Chartered Insurance Institute

P67 – Fundamentals of risk management

Diploma in Insurance

April 2018 Examination Guide

SPECIAL NOTICE

Candidates entered for the October 2018 examination should study this Examination Guide carefully in order to prepare themselves for the examination.

Practise in answering the questions is highly desirable and should be considered a critical part of a properly planned programme of examination preparation.

P67 – Fundamentals of risk management

Contents

Published August 2018

Telephone: 020 8989 8464
Fax: 020 8530 3052
Email: customer.serv@cii.co.uk

IMPORTANT GUIDANCE FOR CANDIDATES

Introduction

The purpose of this Examination Guide is to help you understand how examiners seek to assess the knowledge and skill of candidates. You can then use this understanding to help you demonstrate to the examiners that you meet the required levels of knowledge and skill to merit a pass in this unit.

Before the examination

Study the syllabus carefully

This is available online at www.cii.co.uk or from Customer Service. All the questions in the examination are based directly on the syllabus. *You will be tested on the syllabus alone*, so it is vital that you are familiar with it.

There are books specifically produced to support your studies that provide coverage of all the syllabus areas; however you should be prepared to read around the subject. This is important, particularly if you feel that further information is required to fully understand a topic or an alternative viewpoint is sought. The reading list which can be found with the syllabus provides valuable suggestions.

Read widely

It is vital that your knowledge is widened beyond the scope of one book. *It is quite unrealistic to expect that the study of a single study text will be sufficient to meet all your requirements.* While books specifically produced to support your studies will provide coverage of all the syllabus areas, you should be prepared to read around the subject. This is important, particularly if you feel that further information is required to fully understand a topic or an alternative viewpoint is sought. The reading list which can be found with the syllabus provides valuable suggestions.

Make full use of the Examination Guide

This Examination Guide contains a full examination paper and model answers. The model answers show the types of responses the examiners are looking for and which would achieve maximum marks. However, you should note that there are alternative answers to some question parts which would also gain high marks. For the sake of clarity and brevity not all of these alternative answers are shown.

This guide and previous Examination Guides can be treated as 'mock' examination papers. Attempting them under examination conditions as far as possible, and then comparing your answers to the model ones, should be seen as an essential part of your exam preparation. The examiner's comments on candidates' actual performance in each question provide further valuable guidance. You can purchase copies of the most recent Examination Guides online at www.cii.co.uk. CII members can download free copies of older Examination Guides online at www.cii.co.uk/knowledge.

Know the structure of the examination
Assessment is by means of a three hour paper.

Part 1 consists of 14 compulsory questions, worth a total of 140 marks.

Part 2 consists of 2 questions selected from 3, worth a total of 60 marks.

Each question part will clearly show the maximum marks which can be earned.

Read the current Diploma in Insurance Information for Candidates
Details of administrative arrangements and the regulations which form the basis of your examination entry are to be found in the current Diploma in Insurance Information for Candidates brochure, which is *essential reading* for all candidates. It is available online at www.cii.co.uk or from Customer Service.

In the examination

The following will help:

Spend your time in accordance with the allocation of marks

- The marks allocated to each question part are shown on the paper.
- If a question has just two marks allocated, there are likely to be only one or two points for which the examiner is looking, so a long answer is a waste of time.
- Conversely, if a question has 12 marks allocated, a couple of lines will not be an adequate answer.
- Do not spend excessive time on any one question; if the time allocation for that question has been used up, leave some space, go on to the next question and return to the incomplete question after you have completed the rest of the paper, if you have time.

Take great care to answer the question that has been set

- Many candidates leave the examination room confident that they have written a 'good' paper, only to be surprised when they receive a disappointing result. Often, the explanation for this lies in a failure to fully understand the question that has been asked before putting pen to paper.
- Highlighting key words and phrases is a technique many candidates find useful.
- The model answers provided in this Examination Guide would gain full marks. Alternative answers that cover the same points and therefore answer the question that has been asked would also gain full marks.

Tackling questions

Tackle the questions in whatever order feels most comfortable. Generally, it is better to leave any questions which you find challenging until you have attempted the questions you are confident about. Candidates' should avoid mixing question parts, (for example, 1(a)(i) and (ii) followed by 2(b)(ii) followed by 1(e)(i)) as this often leads to candidates unintentionally failing to fully complete the examination paper. This can make the difference between achieving a pass or a narrow fail.

It is vital to label all parts of your answer correctly as many questions have multiple parts to them (for example, question 1(a) may have parts (i), (ii) and (iii)). Failure to fully distinguish between the separate question parts may mean that full credit cannot be given. It is also important to note that a full answer must be given to each question part and candidates should not include notes such as 'refer to answer given in 1(b)(i)'.

Answer format

Unless the question requires you to produce an answer in a particular format, such as a letter or a report, you should use 'bullet points' or short paragraphs. The model answers indicate what is acceptable for the different types of question.

Where you are asked to perform a calculation it is important to show **all** the steps in your answer. The majority of the marks will be allocated for demonstrating the correct method of calculation.

Provided handwriting is legible, candidates will **not** lose marks if it is 'untidy'. Similarly, marks are not lost due to poor spelling or grammar.

Calculators

If you bring a calculator into the examination room, it must be a silent, battery or solar-powered, non-programmable calculator. The use of electronic equipment capable of being programmed to hold alphabetical or numerical data and/or formulae is prohibited. You may use a financial or scientific calculator, provided it meets these requirements. The majority of the marks will be allocated for demonstrating the correct method of calculation.

EXAMINER COMMENTS

Question 1
Most of the candidates performed reasonably well on part (a) of this question, producing a definition of the term risk management. Part (b) was answered well however, for part (c), some candidates listed the 4 T's (transfer, terminate, tolerate and treat) instead of the risk control categories.

Question 2
Candidates' answers would have benefitted from focussing on the Deepwater Horizon disaster requested in the question rather than relating to any similar incident. Many candidates did not perform well on part (b).

Question 3
A number of candidates did not answer this question. Questions that are set on risk standards are amongst the least well answered. Candidates should ensure that they have familiarised themselves with the various standards and be able to distinguish between the features of each.

Question 4
There were some good answers to this question. Candidates had to produce a good definition of credit risk and liquidity risk respectively, mentioning the factors of each risk and to provide an example of each to gain marks.

Question 5
This question was well answered by the majority of candidates. However, a few misread the question and included some internal sources of information in their answers which was not required.

Question 6
Candidates' answers to this question would have benefitted from including some of the detail relating to the three regulatory bodies formed after the enactment of the Financial Services Act 2012. In some cases, candidates confused the objectives of the Prudential Regulation Authority with the Financial Conduct Authority and some did not provide the correct name of the third body, the Financial Policy Committee.

Question 7
Candidates could either provide a narrative answer to this question or express their answers in the form of a diagram to describe the Dow Fire and Explosion Index. This was a question that was not well answered by many candidates.

Question 8
Very few candidates were able to provide an accurate definition of alternative risk transfer for part (a) of this question. There was confusion amongst some candidates when answering part (b), with alternative risk transfer and alternative risk financing being mixed up. As a result, some candidates mentioned captives, risk retention, self-insurance programmes, internal funds, risk sharing and risk transfer by contract which are all methods of alternative risk financing. Those candidates that provided answers containing insurance derivatives, catastrophe bonds, loans and put options received marks for part (b).

Question 9
Some candidates achieved good marks on this question and were able to describe briefly four influences associated with risk perception.

Question 10
Part (a) of this question was well answered with many candidates stating seven typical risk management responsibilities although no candidates split their answer in part (b) between internal and external stakeholders. Some just listed various stakeholders in their answers to part (b) without classifying whether each was an internal or external stakeholder.

Question 11
Candidates' answers for part (a) of this question would have benefitted from mentioning the purpose of a risk register. Part (b) was the area of the question that presented candidates with the most difficulty with very few producing any of the correct answers relating to the facilities that a web-based, distributed risk register, might include. Part (c) was answered a little better with some of the potential difficulties being correctly identified.

Question 12
Few candidates gained high marks on this question as they could not correctly state the six step process cycle of ISO 22301, the international standard published in 2012 for business continuity management.

Question 13
Some candidates did not attempt to answer this question at all. The few candidates that did correctly identified the five commonly adopted principles, but some listed the recommended practices of the UK Corporate Governance Code which was not correct.

Question 14
Some candidates mentioned insurance derivatives, catastrophe bonds, loans and put options in their answers which are all methods of alternative risk transfer and so did not receive marks for their answers. The candidates that provided answers containing captives, risk retention, self-insurance programmes, internal funds, risk sharing and risk transfer by contract, which area all methods of alternative risk financing, received marks. As in Question 8, some candidates confused alternative risk financing with alternative risk transfer.

Question 15
This was a popular Part II question with candidates. For part (a), few candidates correctly described why enterprise risk management (ERM) is important or give a definition. For part (b), candidates needed to describe how ERM emerged, with few benefits being provided. For part (c), some candidates mentioned all the detail on the sides of the COSO cube, which were not asked for in the question, rather than focussing on how the COSO internal control framework might be used by an organisation with an ERM system. A few candidates did mention the recent changes to the COSO framework introduced in June 2017 and therefore received marks for part (c).

Question 16

This was another popular Part II question and it was reasonably well answered in most cases. Many candidates gained high marks for part (a) by providing good descriptions on various types of global risks with examples that might have an impact on an organisation setting up new overseas operations. Candidates achieved fewer marks for part (b) which was about the challenges and opportunities associated with setting up a global insurance programme.

Question 17

This was the least popular Part II question with candidates. There were a few good answers whilst others who had left this question until last appeared to have run out of time, producing very little detail and brief answers so lower marks were achieved.

Chartered Insurance Institute

P67

Diploma in Insurance

Unit P67 – Fundamentals of risk management

April 2018 examination

Instructions

- Three hours are allowed for this paper.
- **Do not begin writing until the invigilator instructs you to.**
- **Read the instructions on page 3 carefully before answering any questions.**
- Provide the information requested on the answer book and form B.
- You are allowed to write on the inside pages of this question paper, but you must **NOT** write your name, candidate number, PIN or any other identification anywhere on this question paper.
- The answer book and this question paper must **both be handed in personally by you** to the invigilator before you leave the examination room. **Failure to comply with this regulation will result in your paper not being marked and you may be prevented from entering this examination in the future.**

Unit P67 – Fundamentals of risk management

Instructions to candidates

Read the instructions below before answering any questions

- **Three hours** are allowed for this paper which carries a total of 200 marks, as follows:

Part I	14 compulsory questions	140 marks
Part II	2 questions selected from 3	60 marks

- You should answer **all** questions in Part I and two out of the three questions in Part II.
- You are advised to spend no more than two hours on Part I.
- Read carefully all questions and information provided before starting to answer. Your answer will be marked strictly in accordance with the question set.
- The number of marks allocated to each question part is given next to the question and you should spend your time in accordance with that allocation.
- You may find it helpful in some places to make rough notes in the answer booklet. If you do this, you should cross through these notes before you hand in the booklet.
- It is important to show each step in any calculation, even if you have used a calculator.
- If you bring a calculator into the examination room, it must be a silent, battery or solar-powered non-programmable calculator. The use of electronic equipment capable of being programmed to hold alphabetic or numerical data and/or formulae is prohibited. You may use a financial or scientific calculator, provided it meets these requirements.
- Answer each question on a new page. If a question has more than one part, leave six lines blank after each part.

PART I

Answer ALL questions in Part I

Note form is acceptable where this conveys all the necessary information

1. **(a)** Define the term risk management. **(3)**

(b) State **four** benefits of risk management. **(4)**

(c) Describe briefly **four** broad classes of risk control providing an example of **each**. **(8)**

2. **(a)** Outline the consequences of the failure of the BP risk management systems that led to the Deepwater Horizon disaster in 2010. **(7)**

(b) Outline **three** reasons why risk management systems can fail. **(3)**

3. Describe briefly the following risk standards:

(a) FERMA 2003. **(3)**

(b) AIRMIC, Alarm, IRM: 2010. **(3)**

4. Define the following types of risk, providing an example of **each**.

(a) Credit risk. **(4)**

(b) Liquidity risk. **(4)**

5. State **four** sources of external information and explain how they assist the Risk Manager in identifying and evaluating risks. **(12)**

6. Describe briefly the **three** regulatory bodies that were formed after the enactment of the Financial Services Act 2012, stating the objectives of **each**. **(10)**

7. Describe the Dow Fire and Explosion Index and explain the process that would be followed to assess a risk. **(10)**

8. **(a)** Define alternative risk transfer. **(2)**

(b) Outline **three** types of alternative risk transfer used by organisations. **(9)**

9. Describe briefly **four** influences associated with risk perception. **(12)**

10. **(a)** State **seven** typical risk management responsibilities that a chief risk officer might have. **(7)**

(b) Identify **five** stakeholders a chief risk officer would be likely to communicate with on risk matters. **(5)**

11. **(a)** Explain the purpose of a risk register. **(6)**

(b) State **five** facilities that a web-based, distributed risk register might include. **(5)**

(c) Identify **four** potential difficulties that should be recognised in the utilisation of risk registers within an organisation. **(4)**

12. State the six step process cycle within ISO 22301. **(6)**

13. Although corporate governance codes differ across the world there are a number of principles that generally appear in all such codes.

Identify **five** such commonly adopted principles. **(5)**

14. Describe briefly **two** risk financing options that an organisation might choose to manage their risk exposure, aside from a traditional insurance programme. **(8)**

PART II

Answer TWO of the following THREE questions
Each question is worth 30 marks

15. You are the Risk Manager for an organisation that operates within an enterprise risk management (ERM) framework. The organisation has recently acquired a business that has not previously had an ERM framework in place. For the benefit of the newly acquired company:

(a) define ERM and explain why it is important; **(5)**

(b) describe how ERM emerged, the benefits, and how it operates within an organisation; **(15)**

(c) describe how the internal control framework, known as COSO, might be used within an organisation with an ERM system. **(10)**

16. **(a)** Discuss the global risks that may have an impact on an organisation in setting up new overseas operations. **(15)**

(b) Explain the challenges and opportunities associated with setting up a global insurance programme. **(15)**

17. You are the newly appointed Risk Manager within an organisation and have noted that there is no written risk management philosophy or statement in place.

Advise the Board of the advantages of adopting a risk document, describing the elements that should be referenced within it. **(30)**

TEST SPECIFICATION

April 2018 Examination – P67 Fundamentals of risk management	
Question	Syllabus learning outcome(s) being examined
1	2 – Understand the role and purpose of risk management
2	7 – Understand the key risk management lessons learnt from major loss events
3	3 – Understand the core elements of the risk management process
4	4 – Understand the different categories of risk
5	3 – Understand the core elements of the risk management process
6	3 – Understand the core elements of the risk management process
7	3 – Understand the core elements of the risk management process
8	3 – Understand the core elements of the risk management process 6 – Understand the position of insurance within risk management
9	1 – Understand the meaning of risk
10	2 – Understand the role and purpose of risk management 5 – Understand current trends in risk management
11	3 – Understand the core elements of the risk management process
12	3 – Understand the core elements of the risk management process
13	3 – Understand the core elements of the risk management process
14	3 – Understand the core elements of the risk management process 6 – Understand the position of insurance within risk management
15	2 – Understand the role and purpose of risk management 3 – Understand the core elements of the risk management process 5 – Understand current trends in risk management
16	2 – Understand the role and purpose of risk management 3 – Understand the core elements of the risk management process 6 – Understand the position of insurance within risk management
17	2 – Understand the role and purpose of risk management 3 – Understand the core elements of the risk management process

NOTE ON MODEL ANSWERS

The model answers given are those which would achieve maximum marks. However, there are alternative answers to some question parts which would also gain high marks. For the sake of clarity and brevity not all of these alternative answers are shown. An oblique (/) indicates an equally acceptable alternative answer.

Model answer for Question 1

(a) Risk management is the identification, analysis and control of those risks which can threaten the operations, assets and other responsibilities of an organisation.

(b) *Any four of the following*:

- Compliance with legislation and regulation.
- Improved corporate governance.
- Understanding and therefore avoiding and reducing operational risk.
- Understanding risk associated with opportunities.
- Improvements in both internal and external risks reports, and communications.
- Increase in stakeholder satisfaction and possible decrease in cost of borrowing.
- Avoidance of disasters.
- Reduction in frequency of incidents.
- Reduced cost of incidents.
- Reduced insurance costs.
- Increased likelihood of meeting organisation objectives.
- Preservation of reputation.
- Improved health and safety.
- Quicker recovery from emergencies.

(c)

- Preventative – measures to stop a risk happening or an unwanted outcome arising e.g. separation of duties; or limit specified actions to authorised personnel.
- Corrective – measures to limit scope for loss and reduce any undesirable outcomes that have come about once the loss or damage has materialised e.g. contract terms that allow a supplier to recover goods that have not yet been paid for by a customer or continuity planning. Insurance is also a form of corrective control.
- Directive – controls to ensure a particular aim is realised. They are instructions or regulations designed to ensure a particular outcome is achieved. They are important when people's behaviour can prevent an undesirable event. Commonly associated with health, safety and security e.g. requirements to wear protective clothing while performing dangerous duties; staff trained to certain skill levels before being allowed to work unsupervised.
- Detective – after the event measures to identify when an incident has happened e.g. stock or other asset checks will detect theft or similar anomalies; or reconciliation – reconciling authorised payments with bank statements will detect unauthorised transactions; audit, inspections, quality controls.

Model answer for Question 2

(a) The primary consequences were that a well blowout was allowed to occur. The blowout was not contained, and eleven operators died in subsequent explosions and fire. The drilling rig burnt out and sank and a massive oil spill was released into the Gulf of Mexico. It took BP 83 days to cap the well and stop the oil flow.

The secondary consequences by the middle of 2010 included:

- Over 20 million gallons of oil were spread over 24,000 square kilometres of the Gulf of Mexico.
- Over 20,000 people were involved in cleaning beaches and other impact mitigation attempts.
- Clean up costs had already reached £1.2 billion.
- Fishermen lost their livelihood, with long-term depletion of fish stocks.
- BP stock fell to a 14-year low, equivalent to £67 billion loss of value since the disaster.
- Rating agencies issued warnings and downgraded.
- BP received 42,000 claims for compensation and had settled about 20,000 at a cost of US$53 million.
- BP was forced to set aside £13.5 billion against claims and cancel its dividend. It announced plans to raise up to £35 billion, of which up to £7 billion was to come from asset sales.
- Senior managers were replaced or resigned.
- Multiple legal proceedings will take many years to resolve.

Long-term consequences – scientists and marine ecologists are continuing to monitor potential long-term effects on marine ecosystems, wildlife habitats and pollutants in the food chain. Many organisations are involved, and BP has promised US$500 million to fund a ten-year research programme.

Although tourist beaches are now cleared, and fishing activities have returned to normal, marshland and other wildlife habitats that would have been damaged by conventional clean-up techniques still retain visible oil deposits.

(b) *Any three of the following:*

- Human decision making can be faulty.
- Decisions responding to risk and establishing controls can be subject to financial constraints.
- Human failures such as errors and mistakes.
- Controls can be circumvented by collusion between two or more people.
- Management has the ability to override enterprise risk management decisions.

Model answer for Question 3

(a) The Federation of European Risk Management Associations (FERMA) 2003 – is a European standard based on the UK standard AIRMIC, Alarm, IRM: 2002. It uses ISO terminology and sets out the process by which risk management can be carried out. It also outlines an organisation structure for risk management and includes a list of benefits to be expected. There are sections on risk reporting and communication and monitoring and review of the risk management process.

(b) The Association of Insurance and Risk Managers (AIRMIC), National Forum for Risk Management in the Public Sector (Alarm), Institute of Risk Management (IRM): 2010 provides a structured approach to implementing risk management in the context of ISO 31000. The guide reviews the principles and processes of risk management, provides an overview of the requirements of ISO 31000 and gives practical guidance how to design an enterprise wide risk management framework and implement an enterprise risk management system.

Model answer for Question 4

(a) The risk that a counterparty will suffer real or perceived deterioration in financial strength or be unable to pay amounts in full when due. Credit risk is associated with credit worthiness of those with whom an organisation does business. An organisation may review many sources of public information and also consider approaching appropriate credit rating agencies in order to try to determine the financial strength of those it deals with. Example: credit rating reduced by Standard & Poors, the credit rating agency as a result of poor results/profit warnings.

(b) The risk of running out of cash when it is needed to meet financial obligations. Liquidity is fundamental in any organisation. If an organisation cannot pay its debts as they fall due and no one is prepared to supply additional cash to the company, either as capital or in the form of loans or overdrafts, then almost certainly the company will fail, no matter how technically 'profitable' it may be.

Liquid funds can be cash or liquid assets. Asset liquidity is the ease with which an asset can be turned into cash should the investor need it. Example: real estate is relatively illiquid; shares in public companies on the other hand are relatively liquid as they can be sold quickly and easily, although at current market price.

Model answer for Question 5

Any four of the following:

- Government organisations or organisations linked to the Government – publish a wide selection of material, usually concentrating on general risk information of interest to multiple organisations or on specific risk categories.
- Business and professional institutions – publish useful information on best practice, standards, audits, management and governance issues. They also contain opinion, hold surveys and publish case studies on topical corporate incidents. Many issue magazines and newsletters to their members and some commission research whilst some have libraries and many issue regular articles on risk matters.
- Insurers and related organisations – will keep records of historical claims and usually will be happy to discuss individual claim files and the lessons to be learnt from incidents that gave rise to claims. There is common interest to reduce future claim frequency and size. Insurers also publish general risk-related material, including research findings. Organisations that are closely associated with services offered by insurers such as chartered loss adjusters or reputable solicitors often publish information concerning risks and aspects of their management.
- Databases – various organisations have common interests in reducing certain types of risk e.g. insurers, public transport organisations, retailers. Insurers have a common interest in reducing fraud, public transport organisations in promoting safe travel and retailers in stock protection methods. Such groups of organisations might organise themselves to maintain joint databases of useful information. Loss data sharing consortia are common in financial organisations to help reduce operational risk e.g. the Association of British Insurers' Operational Risk Consortium database.
- Emergency services – can provide information on risk and trends in risk. The crime prevention department of the local police service is always willing to discuss trends in crime and give advice. It may be necessary to build relationships with specialist units within the emergency services which can include those with responsibility for major fraud, kidnap and ransom.
- Consultants – range from knowledgeable individuals with special skills to subsidiaries of insurers or brokers and global corporations with vast resources and contacts. They offer different specialised services but per head are relatively expensive to employ. Consultants can bring focused current information, specialist and technical skills or just additional resources to a project.
- Newspapers and magazines – risk professionals can learn from every incident reported in the media and look for quality in-depth reports that have been properly researched. Risk departments take interest not only in how an incident was caused but in how the damaged organisation handled the impact of the incident. As well as newspapers there are many magazines and academic journals that are partially or largely devoted to aspects of risk in a national or international context, some of which are available via subscription. Business publications may alert the risk professional to risk changes from competition, new inventions and social fashion trends.
- Company reports – all publicly quoted companies and many other organisations publish annual reports and statements of account. The chairperson's statement alone can provide both facts and clues about an organisation's activities and objectives. With the focus on corporate governance, large companies will be keen to demonstrate proper management and risk awareness. The annual report may therefore contain a substantial analysis of key corporate risks and predictions of potential damage if these risks were to materialise.

- Conferences – companies set up lectures and workshops with different specialities and subjects. Often the speakers are industry thought leaders and those who can usefully share information with delegates on how their own organisation manages risks. Formal conference proceedings may be published on the internet or in conference papers available to delegates and for accredited research. Conferences also have the advantage of bringing together people interested in specialist subjects to share information and ideas.

Model answer for Question 6

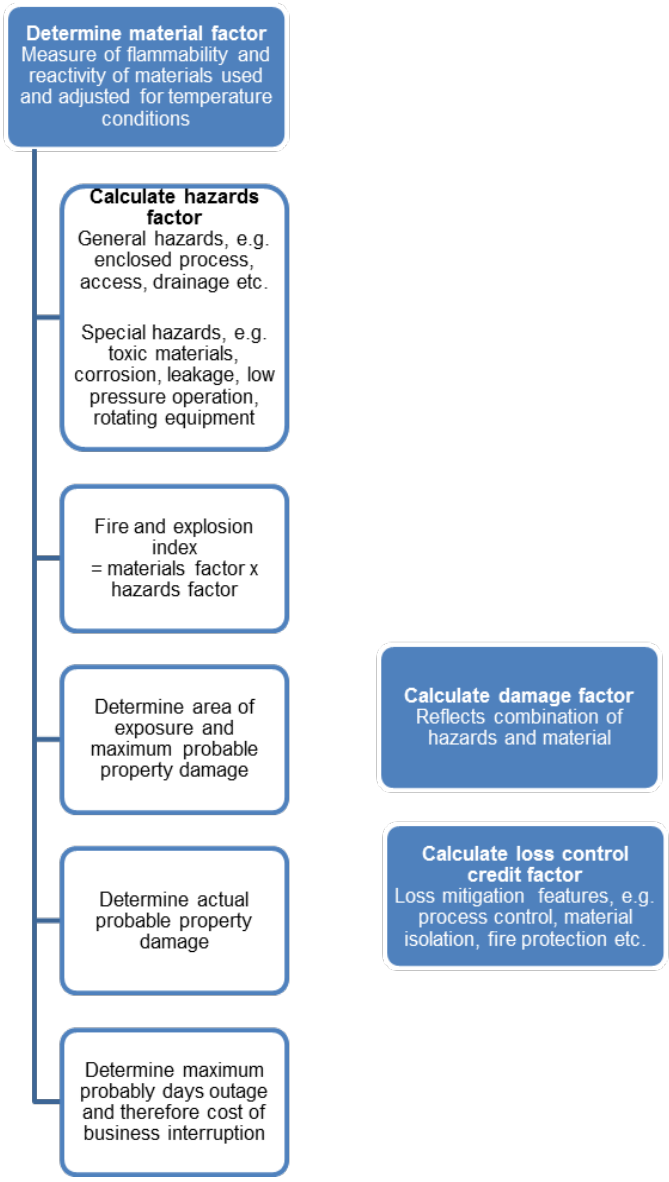
- The Financial Policy Committee within the Bank of England is responsible for micro-prudential regulation.
- The Prudential Regulation Authority (PRA) is a Bank of England subsidiary which is responsible for the micro-prudential regulation of systemically important firms, principally banks and insurers. It will seek to prevent all firm failures but will try to ensure that firms can fail without bringing down the entire financial system. The PRA works alongside the Financial Conduct Authority (FCA) in creating a twin peaks regulatory structure in the UK. The PRA sets standards and supervises financial institutions on an individual basis.
- The FCA is responsible for the conduct of business regulation across the financial services industry and the prudential regulation of small firms, such as insurance brokers and independent financial advisers (IFAs). The FCA is responsible for promoting effective competition and for regulating the conduct of all financial services firms to ensure that consumers get a fair deal. The FCA is responsible for prudential regulation of those financial services firms not supervised by the PRA, such as asset managers and IFAs.

Model answer for Question 7

The Dow Fire and Explosion Index is designed to classify particular hazards that lie within a process within a factory. It applies a predetermined factor number to hazards within that process that are known to increase the overall risk of damage. It is an industry recognised standard which facilitates risk comparisons between similar but disparate sites. It is not a perfect tool and requires engineering knowledge to utilise it. However, the calculation process is straightforward using a standardised spreadsheet format much like filling in a tax form. It has proved useful in determining plant layouts and separation between vessels in chemical process plants.

The Dow Fire and Explosion Index reflects surrounding materials and construction. By multiplying the first factor (hazard) by the second factor (materials), it is possible to take a view on potential percentage damage to the surrounding area.

An alternative answer can be expressed in the following diagram:



Model answer for Question 8

(a) The term alternative risk transfer is used loosely to embrace a range of instruments that enable an organisation to transfer financial risk to a professional risk carrier, other than by way of an insurance contract. Professional risk carriers in this case are capital markets, rather than insurance or reinsurance markets.

(b) *Any three of the following:*

- Insurance derivatives – a development of the concept of financial derivatives, they are a contract to pay an agreed amount of money once a certain level of loss incident is reached. E.g. an earthquake of magnitude in excess of 7.1 on the Richter scale occurring with a defined latitude and longitude and within a defined period might trigger a pre-determined payment on this type of contract.
- Catastrophe bonds – in their simplest form are investment bonds that provide a return to investors based on insurance type events rather than financial market developments. One way in which they are valuable to the large investor is that they can spread the risk of their portfolios beyond the capital markets into an additional market of insurance events, mainly catastrophes. These products are designed for the insurance and reinsurance industries, but it is possible for large organisations through the use of these instruments to transfer risk portfolios directly into the capital markets.
- Loans – an organisation can arrange to borrow funds after a catastrophe has occurred, to help it meet the extra costs that have emerged. This method is not usually satisfactory. The cost of new capital borrowing on top of the original loss, may weaken finances to such an extent that all lenders demand higher interest rates and additional security against repayment default.
- 'Put options' – organisations can buy a 'put option' from a financial institution. The option, or contracted right to act, will become effective following certain specified events, such as a catastrophic loss. The damaged organisation then could use the contracted right to sell a pre-agreed level and type of equity to the financial organisation that provided the option.

Model answer for Question 9

Any four of the following:

- Voluntariness – Renn, Jungermann and Slovic confirmed our perception of risk is reduced if we choose a risk voluntarily. People are willing to accept risk they choose themselves e.g. skiing compared to risks that are imposed on them, for example, food preservatives. They choose risks because they want the rewards involved and at the same time are confident of their personal ability to control the risk. They have freedom of choice and are prepared to accept responsibility for their decision.
- Controllability – people are more willing to accept risks they can control. Risks that are out of our control are more frightening because we cannot influence their outcome. Sjoberg notes that most people overestimate their ability to control risk, thinking they are better than average, which everyone cannot be. A variation of controllability is when we do not have the skills needed to accept a risk, e.g. flying an aeroplane then our perception is influenced by the degree of trust we have in the responsible person we accept on our behalf.
- Delay – if the effect of the risk is far into the future we may be more willing to accept that risk now, perhaps thinking that something in the meantime will happen to reduce or avoid the consequences of the risk, e.g. a smoker is willing to accept known risks spelt out on the cigarette packet for transient rewards of immediate pleasure.
- Man-made and natural risks – are perceived differently, the latter being more accepted than the former. This refers back to control. We assume something could be done to reduce the effect of man-made situations. We look to cause and effect and someone responsible to blame when things go wrong. Normal processes can be accepted as acts of god or fate, against which there is no redress. However, distinctions in this area are becoming blurred as some natural phenomena like global warming and climate change are linked to man-made activity and common natural disasters like floods and earthquakes can be defended against with man-made precautions.
- Familiarity – also affects our perception. Slovic, Fischhoff and Lichtenstein confirmed we get used to living with certain risks, for example, driving and our perception of the real risks can diminish with time. Uncertainty causes us problems and new risks whose outcomes are unknown can cause particular concern, e.g. the bovine spongiform encephalopathy/creutzfeldt-Jakob disease beef scare, the consequences of genetic engineering and the side effects of shale gas fracking.
- Expected benefits – can also influence our view of risk. Driving, for example, a known high risk is accepted because of the overriding benefit of getting quickly from place-to-place. In this case a personal risk gives a personal benefit, but will we accept a risk if the benefit goes to someone else? Studies show that we are more prepared to accept risks where we perceive benefits to be justly shared than if we think benefits are unfairly distributed e.g. we may accept living with nuclear power stations because we all benefit from the resultant energy distribution. In addition, people's perception of justice differs between communities according to whether rewards are distributed universally, principally to benefit the poor or disadvantaged, or principally to benefit risk takers or contributors.
- Media – perceptions of risk are influenced by the media. Risks not in the media are not seen as important as those that are. Rightly or wrongly we think risks must be important if the media has chosen to cover them. Today the media, including via social networks and the Internet, are one of the main influences on our knowledge of risk, though there is debate as to how much media reports alter risk perception.

- Dread and unknown risks – in Slovic's paper 'Perception of Risk' his US-led research came up with this further way to illustrate how risks come to be viewed by comparing and plotting, on a simple graph, two extreme risk descriptions he called dread and unknown risks. Dread risks are characterised by perceived lack of control, catastrophic potential, inequitable distributions of risks and benefits and dreadful consequences. The opposite of dread risk is risk with characteristics such as controllable, individual or relatively contained consequences, equitable and voluntary. Unknown risks are those less generally known, with limited knowledge of the risk, perhaps with delayed effect and where the risk type is new. The opposite is known risks with known consequences, observable, and with immediate effect.

Model answer for Question 10

(a) *Any seven of the following:*

- Supply appropriate risk management skills and expertise.
- Agree, establish and oversee a risk management framework across the organisation.
- Raise 'risk awareness' across the organisation.
- Communicate on risk matters with all business areas and appropriate external stakeholders.
- Provide advice and support across the organisation to ensure effective risk management.
- Identify risk trends and emerging risks of interest.
- Identify, analyse, assess and evaluate a range of individual risks across the organisation.
- Maintain an up-to-date risk register.
- Evaluate existing risk controls, highlighting any deficiencies and creating action plans for improvement.
- Implement cost effective risks controls or adjustment.
- Identify and report on the most important risks faced by the organisation.
- Overall responsibility for recruitment and development of direct reports, including training.
- Work within agreed budgetary constraints.

(b) A chief risk officer must have the ability to communicate effectively at all levels with different interest groups (stakeholders).

Any five of the following:
Internal communications will include:

- Business units.
- Committees.
- Directors.
- Legal.
- Audit.
- Compliance.

External communications might include:

- Auditors.
- Regulators.
- Shareholders.
- The media.

Model answer for Question 11

(a) A risk register is the heart of an organisation's risks management process. It is a record of various data/information which an organisation needs to manage its risks. However, the aim is to build a complete picture or risk profile of the organisation or of selected individual or collections of risks deemed important. Essential data such as risk description, probability and impact assessments are supplemented by information about existing risk controls, ranking, priorities and risk ownership. The register could also allow for recommendations of new or improved risk controls, action plans for their implementation and plans for updating and review. Risk registers can fulfil a dual role, both facilitating practical management of risk and helping to instil or consolidate risk management culture into day-to-day operations. Authorised users should be able to record, assess, classify, report and review risks, and contribute ideas for risk management.

(b)
- Automatic diary system to warn when risks are due for review.
- Tiered access levels to individual risks.
- Authorisation procedures to accept new risks.
- Comprehensive enquiry and reporting facilities.
- Procedures for suggesting and authorising new or improved risk controls.

(c) *Any four of the following:*
- What about unknown new risks?
- It can provide a false sense of security.
- It can list hundreds of risks – will anyone be able to cope with the volume?
- It may not be updated very frequently.
- It may fail to take account of correlations between risks.
- Typically, it focuses on risk events – it may ignore causes and certain effects.
- It relies on risk matrices to facilitate assessments.

Model answer for Question 12

- Setting up a business continuity management (BCM) management structure.
- Analysing the organisation's survival priorities.
- Determining continuity strategies.
- Developing emergency responses.
- Exercising, reviewing and maintaining plans.
- Embedding BCM in the organisation's culture.

Model answer for Question 13

Any five of the following:

- Companies should respect shareholder rights and help shareholders to exercise them.
- Companies should recognise they may have obligations to other stakeholders.
- The Board needs the skills and understanding to review and challenge management performance.
- Companies should develop a code of conduct for their directors and managers that promotes ethical and responsible decision making.
- Companies should make public the roles and responsibilities of the Board and management to provide shareholders with a level of accountability.
- Companies should have procedures to independently verify their financial reporting.

Model answer for Question 14

Any two of the following:

Risk retention

For some losses there may be no real options to transfer financial exposure away from the organisation, even though cumulative losses may be large, for example, shoplifting or stock shrinkage that are part of everyday life. When these losses occur, there are very few ways to fund that loss other than by allowing for anticipated loss levels in the price of the product. In large organisations, losses could be absorbed at group level or alternatively individual subsidiaries or other units could take the losses into their local results. The decision as to whether local units must absorb losses can encourage or discourage ownership of risk amongst local managers. Self-funding and risk retention can also be unplanned. Unplanned scenarios derive from ignorance or from unidentified risks occurring, such as:

- potential risk not identified;
- not insured;
- risk transfer did not work;
- risk transferred but third party did not pay.

Self-insurance programmes

Insurance arrangements that cover only part of a risk are known as self-insurance programmes. They come in several forms, influenced to some extent by tax treatment and local regulation but all share the same basic characteristics.

- The purchaser retains an amount of each loss, this retention will be considerably higher than a standard deductible, say £50,000, £100,000 or £250,000 each loss or even more for larger risks.
- The full policy limit operates in excess of the deductible or the deductible forms part of the limit.
- The sum of all retentions is limited to a predetermined amount or aggregate.
- Some insurers apply an adjustment factor to each loss settlement to cover the cost to them of handling claims, while others include these costs into the premium for the cover in excess of the retention and aggregate.
- Claims can be handled by the insurer, the insured or a third party, such as a loss adjuster or legal entity specialising in claims.

Internal fund

In larger organisations, directors may decide to establish a designated fund from which subsidiaries and other units can claim to recover unexpected losses. This is known as an internal fund. The value of such a fund is that the organisation is utilising its own asset strength. The fund may be organised to build up over a period of years so that large infrequent losses can be financed. During the early years the fund could be protected by insurance. An internal fund must have liquid assets, which are assets that can be quickly turned into cash, so there is a cost associated with doing this as liquid funds attract lower returns.

Captive insurer

This is an insurance company that the organisation has set up and may own. It can be regarded as a formal way of managing an internal fund. The organisation may either manage the captive itself or contract its management to a professional captive management company. A captive in the UK would be treated like any other insurance company and would have to meet the requirements of insurance company regulation, particularly in relation to solvency requirements and the conduct of business.

Risk sharing

Some types of organisation share risks between them, with each paying a contribution into a common fund from which losses are paid. The contribution is revised regularly to ensure that it is adequate to cover expected costs of losses and administration. Again, the arrangement can be formalised as an accredited insurance company which because it has shared ownership, is known as a mutual insurer rather than a captive.

Lawyers, accountants, shipping companies, airlines and the medical profession commonly use such self-funding mechanisms to provide for professional indemnity claims.

Risk transfer by contract

Risk transfer can also occur by contracts. If it is clear the risks that an organisation is transferring, and they recognise legal constraints preventing transfer of certain types of risk and are careful with contract wording, then this is a legitimate method of risk financing. Common examples include leases, subcontracts, surety agreements, guarantees and waivers.

Examples of typical contract arrangements may include:

- A lease for use of property can establish whether or not the tenant remains responsible for rent should the property be rendered unusable either by fire or other external cause.
- Delays in delivery of goods can cause financial penalty clauses to be invoked.

Model answer for Question 15

(a) Enterprise risk management (ERM) is the structure an organisation sets up to control risk management across the whole of its organisation. ERM systems allow all the risks involved in an organisation to be looked at together and from different perspectives, known as a holistic approach, as well as being a framework to control risk management activities.

The ERM framework is important as it shows how essential functions of an organisation combine to create an integrated system for managing risk across the whole organisation. It specifies required information flows and procedures for achieving them. It identifies where overlapping responsibilities might occur and will clarify who is responsible for initiating action plans and ensuring their success.

(b) ERM has been recognised as an important element of strong corporate governance. Today its use in large organisation is internationally supported by laws, regulations and compliance requirements. ERM is not an option with regulators demanding effective ERM and stakeholders often ask for evidence that risk taking is under control.

The benefits are:

- Better informed strategic decisions.
- Successful management of change.
- Higher operational efficiency.
- Reduced borrowing costs.
- Improved competitive advantage.
- Improved risk management awareness.
- More accurate financial reporting.

A successful ERM system operates by having two key elements:

- A workable framework clarifying functional responsibilities and interactions and the systems for internal communication, reporting and control.
- Personalising this framework is a set of terms of reference for key staff. This clarifies individual functional responsibilities and individual requirements.

In a typical ERM system a group management risk function would be responsible for setting up and maintaining the ERM framework and managing all risk management functions within the group.

(c) COSO (Committee of Sponsoring Organizations of the Treadway Commission) defines internal control as a process, effected by an organisation's board or directors, management and other personnel to provide 'reasonable assurance' regarding achievement of objectives in the following categories:

- Effectiveness and efficiency of operations.
- Reliability of financial reporting.
- Compliance with applicable laws and regulations.

COSO describes internal control as consisting of five essential components:

- The control environment.
- Risk assessment.
- Control activities.
- Information and communication.
- Monitoring.

CoCo (Criteria of Control Framework) builds on COSO and describes internal control as actions that foster the best result for an organisation.

Model answer for Question 16

(a) Risks with an international dimension have particular challenges in terms of legal systems, culture and language. New risks will become apparent and the frequency and impact of others may be different.

In each country of operation, local legal and compliance requirements will have a real bearing on working conditions and liability exposures as well as the practical risk environment of health and hygiene, crime patterns, terrorism, safety standards, travel risks and the risk of natural disaster such as hurricanes and earthquakes.

Other risks can arise from extended internal processes, such as lack of management control and ineffective administration can bankrupt even large companies if policies and procedures designed in head office are not implemented abroad.

Global and political risks are of particular concern. Events and trends that have potential global impact are known as global risks. They can affect both organisations with international operations and 'home' organisation with international suppliers or markets. They can be divided into six general categories:

- Global economic risk – financial issues that affect particular market sectors or global trading environments e.g. oil price fluctuations, world banking crisis. Attempted management of economic risks causes governments to alter fiscal policies, organisations to reassess markets and price structures.
- Global environmental risks – natural phenomena, weather related or the consequence of man-made activity e.g. large earthquakes, hurricanes, tsunamis, widespread drought or floods, significant climate change; air pollution, biodiversity loss. Environmental risks threaten assets and employees and may disrupt vital services or supplies.
- Global social risks – arise from the ease with which people move around the world. Worldwide TV, telephone, radio and internet coverages allow instantaneous discussion of ideas and therefore movement of cultures, expectations and standards. Mass travel facilitates transmission of diseases and migration of underprivileged populations.
- Global technology risk – events such as internet or satellite failure leading to the breakdown of commercial distribution and customer service facilities. Related technology risks would be data fraud or data loss on a global scale. Other technological risks may arise from new developments or a better understanding of current developments e.g. electromagnetic field effects attributed to the use of mobile phones, toxicity of nanoparticle devices or genetic engineering mutations.
- Geopolitical risks – arise when several nations disagree causing tension and the risk of armed conflict, or where a particular nation's philosophy and behaviour is sees as a general threat to others. Management of these risks is normally addressed by diplomacy, perhaps reinforced by threats of economic or physical intervention.
- Political risks – defined as risks that stem from political activity by governments but are not likely to provide widespread immediate and united opposition. Political risks arise mainly from economic or social decisions, sometimes effects are local, sometimes repercussions are felt in particular activities or business sectors around the world. Often political decisions that may affect an organisation are made in response to another global risk.

(b) Organisations with international operations often look to simplify insurance arrangements with a global policy, underwritten in the head office's area of legal jurisdiction or in a tax haven. Often, such a policy will have a difference in conditions clause (DIC) that picks up any local insurance requirements.

These policies are not straightforward. Some countries demand that any insurer is licensed. Conversely, some countries may not have insurers that meet an organisation's quality and security standards. There may be a requirement that some compulsory covers, such as employers' liability and motor insurance, may only be provided by local insurers.

Tax implications also need to be considered. Some countries charge an insurance premium tax on insurance arrangements and may consider a global policy to be tax evasion. Treatment of premiums may differ in different countries as well as tax rates. Locally paid premiums are normally tax deductible. Also, there may be tax problems to resolve when receiving and distributing claim payments to a parent company based in a different jurisdiction from the damaged business unit. Below is a table showing the advantages and disadvantages of a global insurance approach.

Table 6.1: Advantages and disadvantages of a global insurance approach

Advantages	Disadvantages
• Consistency of cover. • Central control of cover and cost. • Savings through group buying. • Simpler identification of losses worldwide. Global approach to risk management. • Facilitates controlled participation in its own risk by the parent, for instance through a captive. • Premium allocations can be adjusted for claims experience and used as a tool to encourage better risk management.	• Parent company needs central control, which may conflict with established management style. • Could upset local relationships. • Can cause legislative problems. • Reduces choice of insurers. • Premiums allocated between subsidiaries may need to be paid locally. • Subsidiaries may be forced to 'buy' cover that either does not apply or has limits that are considerably in excess of their individual exposure.

Often the premium allocation process requires careful negotiation between different subsidiaries, especially those who do not like impositions from head office or who feel their risk profile or experience is better than others. However, while the programme will always have to be justified in cost terms, the main driver needs to be the desire for effective corporate management and control across the organisation. New and emerging risks could be challenging.

Model answer for Question 17

A clear, organisation wide, risk management philosophy or risk statement, which could also be entitled a risk management strategy, enables individual risk work to be done within a framework of long-term objectives and provides an effective benchmark for local decisions and activity. A risk policy statement may be restricted to strategic objectives and policies or it may go on into detail about methods and actual levels of risk acceptance. It formalises the risk culture of the organisation.

It may define different levels of perceived threat, likelihood and impact, each requiring different responses. It needs to be issued and communicated across the organisation as a base point for individual risk work.

There are various advantages and benefits to adopting a risk management philosophy and/or risk statement. The risk management philosophy provides an effective benchmark for local decisions and activity. It formalises the risk culture of the organisation.

Communication of the risk management philosophy internally to staff assist with building a risk aware culture whilst externally to stakeholders, it delivers a message of a sound, structured organisation that is risk aware, providing them with confidence and assurance in the organisation.

The risk management philosophy states the risk management structure of the organisation known as the risk architecture, which sets out the lines of communication for reporting on risk management issues and events and specifies the roles and responsibilities of the key people involved. The risk philosophy can therefore embrace how risk is monitored and reported.

Some organisations may feel pressured to publish risk statements in their annual reports, although they strive to protect commercially sensitive information. The risk management philosophy provides an added dimension to risk management information control.

The risk management policy will form part of a larger risk management manual in many organisations, often set out as a one-page statement.

Risk management philosophy or policy structure may vary and address different issues, depending on the nature of an organisation and its approach to risk management. However, it is likely that reference to some or all of the following elements will be made:

- Role and objectives of risk management function(s) and associated internal controls – corporate governance.
- Statement of the organisation's attitude to risk – the risk strategy – the overall approach of the organisation to risk and risk management.
- Description of the risk culture to be cultivated.
- Statement of the organisation's appetite for risk – decisions on which risk and which levels of impact can be retained within the organisation.
- Lines of authority and responsibility – the risk architecture.
- How risks are to be identified, measured and prioritised for action – the risk assessment.
- How risks are to be documented for analysis and reporting upwards and through to the Board.

- Risk mitigation requirements.
- Methods by which change is monitored within the organisation, therefore ensuring that changes that could have an impact on the risks carried are identified for decision.
- Risk management training topics and priorities.
- Criteria for monitoring and benchmarking performance.
- Allocation of resources, roles and responsibilities.
- Risks activities and priorities for the next period.

Each organisation will have its own philosophy, objectives, strategy, architecture and methods. Each will also have its own budget requirements, determining the extent of resources that can be employed. Small organisations will not be able to afford an elaborate risk management structure, however the elements described here are applicable to all organisations and should be borne in mind even if the risk policy statement is simplified.