

P61 – Life, critical illness and disability underwriting

Diploma in Insurance

October 2017 Examination Guide

SPECIAL NOTICE

Candidates entered for the April 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.

P61 – Life, critical illness and disability underwriting

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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 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

In part (a), many candidates provided an account of rheumatoid arthritis which was not asked for in the question. Also, knowledge of the extra articular aspects of the disease was limited in many cases to simply naming affected organs without any description. In part (b), most candidates recognised that rheumatoid arthritis is a long-term fluctuating disease and were careful in their approach to underwriting for income protection.

Question 2

This question was reasonably well answered by the majority of candidates. In part (c), candidates were expected to know that information should be strictly relevant and of high quality. These points were not always clearly shown.

Question 3

Despite the knowledge that classical haemophilia is confined to males; many candidates did not realise the disease was sex linked genetically; suggesting that basic knowledge of genetics is not strong.

Question 4

The majority of candidates knew something about sleep apnoea and overall this question was reasonably answered.

Question 5

Candidates' answers would have benefitted from setting out the factors contributing to mental health disorders in a clear way.

Question 6

This question was well answered as most candidates were familiar with tele-interviewing and tele-underwriting techniques. Some candidates mentioned that the system was carried out by a call centre remote from the insurance company however, this is not current practice in major life companies in the UK.

Question 7

Few candidates gained high marks on this question as knowledge was minimal, particularly concerning the outlook. Retinal detachment is a common condition which can be caused by underlying systemic disease and can be recurrent leading to severe visual loss.

Question 8

This question was reasonably well answered although some candidates would have gained more marks if they had discussed the staging of the tumour. Most candidates did recognise the good prognosis after treatment.

Question 9

Most candidates were familiar with underwriting applicants who have had a myocardial infarction, however, part (c) of the question was generally not answered well. Many candidates did not discuss comorbidities such as the presence of vascular disease elsewhere, hypertension, diabetes and hyperlipidaemia.

Question 10

The majority of candidates gained high marks on this question.

Question 11

Some candidates provided long descriptions of ulcerative colitis which was not required in the question. As a result, these candidates wasted time. Overall, answers were disappointing. Patients who have had a total colectomy and who do not have extra-colic disease should be treated more leniently not less so as some candidates thought.

Question 12

Most candidates displayed a limited knowledge of myasthenia gravis. One or two candidates, however, did perform well and had a good understanding of a rather complex disorder.

Question 13

Most candidates understood how the condition spontaneous pneumothorax arises however, some were rather too severe in their assessment for underwriting. Most patients who have a spontaneous pneumothorax do not have any apparent underlying chest disease and are given normal rates for all insurance.

Question 14

The essential feature of an embolus is that it arises in one part of the body and travels elsewhere where it blocks a blood vessel. The stronger candidates did well on this question and gave good examples.

Question 15

Many candidates did not mention that there are often symptoms soon after the initial infection with HIV which resemble glandular fever. In part (b), all the risks associated with living in sub-Saharan Africa were required, not simply those only relevant to HIV. In part (c), a crucial point is evidence of cooperation with treatment.

Question 16

Candidates displayed poor knowledge of the problem of transitional cell carcinoma of the bladder. Many of these cases can be treated with diathermy and, provided they are followed up carefully, can be managed for many years with no other treatment. Once there is spread beyond the bladder wall, however, the outlook is not so good and more radical treatment is required.

Question 17

Many candidates had little understanding of non-alcoholic fatty liver disease. Some did not mention metabolic syndrome and confined their answer to liver disorder.

THE CHARTERED INSURANCE INSTITUTE



P61

Diploma in Insurance

Unit P61 – Life, critical illness and disability underwriting

October 2017 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 P61 – Life, critical illness and disability underwriting

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 several 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) State and describe briefly the effects the disorder rheumatoid arthritis may have on the body, apart from the joints. (8)
- (b) State the terms that could be offered for income protection for an applicant with rheumatoid arthritis. (4)
2. (a) State the main purpose of the Equality Act 2010. (3)
- (b) List **four** 'protected characteristics' under the Equality Act 2010. (4)
- (c) State the information required that may make it possible to rate or refuse cover on the grounds of disability. (5)
3. (a) State the information required to assess the risk for life and disability, for a 20-year-old applicant who has haemophilia. (3)
- (b) Explain briefly the genetic basis for haemophilia. (4)
- (c) State how haemophilia is treated. (2)
4. (a) Describe the essential clinical features of sleep apnoea. (5)
- (b) Explain briefly the measures used to treat the condition. (3)
5. Explain briefly **three** important factors which may contribute to the development of mental health disorders and in **each** case, provide an example. (9)

6. (a) Explain how tele-interviewing and tele-underwriting are used to collect data from an applicant. (9)
- (b) State the benefits for insurers and applicants of using these techniques. (4)
7. (a) (i) Describe briefly the condition of retinal detachment. (3)
- (ii) Draw a diagram to illustrate the condition. (2)
- (b) State how the condition is treated and describe briefly the possible outcomes after treatment. (3)
8. An applicant discloses that he had treatment for testicular cancer 12 months ago.
- (a) Outline the treatment he is likely to have had. (3)
- (b) State the information you would need to assess the risk for life insurance. (3)
- (c) Explain briefly your likely underwriting decision. (3)
9. A 55-year-old woman is admitted to hospital with severe central chest pain. The medical evidence showed a diagnosis of full thickness anterior myocardial infarction.
- (a) State **two** important features on the electrocardiogram (ECG) which would typically be found with this diagnosis. (2)
- (b) Identify **three** tests, other than ECG, that may have been done during her hospital admission and explain briefly the value of **each** test. (6)
- (c) State the medical features to consider when underwriting this applicant for life and disability. (7)

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10. Describe briefly **three** important functions of the skin. (6)
11. Describe briefly **five** features of ulcerative colitis which may mean an applicant with this condition is declined cover or rated heavily for life and critical illness. (10)
12. (a) Describe briefly the common clinical features which may be found in a young woman with myasthenia gravis. (4)
- (b) Explain briefly the reasons why this condition occurs. (4)
- (c) Explain briefly the features that would influence the underwriting decision for life and disability. (4)
13. A 22-year-old male, discloses that he had a 'spontaneous pneumothorax' two years before he applied for life and critical illness and another attack 18 months before he applied.
- (a) Explain briefly what happens in this condition. (3)
- (b) Explain briefly how this condition is treated. (3)
- (c) State the likely underwriting decision. (2)
14. (a) Explain briefly what an embolus is. (3)
- (b) Describe briefly **two** common examples of embolism and in **each** case, explain briefly how the condition starts and its outcome. (6)

PART II

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

15. A business man, aged 45 who is self-employed and specialises in selling engineering components to foreign markets, applies for a life policy for 10 years for £150,000. While working in sub-Saharan Africa 18 months ago, he was injured in a motor accident. As a result, he required a blood transfusion. He returned home after two months and asked for an HIV test. The test was positive and he has been on treatment ever since. He has now returned to work.
- (a) Describe the symptoms an untreated subject may experience after being infected with HIV. (8)
- (b) Describe the risks to this applicant if he returns to work in West Africa. (11)
- (c) Discuss the information you would require concerning his positive HIV test that would enable you to assess the risk. (11)
16. A male, aged 50, is the owner and captain of a deep sea fishing boat. He applies for a life policy for £250,000 to cover a loan he has raised to make improvements to his boat. He also wants income protection. His income is variable but, in the last three years, it has been between £40,000 and £60,000.
- From the medical evidence obtained, one year ago, he presented with haematuria and was found to have a papilloma (transitional cell carcinoma) of the bladder. He has been treated with cystoscopy and diathermy and followed up since. No further treatment has been required.
- (a) Describe briefly the possible occupational risks posed by this applicant. (5)
- (b) (i) Describe briefly the condition of papilloma of the bladder and how the disease may advance. (8)
- (ii) State how the condition is treated. (4)
- (c) State **four** other possible causes of haematuria. (4)
- (d) Explain, giving reasons, the possible underwriting terms that might be given to this applicant for income protection and life cover. (9)

17. A female, aged 40, applies for a life policy for £2,000,000 with the object of protecting her family.

She is a high profile writer and broadcaster. She drinks no alcohol and has not smoked for the last 10 years. She has never had any significant physical or mental disorder.

During a routine medical screening, 12 months ago, she was found to have an enlarged liver. Subsequently, she was diagnosed by a liver specialist as having non-alcoholic fatty liver disease (NAFLD).

- (a) Describe briefly how NAFLD may progress and what the eventual outcome may be. (5)
- (b) Identify the other clinical features that might be associated with this form of liver disease. (9)
- (c) State the liver tests used to define how advanced the condition is and explain what **each** test will show. (8)
- (d) Explain, giving reasons, the likely acceptance terms for life cover that might be given to this applicant. (8)

TEST SPECIFICATION

October 2017 Examination – P61 Life, critical illness and disability underwriting	
Question	Syllabus learning outcome(s) being examined
1	2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
2	1 – Understand the mechanics of life and disability underwriting 4 – Understand the impact of legal and regulatory considerations
3	1 – Understand the mechanics of life and disability underwriting 2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
4	2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
5	2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
6	1 – Understand the mechanics of life and disability underwriting
7	2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
8	2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
9	1 – Understand the mechanics of life and disability underwriting 2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
10	2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
11	1 – Understand the mechanics of life and disability underwriting 2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
12	1 – Understand the mechanics of life and disability underwriting 2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
13	1 – Understand the mechanics of life and disability underwriting 2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
14	2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases
15	1 – Understand the mechanics of life and disability underwriting 2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases 3 – Understand non-medical risk factors
16	1 – Understand the mechanics of life and disability underwriting 2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases 3 – Understand non-medical risk factors
17	1 – Understand the mechanics of life and disability underwriting 2 – Understand the features of the major systems of the body and the underwriting approach to disorders and diseases

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)
- The blood – produces anaemia.
 - The lungs – produces ‘rheumatoid lung’ a fibrotic condition of the lungs leading to respiratory failure. Pleural effusion.
 - The skin and subcutaneous tissues – produces nodules and vasculitis.
 - The heart – cor pulmonale, pericarditis.
 - The kidney – proteinuria sometimes because of amyloid disease or from toxic effect of drugs.
- (b) In most cases terms would be declined. Applicants who have been in remission for at least three years and have minimal residual deformity might be offered cover for a limited term.

Model answer for Question 2

- (a) The Equality Act 2010 protects people who have defined ‘protected characteristics’ from discrimination in the provision of goods and services.
- (b) *Any four of the following:*
- Age.
 - Disability.
 - Gender.
 - Gender orientation.
 - Marriage.
 - Civil partnership.
 - Pregnancy and maternity.
 - Race.
 - Religion and belief.
 - Sexual orientation.
- (c) The information must be relevant to the risk. From a reliable source e.g. statistical or actuarial data or a person’s medical report. Showing a difference in risk associated with a disability.

Model answer for Question 3

- (a)
- Clinical state – have they had any severe episodes of bleeding?
 - Have they developed any joint deformity?
 - Level of factor 8 (or possibly factor 9) expressed as a % of normal.
- (b) Sex linked recessive inheritance. Female carrier has one abnormal X (X1) but does not develop the disease because she is protected by the normal X chromosome. The male however inherits only one X and if this is the abnormal one he does not have another X to protect him therefore he develops the disease.

		XX1 + XY		
XX	XX1	XY	X1Y	
Normal female	Female carrier	Normal male	Male haemophilia	

- (c)
- Maintenance injections of anti-haemophilic globulin.
 - May need emergency treatment.

Model answer for Question 4

- (a) The subject has obstructed breathing with snoring and episodes of apnoea which may lead to a reduction in oxygen saturation of the blood. Oxygen desaturation can lead to cardiac arrhythmias or even cardiac arrest. The subject often wakes up during these episodes and the disturbance in sleep leads to drowsiness the next day. Consequently, the subject may put themselves and others at risk for example when driving. A typical subject is an obese middle age to older man, though women can develop the condition.
- (b) Sleep apnoea can be treated by weight loss, stopping smoking, reducing alcohol consumption and avoiding sleeping pills. The introduction of nasal continuous positive airways pressure has transformed therapy.

Model answer for Question 5

- Biological or physical factors – are factors which are built in to a person's make-up. An example is schizophrenia which often has a family history.
- Psychological factors – the way a subject's personality responds to adverse life events. An example is a bereavement.
- Social factors – particularly during early childhood. Examples include poverty, marital disharmony, domestic circumstances.

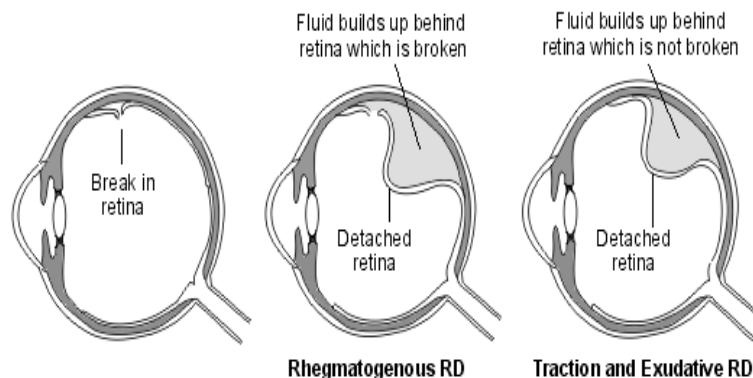
Model answer for Question 6

- (a) Tele-interviewing and tele-underwriting work by collecting risk data direct from an applicant during a structured telephone call made by a specially trained insurance company representative. Tele-interviews can be used to complete the full application form or to seek more detail on specific disclosures which are subsequently assessed by an underwriter. Tele-underwriting adds to this approach by processing the data as it is collected with the aim of concluding the call with an underwriting decision. It is possible to supplement either process using an underwriting rules engine.
- (b)
- Improved disclosure.
 - Convenience for customers.
 - Faster processing.
 - Often less need to collect independent medical data.
 - Lower cost for the insurer.

Model answer for Question 7

- (a) (i) Retinal detachment occurs when fluid accumulates behind the superficial layer of the retina pushing it forward. This usually occurs because of trauma when a tear appears in the retina or occasionally from a tumour, or in association with retinal disease. There is localised visual loss. It is commonest in older people and in those with myopia.

(ii)



- (b)
- Retinal detachment is usually treated with laser surgery.
 - In post-traumatic cases the outlook is generally good though some may recur.
 - When there is underlying retinal disease or when there has been previous eye surgery, the outlook is less satisfactory.

Model answer for Question 8

- (a) The treatment he is likely to have had is surgical removal of the testicle, radiotherapy and chemotherapy.
- (b)
- Stage of tumour?
 - Is it confined to the testicle?
 - Spread to para-aortic glands or more remotely.
 - Does the follow up show that tumour markers are absent?
 - Has there been any need for further treatment?
- (c) If the tumour was confined to the testicle, follow up was satisfactory, and tumour markers were absent then he could be underwritten for life with a moderate per mille loading. If the tumour was more extensive, then a period of postponement of perhaps two years would be imposed before he could be reconsidered.

Model answer for Question 9

- (a)
- Q waves.
 - Raised ST-segment elevation.
- (b) *Any three of the following:*
- A check of troponin levels in the blood. It is important to take several measurements to make sure the peak level agrees with the clinical history.
 - An emergency coronary angiogram to see whether the diseased vessel can be stented.
 - A computerised tomography (CT) scan will show the extent of calcification in the coronary vessels.
 - A magnetic resonance imaging (MRI) scan will show the extent of muscle damage.
- (c) Underwriting can be assessed by:
- left ventricular function as measured by ejection fraction;
 - extent of coronary artery disease as measured by calcium score;
 - presence of comorbidities. E.g. Diabetes, hypertension hyperlipidaemia and the presence of vascular disease elsewhere.

Model answer for Question 10

- The skin acts as a barrier to the exterior preventing infection and fluid loss.
- The skin prevents over-heating by sweat evaporation and dilatation of small blood vessels in the skin. Preventing excessive cooling by a covering of hair and peripheral vaso-constriction.
- The skin secretes sebum from sebaceous glands which enables the skin to absorb vitamin D.

Model answer for Question 11

- Total colitis – the disease extends throughout the colon increasing the risk of significant bleeding, perforation and malignant change.
- Persistent disease with frequent relapses – suggests the disease is very active and difficult to control.
- High doses of drugs – suggests difficulties with control.
- Multiple hospital admissions – usually a marker for poor patient response to treatment.
- Manifestations of the disease outside the colon – possible involvement of the skin, the joints, the eyes and the liver. These features would suggest a poorer prognosis.

Model answer for Question 12

- (a) Myasthenia gravis often starts with drooping of the eyelids and double vision. Later it may spread to other muscle groups with characteristic fatigability and recovery after rest. A severe case may become disabled with only partial response to drug treatment.
- (b) Myasthenia gravis is an autoimmune disease. Antibodies to the acetylcholine receptors at the junction between the nerve endings and muscle fibres block nervous stimuli so they are not communicated to the muscles properly. These antibodies arise mainly in the thymus gland and thymectomy may result in improvement in muscle function.
- (c)
- If the rate of progress of the disease is not clear from the history, then it may be wise to postpone the underwriting decision for perhaps a year.
 - Mild cases with only a few muscle groups involved and no progression may be taken with mild to moderate extra premium, but disability should generally be declined.
 - More severe cases with evidence of progression and perhaps a poor response to thymectomy should be declined.

Model answer for Question 13

- (a) Air gets between the visceral layer of the pleura (fixed to the lung) and the parietal pleura (lining the inside of the chest wall). Consequently, the underlying lung partially or totally collapses. There is often some discomfort or pain and breathlessness. The cause is sometimes thought to be rupture of a bulla on the surface of the lung, but often no specific cause can be found.
- (b) The condition may be self-limiting, and the misplaced air is gradually absorbed. If the quantity of air is large it may be necessary to insert a drain into the chest with an underwater seal which will draw the air out. If the condition becomes repetitive then a substance may be injected into the pleural space which sticks the two layers of the pleura together.
- (c) Usually normal rates for life and disability can be offered. In this case, having had two attacks there are slight doubts. However, he has been well for the last year and a half and he would still probably be allowed normal rates.

Model answer for Question 14

- (a) An embolus is an object, usually a blood clot, which arises in one part of the body, travels to another part and there causes damage by blocking a blood vessel.
- (b)
- A blood clot appears in a deep vein in the leg, perhaps because of immobility. A piece breaks off this clot, travels up the great veins to the heart. It passes through the right side of the heart to the lungs where it obstructs part or all of a pulmonary artery causing pulmonary embolism. The result is an acute illness and possibly death.
 - In a subject with atrial fibrillation a clot may form in the atria. A piece of this clot travels though into the left ventricle then out through the aorta. From there it can travel up to the brain causing an embolic stroke or further down the aorta to lodge perhaps in the kidney causing damage there.

Model answer for Question 15

- (a) There would be no immediate symptoms. After a few days there may be 'acute retroviral syndrome' with fever joint pains and swollen lymph glands. This may be very mild, and possibly missed altogether or mistaken for glandular fever. After a long interval, perhaps of many years, opportunistic infections may appear such as tuberculosis or pneumonia. Tumours may appear for example on the skin. These changes coincide with a fall in the CD4+T lymphocyte count in the blood and the subject is said to have reached the stage of AIDS.
- (b) The risks to this applicant if he returned to work in West Africa include:
- Sub-Saharan Africa is a high-risk area.
 - Working abroad means people are exposed to a wide range of environmental risk factors, including extremes of climate and altitude, pollution and emissions, exposure to tropical disease, polluted water, insanitary living conditions and transport risks.
 - Poor medical services. In this scenario, the availability of expensive drugs and facilities for measuring lymphocyte counts.
 - An unstable political situation may lead to a greater risk. This could lead to an increase in terrorism, banditry and kidnapping.
 - Social risk, such as isolation, psychological stress.
 - There may be life style changes for the applicant.
- (c) The information you would require includes:
- Evidence of good cooperation with treatment.
 - Regular blood testing for CD4+ lymphocyte count and HIV RNA levels.
 - CD4+ levels approaching normal and very low levels of HIV RNA (viral load) are favourable signs.
 - Evidence of opportunistic infection would result in a decline.
 - Continuing to travel to high risk countries would increase the risk.

Model answer for Question 16**(a) Physical risks**

- Risk to the boat and occupants in heavy weather.
- Exposure to cold, wet environment.
- Injury from handling complex machinery.
- Lack of medical services in the event of sudden illness or injury.

Psychological risks

- Away from family perhaps for long periods.
- The financial risk of variable income.

(b) (i) Papilloma of bladder usually shows evidence of malignancy and is often called transitional cell carcinoma because it arises in the transitional cells lining the bladder. A flat or pedunculated tumour is seen on cystoscopy, often multiple. Initially the tumour(s) are confined to the superficial layer of the bladder wall. More advanced tumours invade the bladder wall and may penetrate through the wall into the surrounding structures.

(ii) Superficial lesions can be treated with cystoscopy and diathermy. Lesions invading the bladder wall or beyond require more extensive surgery.

(c) *Any four of the following:*

- Glomerulonephritis.
- Stone.
- Other carcinomas.
- Trauma.
- Infection anywhere in the urinary tract.

(d) Income protection

- The variable income creates difficulty in selecting a maximum sum for income protection.
- The occupation increases the risk substantially.
- Possibility of further bladder treatment may interfere with his work.
- Probably will decline.

Life cover

- The initial bladder disease was treated with diathermy and there has been no recurrence for a year.
- He is being followed up and although there is the possibility of further lesions they will be seen early and treated promptly.
- The life risk is very small.
- There is a mild to moderate extra for the occupational risk.
- Reasonable explanation of financial underwriting.

Model answer for Question 17

- (a)
- Initially there is enlargement of the liver with an excess of fatty deposits.
 - This may progress to non-alcoholic steatohepatitis (NASH) where there is inflammation of liver cells and varying degrees of fibrosis.
 - Eventually there may be progression to cirrhosis and liver cancer.
- (b) This liver disorder is commonly part of the metabolic syndrome therefore other aspects of the metabolic syndrome must be sought such as:
- Hypertension.
 - Obesity.
 - Dyslipidaemia (measure lipid profile).
 - Diabetes or pre-diabetes (fasting blood glucose and HbA1c).
- (c)
- An ultrasound scan will show the size of the liver and the degree of fatty infiltration.
 - A biopsy will indicate the degree of fibrosis and the presence of inflammation.
 - In a more advanced case the biopsy will show the onset of cirrhosis or even hepatic cancer.
 - Abnormal liver function tests will suggest there is some degree of inflammation.
- (d) The rating for life for the liver disease on its own would depend on the degree of inflammation and fibrosis in the liver. Provided the condition had not advanced beyond the initial stages and the degree of inflammation and fibrosis was minimal, then there could be acceptance with mild to moderate increase in premium. More advanced changes would lead to a heavier loading or declinature.

If other aspects of the metabolic syndrome were present and were not being controlled, then a postponement or an outright declinature might be wise.