is the required technology and is the expertise to make use of it readily available?

The project team would need to assess all the different technologies required to build the wind farm. The possibilities of any likely engineering problems associated with the construction of the wind farm will also need to be considered.

**Social feasibility** is concerned with ensuring the project fits with both the government objectives and its social environment. This is becoming increasingly important and should be considered in terms of the likely effects of undertaking the wind farm project. For example, assessing potential consequences for the people who will ultimately work on the wind farm and also how people living in the surrounding area might be affected in terms of possible disruptions during the construction and operation of the wind farm.

Linked to this would be the need for the government to consider **environmental** or **ecological feasibility**. This would include the issues associated with complying with health and safety legislation, and also making sure the wind farm is ecologically sound and not harmful to the surrounding environment. This will be important since the notion of the wind farm as an alternative supply of energy is based on its ecological benefits.
In addition, the project is likely to entail the building of large structures that could impact on the local environment in terms of visual appearance. This is an important consideration since the identified location is a picturesque national park and the turbines may well detract from the natural beauty of the area and impact upon wildlife, especially birds.

*Financial feasibility*, which is sometimes referred to as economic feasibility, will need to be undertaken in order to explore whether the project provides the desired benefits to the government. It is usually assessed through cost benefit analysis. In other words, determining the various costs that will be incurred for the development of the wind farm venture and the monetary benefits it will bring to the government. The costs for the wind farm project could be divided into:

- Capital costs that will be incurred in building the wind farm and the equipment needed for its future operation;
- Finance cost on any loans needed to fund the project;
- Revenue costs (i.e. all other costs associated with the project).

Techniques such as net present value, payback period and rate of return may be used to assess the financial feasibility of the wind farm project.
Answer to Question Six

Rationale

Requirement (a) tests candidates’ understanding of the positioning approach to achieving competitive advantage. It examines learning outcome A1(a) ‘discuss the nature of competitive environments’. Requirement (b) tests candidates’ appreciation of the different stages in the rational approach to strategy formulation and development. It examines learning outcome A2(b) ‘compare and contrast approaches to strategy formulation’.

Suggested approach

(a) The answer could start with an explanation of competitive advantage. It should then go on to explain the positioning view, along with an explanation of the potential problems of this approach.

A good answer will provide a comprehensive and balanced explanation of both the positioning approach and the potential problems. A weak answer will provide simply a limited explanation of the approach without reference to the potential problems.

(b) The answer could start with a brief explanation of the rational approach to strategy development (and could include the diagram). It should then develop to describe the various stages in the process following corporate appraisal.

A good answer will provide a comprehensive description of the different stages, in the correct order, and in the context of the scenario business. A weak answer will identify some of the stages, but the description will tend to be at a general level with limited reference to the scenario organisation.

Requirement (a)

EV Company’s success so far has been as a result of its positioning approach to strategy and in particular its ability to differentiate itself from rival vehicle manufacturers. The positioning approach to strategy takes the view that competitive advantage stems from EV Company’s position in relation to its competitors and markets. It is sometimes called an ‘outside in’ view because it is essentially concerned with how the company adapts to fit its external environment.

The positioning approach is based on the assumption that supernormal profits which create competitive advantage can result from:

- High market share relative to its competitors
- Differentiated products/services
- Relatively low costs.

In the case of EV Company, it has built its competitive advantage by differentiating its offer from rival companies by developing low cost energy efficient vehicles that are also more environmentally friendly as alternatives to traditional petroleum based vehicles.

This positioning view is based on EV Company looking ahead at the market and predicting changes to its environment which would enable it to control changes rather than having to react to them. It requires the company to constantly scan its environment in order to determine how it can continue to exploit any opportunities or have in place strategies to minimise any threats. This would involve the company, as it has done as part of its strategic planning, in undertaking environmental scanning, using the PESTEL framework.
understanding the industry competition using Porter’s Five Forces model, as well as wider competitor analysis.

There are, however, potential problems associated with EV Company continuing to apply the positioning approach to strategy development. The main problem with the positioning view is that it relies on predictions of future markets and external environmental trends. Sometimes markets are dynamic and volatile, and the impact of rapidly changing technologies and global competition can mean that developing strategies based on predicting future trends can be misleading.

Competitive advantage is not always sustainable since the advantages EV Company currently has may eventually be copied in the long run by its competitors. So, for instance, other car manufacturers may use their greater resources to produce electric cars that are cheaper and more energy efficient or offer customer vehicles that provide a higher level of performance, for example, in terms of distance travelled before the battery needs re-charging and/or faster speeds.

Supporters of the positioning view seem to suggest that an organisation can have its size and shape changed at will to fit the environment; however, this can be problematic for an organisation to achieve in practice.

**Requirement (b)**

The rational/formal approach, sometimes referred to as the top-down approach to strategy formulation is based on a structured approach to planning. It involves a number of steps starting with the analysis of the current position.

EV Company has completed the corporate appraisal stage of the rational approach to planning, which involves identifying its internal strengths and weaknesses along with the opportunities and threats presented by the external environment. The next steps in the rational approach will involve the company generating strategic options, the evaluation and choice of options, strategy implementation and review and control.

EV Company will have various options in terms of the strategic direction it could follow. These options can be considered using the Ansoff matrix framework which suggests that choices are made in terms of its products (current and new) and its markets (current and new). From this there are four possible options:

- **Market penetration** is where EV Company would continue to maintain or increase its share of its existing market with existing products.

- **Product development** would involve EV Company launching new products or making product enhancements to its vehicles, but with the target of customers in its existing markets. This could lead to EV Company developing new types of industrial vehicle and/or new models of electric car to appeal to existing customers.

- **Market development** is based on finding new markets for EV Company's existing products. This can be achieved either geographically i.e. entering new territories, or identifying new market segments for its products. For example, by investing in an advertising campaign for its electric cars to appeal to main stream consumers.

- **Diversification** is the most risky option since it involves launching new products into new markets. This could involve EV Company using its manufacturing and design expertise to produce other electric vehicle types such as boats, motor bikes and scooters or golf carts.

EV Company must also consider what methods it could use to implement each of the strategic options pursued. For instance, one option would be through internal development where the company would use its own internal resources to follow it chosen strategy. Alternatively, EV Company could explore the possibility of taking over or merging with another organisation, for example a manufacturer of other types of electric vehicle or forms of transport. This approach could help EV Company acquire knowledge of a particular product...
or market, or obtain a new product range or market presence. Another option would be to form a strategic alliance, which is where EV Company would form a relationship with one or more companies and co-operate in defined ways to achieve specific objectives. Examples of strategic alliances are via joint venture, consortia, franchising and licensing. With many major car manufacturers producing hybrid and electric cars themselves, a joint venture or licensing agreement with one of these could be a realistic way forward for EV Company’s development.

Having generated possible options each needs to be considered for its feasibility and fit with the mission and objectives of EV Company. Each will be evaluated with respect to its ability to achieve the overall goals of the company.

Having made the choice of which options to pursue, the next stage in the rational approach to strategy formulation is the implementation of strategy. This involves drawing up detailed plans and budgets necessary to put the strategy into action. It also involves obtaining the necessary resources needed for the strategy. It might also entail the setting of targets and key performance indicators.

The final step will be for EV Company to review and control the strategy implemented and its continuing suitability. This should be a continuous process and will be aimed at assessing whether the performance of the strategy will enable the company to reach its strategic objectives.

At this stage the question as to whether the forecasts of the environment on which the strategy was based are accurate needs to be determined. Another aspect of review is to assess whether new opportunities or threats have arisen which might require a reconsideration of the appropriateness of the strategy. Hence this continuous process is necessary so that corrective action can be taken if changes occur internally or externally.
Answer to Question Seven

**Rationale**

Requirement (a) tests candidates’ understanding of how uncertainty can be managed in a project. It examines learning outcomes B1(f) ‘produce a basic project plan incorporating strategies for dealing with uncertainty, in the context of a simple project’. Requirement (b) tests candidates’ appreciation of the contribution of project management software. It examines learning outcomes B1(b) ‘apply suitable structures and frameworks to projects to identify common project management issues’ and B1(d) ‘identify the characteristics of each phase in the project process’.

**Suggested approach**

(a) The answer could start with a brief explanation of risk and uncertainty within the context of the time aspect of a project. It should then develop to describe three specific techniques which could assist the project manager when planning for risk and uncertainty for time.

A good answer will provide a detailed description of three different techniques to help plan for risk and uncertainty making explicit reference to the time aspect. A weak answer will provide a limited description of one or two techniques in a general sense without explicit reference to the time aspect.

(b) The answer should use the different stages of the project lifecycle to discuss how project management software could help the project manager and project team.

A good answer will provide a comprehensive discussion of the contribution of project management software with explicit links to the stages of the project lifecycle. A weak answer will explain some of the ways project management software can help but without making the links to the different stages of the project lifecycle.

**Requirement (a)**

There are a number of different techniques that S, the project manager, could use to help in uncertainty associated with planning the time aspect of the airport access road project. For instance, scenario planning, project evaluation and review technique (PERT), and buffering.

Scenario planning involves considering one or more sets of circumstances that may occur other than the most likely or expected set of circumstances used to prepare the budget or time plan for a project. Each set of assumptions is then tested to establish what the outcome would be if those circumstances were actually to occur.

Applying this to the scenario project would mean planning for possible uncertainties constructing contingency or scenario plans for the airport access road project. This would require S to undertake an examination of all the various activities involved and the development of alternative contingency/scenario plans ready to minimise the possible risk associated with the project activities, which could be switched to if needed.

S could also use the project evaluation and review technique (PERT) to overcome the uncertainties over the time taken for individual activities in the airport access road project. Unless a similar project has been undertaken before by S, then timings set for each activity needed in the construction of the access road and tunnel are likely to be very uncertain.

PERT is a technique designed to account for uncertainty in the project lifecycle.

Each task is assigned a time:

- An optimistic (best) time on the duration of the project if the conditions were ideal.
- A probable time if conditions were normal or as expected.
- A pessimistic (worst) time which is the duration it would take if a number of things went wrong.
These estimates are then converted into a mean time and standard deviation which means it would be possible for S to establish the duration of the project using the expected times, but also to calculate a contingency time allowance.

A more simplistic way to incorporate risk of time delay would be for S to add artificial slack into the risky project activities identified. This technique is known as buffering. It involves adding padding to the original time estimates and allows for the fact that it can be very difficult to ensure that all stages and activities are carried out exactly as planned. However, it should be noted that buffering can lead to a build-up of slack in the programme and this may lead to complacency in the execution of the project.

Requirement (b)

Many of the tools and techniques needed to manage large and complex projects such as the airport access road project can be effectively carried out using project management software. Most project management (PM) software packages contain functions which assist in planning activities, work scheduling, viewing of relationships between tasks, resource management, progress monitoring and control.

During the first stage of the airport access road project, which will involve defining and initiating the project, PM software could be used to undertake contingency planning and ‘what if’ analysis. This would assist S, the project manager, to understand the effects of different scenarios. PM software would also enable the various scenarios to be calculated relatively quickly and more easily than would be the case manually. This is an especially important function for complex projects.

In the planning phase, project management software should also make project planning easier for S and her project team, in that it will allow her to define the different activities that need to be performed to deliver the airport access road project. It is likely that this will be a complex project and will need to be broken down into smaller projects to make them more manageable, especially since it will use different specialist contractors to complete different parts of the work, each of which will need to be planned and monitored separately.

The PM software can help in the production of the detailed project planning documentation, and will have functions that would help S in planning the work scheduling. It will build Gantt charts and network diagrams based on the task and resource lists and associated information. Any changes to the lists will automatically recreate a new schedule for the project. These various project support techniques can be produced automatically once the project data is input. It will also be possible for S to schedule any recurring tasks, to set priorities for tasks and to specify ‘must end by’ and ‘no later than’ dates for activities. These functions would also help S in checking different combinations of using different levels of resources and changing deadlines, hence she will be better able to determine the optimum project plan and review relationships between tasks.

A critical issue in the project planning is resource planning, that is, ensuring the project has the correct level of human resources, equipment and material at the right place at the right time. Again, in a complex project such as the airport access road, this will be critical as a vast amount of material and manpower will be required on the different individual projects going on at the same time. The PM software will generate resource histograms which will give S a visual display of the usage and availability of the resources needed during the life of the project. This demonstrates clearly to her where there may be resource shortages and will allow reallocation to take place or will indicate to the project manager where additional resources may need to be obtained to ensure critical activities are achieved.

During the implementation phase the software could help in a number of ways. The airport access road project is complex in nature and is likely to involve a number of sub-construction projects, including the building of a tunnel. This will mean that S and her project team will be dealing with large amounts of data which are likely to change during the implementation phase. Project management software is particularly helpful in this regard in terms of handling multiple projects and complexity often associated with large projects, particularly if there are
many variables. Re-planning can be done quickly, for example estimates may change many times during the project lifecycle but project management software can produce revised schedules very quickly, and the changes can be reflected in the project plan immediately. Any changes to task lists will automatically create new schedules for the project.

During the airport access road project execution phase, budget and control features of project software will assist S in monitoring and control. For example, actual costs can be quickly compared with budget costs, at both the level of individual activity and for a project as a whole. This will encourage constant tracking of progress since actual times can be captured and then comparisons made against planned progress enabling S to investigate any problem areas without delay. Project management software will allow the project manager to continually compare actual costs against budget for individual resources and activities and for the whole project.

S will have to regularly report to the various stakeholders on the progress of the project. The project management software will help here through the generation of progress reports, budget reports, resource reports, WBS reports and financial reports. These can be presented in a variety of formats to suit the needs of the different stakeholders, facilitating the production of both standard and tailored progress reports. The quality of the documentation will be high, and reports can be extracted and shared with the project team, and other interested stakeholders. This will help in the reporting on progress to the different project stakeholders and will encourage and facilitate constant progress checking. It will also help both in terms of access to information by the project team, and with co-ordination of activities and project review.

At the closure stage of the project lifecycle, the software can be used by S to produce the completion report, since all information on costs and time will have been captured during the life of the airport access road project.