Subject ST4

CMP Upgrade 2017/18

CMP Upgrade

This CMP Upgrade lists all significant changes to the Core Reading and the ActEd material since last year so that you can manually amend your 2017 study material to make it suitable for study for the 2018 exams. It includes replacement pages and additional pages where appropriate. Alternatively, you can buy a full replacement set of up-to-date Course Notes at a significantly reduced price if you have previously bought the full price Course Notes in this subject. Please see our 2018 Student Brochure for more details.

This CMP Upgrade contains all non-trivial changes to:

- the Syllabus objectives and Core Reading.
- the ActEd Course Notes, Series X Assignments and Question and Answer Bank that will make them suitable for study for the 2018 exams.

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1 Changes to the Syllabus objectives, Core Reading and ActEd text

1.1 Syllabus objectives

There have been no changes to the Syllabus Objectives for the 2018 examinations.

1.2 Core Reading and ActEd text

In this section we list all non-trivial changes to the Core Reading and ActEd text needed to make the ActEd Course Notes suitable for study for the 2018 exams.

Chapter 1

On page 11, the text in Section 3.1 before the first item on the reading list (Pensions and the Ageing Population by A Jollans) now reads:

The following papers may be particularly useful in widening understanding of the subject in preparation for the exam. They are not, however, part of the Core Reading and so the content of this reading is not directly examinable.

Financial Reporting Council (FRC) Technical Actuarial Standards:

Framework for FRC technical actuarial standards

Technical Actuarial Standard 100: Principles for Technical Actuarial Work

Technical Actuarial Standard 300: Pensions

Glossary of defined terms used in FRC technical actuarial standards

At the time of writing (May 2017) these technical standards can be found on the website of the Financial Reporting Council at www.frc.org.uk.

In terms of professional standards, the Actuaries' Code and the following Actuarial Profession Standards give guidance to actuaries working in pensions:

- APS P1 Duties and Responsibilities of Members Undertaking Work in Relation to Pension Schemes
- APS X1 – Applying Standards to Actuarial Work
- APS X2 – Review of Actuarial Work
- APS X3 – The Actuary as an Expert in Legal Proceedings.

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Chapter 5

On page 8, details of APS X1 have been added immediately before APS X2:

- **APS X1 – Applying Standards to Actuarial Work, which sets out principles to be applied by members to determine which standards they must or should be applying to a piece of work, regardless of where they are located or whether the work is being carried out in the UK.**

In Section 2.3, the material on the Technical Actuarial Standards has been updated. The first and last paragraphs are unchanged, and the other paragraphs are repeated below:

The UK Technical actuarial standards comprise:

- **TAS 100: Principles for Technical Actuarial Work, and**
- **Three specific TASs covering actuarial work in relation to Pensions, Insurance and Funeral plan trusts.**

The TASs should be read in conjunction with the *Framework for FRC technical actuarial standards*, and the *Glossary of defined terms used in FRC technical actuarial standards*.

The TASs are developed in the context of UK legislation and regulations. They apply to work done in relation to the UK operations of entities and any non-UK operations which report in to the UK. However, compliance with relevant TASs is one way in which members of the UK Actuarial Profession may address compliance with APS X1 for non-UK actuarial work.

Work may depart from the requirements of a TAS if the departure is considered not to be *material*. In this context, matters are material if they could, individually or collectively, influence the decisions to be taken by the users of the resulting actuarial information.

The Exam Tip box on page 10 has been deleted.

Chapter 17

Section 4 of this chapter has been completely rewritten. Replacement pages have been included.

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2 Changes to the Q&A Bank

Question 1.9 has been modified and now reads:

List the technical actuarial standards and supporting documents produced by the FRC that apply to pensions work in the UK. [2]

Solution 1.9 now reads:

- Framework for FRC technical actuarial standards [½]
- Technical Actuarial Standard 100: Principles for Technical Actuarial Work [½]
- Technical Actuarial Standard 300: Pensions [½]
- Glossary of defined terms used in FRC technical actuarial standards [½]

[Total 2]

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3 Changes to the X Assignments

Assignment X3 Question 6

In the final point in part (ii) of the solution, the reference to TAS M – Modelling has been removed and now reads:

The modelling process should follow the principles set out in the technical actuarial standards.

Assignment X4 Question 1

Part (ii) of the question has been modified and now reads:

(ii) Explain why different assumptions may be used for a discontinuance valuation than for an ongoing funding valuation of a defined benefit scheme. [10]

The solution to this question has been extensively rewritten. Replacement pages have been included.

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4 Other tuition services

In addition to this CMP Upgrade you might find the following services helpful with your study.

4.1 Study material

We offer the following study material in Subject ST4:

- Additional Mock Pack (AMP)
- ASET (ActEd Solutions with Exam Technique) and Mini-ASET
- Flashcards
- Mock Exam
- Revision Notes
- MyTest
- Sound Revision.

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5 *Feedback on the study material*

ActEd is always pleased to get feedback from students about any aspect of our study programmes. Please let us know if you have any specific comments (*eg* about certain sections of the notes or particular questions) or general suggestions about how we can improve the study material. We will incorporate as many of your suggestions as we can when we update the course material each year.

If you have any comments on this course please send them by email to **ST4@bpp.com**.

4 Method of provision

If a benefit scheme is being discontinued, a number of options may exist for the provision of the outstanding benefit payments. Six examples are covered below:

1. gradual removal of liabilities through temporary continuation
2. transfer the liabilities to another pension scheme with the same sponsor
3. transfer the funds directly to the beneficiary to extinguish the liability
4. transfer the funds to an insurer to invest and provide a benefit
5. transfer the liabilities to an insurer to guarantee the benefits
6. transfer the liabilities to a central discontinuance fund.

4.1 Gradual removal of liabilities approach

Under this option, the scheme will continue but with no further accrual of benefits. Over time this will effect a gradual removal of the liabilities.

Benefits are paid out by the trustees or managers as and when they fall due and the assets are invested in a way that produces the necessary cashflows (from investment income or sale proceeds) at the appropriate times. This course of action may be preferable where the trustees expect to be able to achieve a better investment return by not insuring the benefits and the option of a transfer to another scheme is not available.

One potential benefit of this option is that costs associated with disinvesting and transferring assets may be reduced. However, there will be no guarantee that the discontinuance benefits are met because the cost of the benefits will still be affected by future investment and mortality experience. The scheme managers will still need to manage the risks in relation to funding, investment and sponsor covenant.

In respect of the covenant, the scheme sponsor may not be willing or able to make good any shortfalls arising in the scheme. Scheme managers may therefore wish to adopt a “self-sufficiency” approach. Broadly put, this is a funding strategy whereby the scheme has a very good chance of meeting its liabilities without further help from the sponsor.

In practice, this means that:

- **prudent assumptions are used for funding. The basis may be similar to the assumptions used for a buyout valuation but without the insurance company profit margins.** So the value placed on the liabilities may be higher than on an ongoing funding basis, but lower than on a solvency basis.
- **a more cautious investment strategy is followed, for example investments such as government/corporate bonds, longevity swaps/bonds and annuities could be included.** This is likely to reduce the expected return on assets from the scheme, which depending on the valuation method used may reduce the discount rate used to value the scheme's liabilities and so increase the value placed on the liabilities, any deficit, and the required contribution rate.

The more prudent funding approach, lack of reliance on the sponsor and more cautious investment strategy under a self-sufficiency approach means that a higher value is likely to be placed on the liabilities than when using a normal ongoing funding basis, leading to higher contributions.

Even though the scheme will follow a cautious and closely matching investment strategy, the risk remains that financial experience (*eg* relating to investment and inflation) may be worse than expected, *eg* there may be significant reinvestment risk. Also, demographic experience *eg* relating to life expectancy, early/late retirement and commutation could be significantly worse than expected.

A self-sufficiency basis is most likely to be appropriate for a scheme closed to future accrual.

Question 17.1

Why would it be unusual for a scheme open to new members to adopt a self-sufficiency approach?

These risks and practical problems will increase as the scheme membership reduces. In practice, this option is unlikely to be used for very small schemes. This option is generally used until one of the other methods of securing benefits becomes a more attractive or sensible option.

Question 17.2

Under what circumstances would it be feasible to continue a scheme in this way until the last payment is made?

One potential issue, in addition to deficits, is that surpluses may also arise. In practice it is difficult to ensure that members are treated equitably if surpluses are to be distributed. For example, only those beneficiaries who are still alive would benefit from surpluses arising in the future.

4.2 *Transfer liabilities to another scheme with the same sponsor*

Under this option the liabilities are transferred to another pension scheme with the same sponsor. This will only be possible if another such scheme exists.

This is similar to the gradual liabilities approach, except that the surplus or deficits arising will apply to a larger group of individuals. Though this approach might reduce the impact of risks inherent in the smaller group, one potential disadvantage of this option is that of cross-subsidies. Surpluses arising from the smaller group of individuals may be used to benefit the larger group. From the viewpoint of the larger group, a disadvantage is that deficits arising from the smaller group are supported by the larger group as a whole.

The issue of cross-subsidies is not necessarily important if the same employer sponsors both the scheme into which the liabilities are being transferred and the discontinued scheme. The assets will be pooled together and benefit payments will be made from the new scheme.

If a surplus subsequently arises from the experience of this subgroup, then it might be possible to use it solely for the benefit of these members. However, it is more likely that such a surplus would be difficult to identify separately and all experience profits would be pooled together; a surplus could be used by the employer to reduce future contributions or to increase the benefits of *all* members. Similarly, any deficit would be corrected by the sponsor.

Question 17.3

Suggest advantages of pooling the assets of a discontinued scheme with those of a relatively immature scheme.

4.3 *Transfer funds directly to the beneficiary*

Under this option the capital value of the benefits, or the funds, are transferred directly to the individual beneficiaries.

In practice, in many countries this is not possible, the alternative being to transfer the funds or capital value to an appropriate insurance company or into the scheme of a new employer as an investment with no guarantees**.**

In other words the risks and potential rewards are transferred from the scheme to the individual. If the actual experience (in terms of investment, mortality, *etc*) is more favourable than the assumptions used to calculate the value of the benefits to be transferred, then the individual will profit from the transfer (and vice versa).

4.4 Transfer funds to an insurer to invest and provide a benefit

Under this option, the capital value of the benefit, or fund, is transferred to an appropriate insurance company and invested.

The ultimate benefit will then depend on the assumptions used to determine the capital value transferred and any future experience of that individual, such as investment return on the fund.

As a result, the benefits may be greater or smaller than the original discontinuance benefit. The benefits are defined contribution in nature.

Under this option the individual bears the risks such as investment, inflation and longevity.

Some members may request to transfer their benefits to their new employer's scheme. The new employer's scheme could be defined benefit in nature (in which case calculations may need to be made as to the level of benefits the incoming transfer value could buy) or defined contribution in nature (and similar considerations as above apply).

4.5 Transfer liabilities to an insurer to guarantee the benefit

In some cases it may be preferred, or even required by legislation, to provide discontinuance benefits where the level of benefit is guaranteed.

In such cases the liabilities are transferred to a provider who will accept the risks of future experience and guarantee a benefit. Examples of this include immediate or deferred annuities with an insurer.

Insurers will generally charge a premium loading for the risks taken on, for profits and to cover any statutory reserves they need to hold. Deferred annuities in particular carry a higher degree of risk (there is significant reinvestment risk and uncertainty over improvements in longevity) **and the premium charged may reflect this. In some cases, insurers may be unwilling to issue deferred annuities.**

The additional cost associated with an insurer providing a guaranteed benefit may mean that the funds are not sufficient to provide the benefits that could have been targeted under one of the other forms of provision. The discontinuance benefits may therefore be lower than the original benefit and so may lead to a reduction in the level of benefits that members receive.

Though these benefits are deemed to be guaranteed, they are still dependent on the financial strength, or covenant, of the insurer. In some territories, compensation schemes exist whereby beneficiaries are entitled to some form of benefit in the event of the insurer failing to meet the liabilities.

4.6 Transfer liabilities to a central discontinuance fund

An alternative way of guaranteeing the benefits may be through a transfer of the funds to a central discontinuance fund.

On discontinuance the remaining assets of a scheme would be transferred into the central fund and future benefit payments would be made from this fund. The central discontinuance fund may require (where possible) the sponsoring employer to pay any additional amounts required to ensure that the assets transferred are sufficient to pay the benefits promised.

The central discontinuance fund may provide the full benefit originally expected, or some other form of benefit such as a percentage of that originally expected, subject to certain limits.

If the employer cannot pay additional funds (*eg* because it is insolvent), then the members may suffer lower benefits. In this case, there may be a priority order for the meeting of liabilities, *eg* pensioner liabilities to be provided in full before assets allocated to other members, or a proportionate reduction on all members' benefits.

The central discontinuance fund may be funded by levies placed on all schemes. These levies could be based on the size of the scheme, or the degree of risk perceived on the scheme, perhaps in relation to its funding level or investment strategy or the strength of the employer**. As such, the central discontinuance fund may be able to guarantee the benefits that would be expected to arise from the available funds.**

This arrangement would usually be operated on a national basis, so that the levy may be relatively small when the deficit is spread across all other funds. Alternatively, the arrangement could be set up for employees working in a particular industry.

The pooling of investment and administration may lead to increased returns and cost savings through achieving economies of scale compared with provision through individual schemes.

Where central discontinuance funds are used, they are usually a measure of last resort, employed only if none of the other options can be used. It is possible that not all of a scheme's discontinuance liabilities would be covered by such a fund.

Example

In the UK, the Pension Protection Fund was introduced on 6 April 2005. It is financed through a combination of taking over the assets of the pension schemes who enter the Pension Protection Fund and levies on eligible schemes.

Question 17.4

What are the disadvantages of providing security for members' benefits through a central discontinuance fund, which is financed using a universal levy equal to a percentage of scheme assets?

4.7 Relative merits of each option

There is usually a trade-off under each option between the level of benefits and the security of benefits. For example, individuals willing to take the risk of investing a transfer value in a personal pension policy, where the ultimate benefits are dependent on investment performance, would generally expect a higher level of benefits than those that can be guaranteed under a deferred annuity policy.

In performing a discontinuance valuation, an actuary is comparing the level of assets with:

- the estimated cost of securing the benefits under the chosen method, plus
- the expenses that will be incurred in securing the benefits in that way.

If the assets are insufficient to cover the liabilities, then the actuary can calculate the amount by which the benefits, or certain categories of benefits, must be reduced.

If the trust deed and rules allow the trustees a choice in the method of provision of outstanding benefit payments, they can then compare the results of the actuary's calculations under the various options and consider the issue of security.

The actuary can also perform future projections to provide further advice to the trustees. For example, it may be that deferred annuities appear to be particularly expensive at the current time due to low interest rates but that this is expected to change in the future. Calculations could be performed on the basis of a gradual removal of liabilities by continuing to run the scheme as a closed fund for the next, say, 5 years and then buying out the benefits with an insurance company under the estimated conditions at that time.

It may also be possible to combine some of the options and, therefore, an actuary's calculations could help to determine the best strategy. For example, the current pensions in payment could be secured with an insurance company via immediate annuities whilst the remaining liabilities are transferred to another pension scheme.

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5 The level of assets

5.1 Shortfall

If the assets are insufficient to meet the rights of the beneficiaries then a lower benefit will be paid.

Where the benefits have to be reduced, legislation or scheme rules may indicate which types of benefits are to be reduced or which types of beneficiaries are to have their benefits reduced. It is common for such rules to give priority to some or all of the benefits of those who are in receipt of benefits, as it is felt that other beneficiaries have some time to make other financial provision before their entitlement becomes due.

The different categories of members might be listed in an order of priority that determines which benefit payments must be made first and which will have to be reduced if there is a shortfall of assets. Benefits already in payment are often deemed to have the highest priority.

Example

The assets of a scheme amount to $90,000.

The discontinuance liabilities, in order of priority, are as follows:

1.	Expenses	$5,000
2.	Pensions in payment	$30,000
3.	Members' voluntary savings	$5,000
4.=	Early leavers' benefits	$20,000
4.=	Benefits for active members	$40,000
		$100,000

In this scenario, the funding level is 90%. However, the expenses and the first two categories of benefits would be paid in full and the remainder would be reduced to 83.3% of their promised level.

Assignment X4 Solutions

Solution X4.1

Comment

Part (i) is pure bookwork from Chapter 17 - Discontinuance. A comparison of assumptions and / or results of two or more valuations is a common exam topic, and this is the subject of part (ii).

(i) ***Options on discontinuance***

1. gradual removal of liabilities through temporary continuation
2. transfer the liabilities to another pension scheme with the same sponsor
3. transfer the funds directly to the beneficiary to extinguish the liability
4. transfer the funds to an insurer to invest and provide a benefit
5. transfer the liabilities to an insurer to guarantee the benefits
6. transfer the liabilities to a central discontinuance fund.

[Total 3]

(ii) ***Discontinuance valuation assumptions vs ongoing valuation assumptions***

General points

The assumptions for a discontinuance valuation will depend on which benefit provision option is being adopted for discontinuance. [½]

The assumptions may be dictated by legislation. [½]

The benefits may be different on discontinuance, *eg* the link with final salary could be broken and this may impact the assumptions. [½]

Under a discontinuance valuation there is no future service to value. [½]

An ongoing funding valuation may allow for some discretionary increases to benefits (*eg* pensions in payment) at a higher level than in a discontinuance valuation. [½]

An assumption about winding-up expenses may need to be included in the discontinuance valuation. These may be significant, *eg* independent trustee and actuarial fees. [½]

Option 1 – gradual removal of liabilities through temporary continuation

The ongoing funding valuation of an open scheme is likely to use assumptions that take into account the expected return from a portfolio of assets that will probably contain a significant proportion of equities. [½]

In the long term these assets are expected to provide a higher return than government bonds. [½]

A discontinuance valuation that assumes temporary continuation may use more prudent assumptions … [1]

… because, for example, the trustees would be likely to want to minimise their reliance on the strength of the sponsor … [½]

… and the assumed investment return may be lower, because the trustees may adopt a more conservative investment strategy. [½]

Option 2 – transfer the liabilities to another scheme of the same sponsor

Under this approach there may be no difference between the discontinuance and ongoing funding valuation assumptions, for example, if the sponsor is using the same funding approach in both schemes. [½]

Alternatively, the discontinuance valuation assumptions may be more prudent than the ongoing assumptions … [½]

…because, for example, the trustees of the receiving scheme may require an additional margin of prudence, in order to protect the security of existing members' benefits. [½]

Options 3 and 4 – transfer funds to the member or an insurer

The discontinuance liabilities in this case are equal to the amount to be transferred. [½]

This may be calculated using a best-estimate basis (rather than the scheme's ongoing prudent funding basis) … [1]

… with no allowance for future service benefits or salary increases. [½]

Transfer values may be reduced if the scheme is underfunded … [½]

… or enhanced to encourage transfer, as even with the enhancement, there may be a saving relative to the buy-out cost. [½]

Option 5 – transfer the liabilities to an insurer

With this approach the discontinuance valuation assumptions are influenced significantly by the terms offered by insurance companies. [½]

The discontinuance valuation assumptions are likely to be more prudent than those used for the ongoing funding valuation … [1]

… because insurance companies' terms will contain margins to allow for profit, expenses and also reinvestment and longevity risk … [½]

…and the price of guaranteed annuities would be based on insurers' underlying investments, probably government-issued fixed-interest and index-linked bonds, which are likely to produce a lower return than shares. [½]

Option 6 – transfer the liabilities to a central discontinuance fund (CDF)

The assumptions used for a discontinuance valuation under this option will depend on the specifics of the central discontinuance fund. [½]

The principles used to set the assumptions may be prescribed by the CDF or legislation. [½]

No assumptions may be required, as the value of the liabilities may simply be equal to the value of the assets the scheme has available to transfer to the CDF. [1]

Alternatively, if it is assumed that reduced benefits are provided, the discontinuance valuation approach may be less prudent overall than the ongoing funding valuation. [½]

However, the assumptions prescribed by the CDF may be very prudent, *eg* mirroring a self-sufficiency approach. [½]

[Maximum 10]

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Solution X4.2

Comment

This question is largely bookwork from Chapter 18 - Data. Note that in part (i), however, you are restricted to considering checks that involve the scheme accounts. Do consider only checks that can be done for a funded scheme. In part (ii) the disadvantages of accepting summarised data could perhaps most easily be generated by noting that they must be essentially the reverse of the reasons why detailed data is required.

(i) ***How accounts can be used to check valuation data***

The accounts provide an independent check to validate the valuation data. [½]

The sponsor's and members' contributions should be consistent with both salary roll and the contribution rate. [1]

Sponsor's and members' contributions should be consistent, *eg* if members pay 5% and sponsor pays 20% then the sponsor contributions in the accounts should be four times the member contributions. [½]
Total pensions paid (with adjustments for deaths and new pensioners) should be consistent with the pension payroll in the valuation. [1]

Membership numbers should tally. [½]

Membership movements should tally with new pensions, new cash sums, death benefits paid and leaver benefits paid. [½]

Asset data should be consistent with investment income. [½]

The value of assets should correspond with the investment managers' performance, contributions paid, monies paid out and the latest valuation of assets. [½]
[Total 5]