Institute of Actuaries of India

Subject SA4 – Pensions and Other Employee Benefits

May 2011 Examination

INDICATIVE SOLUTION

Introduction
The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable

Q.1 a

Points for the report:

Level of contributions:

- Members may have a choice of contribution level- either as a % of salary/ income or a flat monetary amount with an upper limit or both payable over a period up to a maximum age/ retirement
- Members may also pay a lump sum
- Members can start, stop, increase or decrease level of contributions within the limits prescribed under the scheme
- It may apply to all types of VCSs including AVCs

Choice of benefits:

- Under VCS, members may generally be able to choose
  - ⇒ Death benefit
  - ⇒ Disability benefits
  - ⇒ Health insurance benefits including critical illnesses
  - ⇒ Level of pension increases
  - ⇒ Any death after retirement benefits, say spouse pension or return of capital etc

  And so on.

- In case of AVCs the choice may be limited according to the benefits offered under the existing scheme
- Continuation of insurance covers may be linked to the continuation of payment of contributions or till the member's account is exhausted

Other Choices:

- Members may have choice of retirement age, though in case of AVCs it may be the retirement age applicable under the existing scheme
- Members may also have choice of commutation of pension for a lump sum. There may, however be a limit on it
- Defined Benefit or Defined Contribution:
  - o A VCS is unlikely to allow a defined benefit
    - ⇒ VCS may generally offer choice of different funds differing in proportion of different asset classes of equity, bonds, cash etc
    - ⇒ The annuity rates applicable at vesting may not be guaranteed. The annuitisation may be at the rates applicable at vesting
  - o In case of AVCs , if the existing scheme is defined contribution (DC), the scheme is likely to offer DC benefit. However, a DB scheme may offer either DB or DC benefits or a choice between the two
  - ⇒ Defined Contribution:
    - -- Here the AVCs will be accumulated in a separate account of the member to provide additional benefit at retirement
    - -- It does not provide any guarantees on level of benefits
    - -- Investment choice may or may not be given. Further there may be an open market option for the member to accumulate AVCs with a Pension Fund Manager (PFM) or Life Insurer of his choice
    - -- At retirement additional pension may be bought within the scheme at the scheme annuity rates or at the annuity rates offered by the insurer with whom the scheme has the arrangement or the scheme may provide an open market option

--The insurer is unlikely to offer annuitisation terms in advance. If the Scheme offers such terms, then the employer underwrites the cost

-- There are advantages/ disadvantages under within scheme pension and open market option. They are related to administrative convenience, selection risk, flexibility in benefits etc

⇒ Defined Benefit:

-- AVCs will secure an additional DB at retirement

-- Such benefit will not depend on the investment return up to the retirement

-- It will also not depend on annuity rates at retirement

-- The DB option may be

i) added years of revalued pension able earnings on the main benefit scale, or

ii) a fixed monetary amount, or

iii) an additional accrual rate

-- The calculation of DB will take into account assumptions for investment return, inflation, annuity rates etc

-- If the assumptions are too prudent, the member may end up paying more than what is required for the additional benefit available under the scheme

-- If, on the other hand, assumptions are too optimistic, the employer may have to pay some of the cost

-- There are advantages/ disadvantages in providing a DB out of AVCs which are mainly administrative convenience, subsidization issues etc

⇒ Choice between the two:

-- It may encourage the take up rate of AVCs

-- However, it may increase selection risks

-- It will require more detailed communication and will increase administrative costs

Illustrations:

- Illustrations may be individual specific or common. Generally individualized illustrations are preferred
- The illustrations or quotations will be of two main types:
  - -- The benefits that can be secured from a given level of VCs, or
  - -- The level of contributions required to target a particular level of benefits
  - -- In case of AVCs, the contributions may be required to be quoted for the Shortfall in the existing scheme benefits
- The illustration should clearly state level of future contributions- whether they are a % of pension able salary or fixed in monetary terms
- The illustrations should take into account the benefits chosen by the member i.e. the retirement age, level of pension increases, death after retirement benefits besides other benefits during contribution stage, if any
- Illustrations may need to be provided for different contributions of benefits
- The benefits may significantly depend on the assumption of investment return during contribution stage. The illustrations may be provided for a range of possible returns (two or three) to illustrate the effect of variability of investment return on the level of pension benefit available under the scheme.
- Although the scheme may offer different optional funds, it would be misleading to assume different investment returns for different choices of

fund. The illustration should be given for the same range irrespective of choice of fund. However, the communication material should explain the different features of the various funds, including their likely risk and return profiles.

- The pension benefit will also largely depend on annuity rates at vesting/ retirement
- The annuity rates current at the time of calculation could be used, with a clear explanation and warning to the member that the rates are likely to change over time to retirement
- The illustration should take into account any regulatory provisions and professional guidance in this regard
- Illustration should clearly communicate explaining that the figures are:
  -- only illustrative and not guaranteed, and
  -- highly dependent on the assumptions made about the future experience
- Any other caveats should take into account, while issuing illustrations

Regulatory and Taxation aspects:

- Licensing of experienced PFMs with minimum capital requirement to ensure safety of benefits/funds
- The taxation authorities need to consider limits on level of annual contribution on which tax relief is to be provided
- Such limit on contribution may be a % of salary/ income or a fixed monetary
  Sum or both
- The investment return during accumulation period is generally tax free. Hence an overall limit on voluntary contributions may be required
- The regulatory authorities may allow contribution without an upper limit under unapproved schemes where investment return may be taxed
- The commuted pension for a lump sum is generally tax free. The taxation authorities may put an upper limit on proportion of tax free commuted pension otherwise the purpose of scheme itself may be defeated
- The regulatory authorities need to have some regulation on benefits to be provided on death, disability, withdrawal or in case of cessation of contributions
- Regular disclosure to members regarding fund/benefits
- Investment Regulations with or without limits on certain asset clauses
- The regulation may encourage portability of pension fund accounts from one PFM/ insurer to another. In that case it should address the issues involved in such Transfers

Other issues:

- Level of voluntary contributions need to be reviewed regularly, especially as the retirement approaches
- Similarly reviews also needed in respect of investment choices, particularly as the retirement approaches
- Short term reviews may be needed in respect of investment funds whenever there are marked changes in the economy
- Cost of running a VCS will be far in excess than AVCs. Here the major cost will be distribution costs which are unavoidable. Besides distribution, there are other costs such as collection of contributions, investment of funds, disbursement of benefits etc. However the scheme may be efficient due to competitive pressures
- Regulator may need to put a cap on charges. Such cap may separately be put on distribution costs also
- Success of VCSs will depend on the level of awareness
- Contribution by government for low paid members to encourage them

- There are dangers of mis-selling— system will need training needs of distributors, their supervision, benefit illustration etc
- Regulator may introduce a single comprehensive scheme and the PFMs may just provide other services, such as distribution, collection of contributions, record keeping, payment of benefits etc
- On the other hand, PFMs may be free to introduce different products in which case competition may provide need based and innovative plans to take care of different needs of the people. However, Regulator needs to ensure that products are simple, standard product literature is provided etc to avoid mis-selling

Q.1 b The differences and similarities between Joint Family System (JFM) and Social Security System (SSS) are as under:

	Joint Family System	Social Security System
1	It is at family level	It is at national level
2	Needs Head of the family who is to be obeyed by all members of the family	Needs Social Security Department Head with executive powers to run the system
3	Based on love & affection between members of family	Implemented with force of law
4	It is an informal scheme and can provide for all sorts of needs of members of the family, even the non-monetary ones	A formal scheme and can provide for specific monetary needs of members such as old age income, death, disability, sickness, unemployment etc.
5	Needs pressure from society so that if any member of a joint family does not obey its Head will be punished by the society	The government at national level is the Executive Head which ensures that all of its policies and programmes are implemented and the defaulting members are punished
6	Distributes all or some of the resources of the family for the benefit of all members of family	Distributes some of the resources of the society for the benefit of all so that certain minimum level of standard of living is achieved for all
7	Requires sufficient children and other earning young members in the family to generate sufficient income to look after all the members of family	Requires sufficient children and young workers to produce sufficient resources for use of all citizens of the nation. The dependency ratio needs to be sufficiently low for the success of the system
8	Generally does not have scope of misuse	System is open for misuse. Political parties often misuse the system in order to have short term political gains
9	Cost of administering the system is nil	Cost of administering the system is generally low
10	Natural disasters and misfortunes will affect the system such as	System is generally foolproof of the natural disasters and misfortunes

No.	JFS	SSS
	death/disablement of earning member/s may force the family into poverty	
11	There is no guarantee that future generation in family will abide by the system	Generally the system is enforceable by law and hence future generations have to follow it. However, system may still fail due to increasing dependency ratio, political misuse etc
12	It distributes past savings as well as current income for the benefit of members of family	It generally works on PAYG basis distributing mostly out of current contributions raised for the purpose
13	In JFS the standard of living of different families will depend on the income/resources of the particular family concerned. A poor family, therefore, may still not achieve certain minimum standard of living	Under SSS certain minimum standard of living can be ensured for all
14	JFS cannot provide security to a family which does not have sufficient young members, say a single earning person family	SSS can provide security to all families, even the single individuals

Q.1 c

(i) Need for a GN for SSPs:

- In case of SSPs, as public at large is the beneficiary, they generally involve sensitive issues of contribution by and benefits for the people on which professional guidance is felt necessary & helpful
- A Social Security Programme (SSP) provides very long term benefits and hence requires long term financial projections where demographic and economic analyses need to be carried out to work out long term future costs
- SSPs involve political decisions which, sometimes may not be based on sound actuarial principles. The professional guidance may help its members not to be influenced by political considerations/pressures while advising on an SSP
- In many cases SSPs have been facing problems due to the effects of changing demographic structures over time. The professional advice may bring those effects to the notice of all the stakeholders well in time
- The scope of the GN should cover the actuarial work done by an actuary such as publishing a report, issuing statements, making presentations or submitting research papers etc involving an SSP. It is because such work of the actuary may give rise to public debate and the profession may ultimately be held responsible for it

(ii) SSPs to be covered under the GN:

Following SSPs may be covered under the GN:

- The schemes set by a State or Central Government under an Act for entire or a specific class of population such as employees of various establishments covered under Employees State Insurance Corporation Scheme
- An SSP providing one or more of the old age, retirement, death, disability, sickness, unemployment etc benefits
- An SSP covering a wide population on compulsory or automatic basis

	▪ A retirement benefit scheme sponsored by a government or a quasi-government organization as an employer for its employees ▪ The GN will apply irrespective of the manner in which the SSP is financed i.e. whether funded or unfunded (pay-as you-go i.e. PAYG) or a mix of the two (iii) Principles to be complied with by actuary under an SSP: In respect of actuarial work under an SSP, the actuary should follow following principles: ▪ The assumptions about the future are important in any actuarial work. They need to be determined objectively ▪ The actuary should not work under any political or other influence ▪ If actuary is required to use some particular assumptions, he should clearly state the origin of those assumptions ▪ The actuary should demonstrate sensitivity analysis taking alternate set of assumptions ▪ The actuary should clearly state that his job is to estimate based on assumptions about the future and he is not making any prediction ▪ The actuary should ensure that the methodology and long term financial projections are based on sound actuarial principles ▪ The actuary should also consider any general or specific professional guidance issued by the profession ▪ The actuary should not compare and comment on the state of affairs of the SSP with respect to another SSP unless the terms of reference of the assignment require it ▪ Actuary should not give any conclusion on an SSP on an SSP unless it is specifically asked for ▪ Actuary should not recommend for a solution of a problem faced by an SSP unless specifically asked for ▪ While preparing the report, paper or presentation etc on an SSP, the actuary should keep the audiences in mind and communicate in as clear and simple language as possible	
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Q.2 a	i) Provident Fund: • There are mandatory and voluntary retirement benefits • Provident Fund contributions for the employee and employer are mandatory if the company has over 20 employees, for salary up to INR6, 500 per month. However, contribution can be made for salary over and above Rs. 6,500/- • The contribution rate is 12% of basic salary up to the maximum INR6,500 per month. This is for each of the employer and employee. • However, 8.33% of the salary, paid to the Provident Fund is allocated towards the Employees Pension scheme 1995, which is a defined benefit pension payable after a minimum of 10 years contributions and a benefit of 1/70th of salary for each period of pensionable service • The remaining contributions are allocated to an individual member account on which interest is added each year as per the government declared rate. • Employers may apply for an exemption from the defined contribution element of the Provident Fund and set up a separate Trust. If a Trust is set up, one of the key criteria is that the trust must declare an interest rate in any year at least the same as the Government declared rate. ii) Gratuity: • The Payment of Gratuity Act 1972, as amended mandates employers, with	

ten or more employees, to provide a defined benefit lump sum on exit upon resignation, death or retirement

- The mandatory formula is 15/26 of last drawn basic salary up to a maximum of INR1,000,000. A vesting of 5 years is applicable except in case of death or disablement.
- Companies can set up a separate tax approved trust with funding to meet future obligations or they can just pay as you go from company cashflow
- Companies can voluntarily provide more gratuity benefits than mandated, although employees may pay income tax on amounts in excess of the mandatory benefits as per Payment of Gratuity Act

iii) Superannuation/ Pension

- In addition to provident Fund and Gratuity, companies may have superannuation or pension plans voluntarily, which can be set up under an income tax approved trust.

iv) Leave Encashment:

Companies may also pay lump sum for accumulated unavailed earned/ privilege leave and sometimes for sick leave also

v) Other Points:

- Any retirement trust in India have certain investment restrictions under the Ministry of Labour, for Provident Funds, and Ministry of Finance for other retirement trusts
- If a company has a defined benefit plan then Accounting Standard 15 (Revised) needs to be complied with and suitable provisions and expense be made in the company financial statements for the benefit obligations.

Q. 2 b

- **Affected Employees**

- They will be transferring to the new entity set up by the buyer and they would desire that their benefits are not worsened in value for service completed and future service.

- They will also want to make sure that their service is treated as continuous for the purpose of determining eligibility for benefits in the new entity.

- For the Gratuity and DB pension affected employees, they will also want that any transfer value is calculated assuming that employees are vested as on the calculation date

- For the DB pension, employees may want a share of the surplus

- **Unaffected employees**

They will be concerned that the funded status of the gratuity fund, and therefore the implied security of their benefits, is not diminished further by any transfer value being more than what the fund can afford. This will be less of an issue for the defined benefit scheme as it is in surplus.

- **Seller Trustees**

The Trustees will not want the funded status of their trusts be diminished by payment of any bulk transfer values.

- **Will want to follow Trust Deed and Rules and take independent actuarial advice, if necessary**

	• **Seller** - The seller will want to agree a transfer value on the lower side so as to maintain or enhance the funded status of the schemes post the transfer. - The seller will want transferred employees treated fairly and look for continued rights in the Buyer's Scheme post transfer. - The seller would want to retain as much of the surplus in the DB pension plan. • **Buyer** - If possible, the buyer would like to limit its obligations for the past service employees have served with the Seller for example, have gratuity benefits accrue from scratch and have previous service paid out. - The buyer will want as large a transfer value for the two trusts as possible, in particular a share of the surplus from the DB pension scheme - The buyer will want to know what the benefits being transferred are likely to mean on his projected financial statements so that a fair price can be assessed • **Income tax authorities** - The authorities will want to make sure that any transfer value or payment does not constitute any tax evasion e.g. the seller agreeing a higher transfer value payment to the buyer trust in return for a higher purchase price (thereby releasing funds to the company indirectly from the fund)	
Q.2 c	• Definitions • Obligations of the Seller o to supply all relevant information o ensure Trustees pay transfer amount o make good any shortfall in the fund o allow transferring employees to remain in the seller's trust during any transition period o to seek and assist the buyer to seek approval from the Income tax authorities • Obligations of the Buyer o provide adequate past service benefits to transferees o to participate and contribute to the seller's scheme for an agreed period o ensure that suitable vehicle for receiving the transfer of funds and benefits is set up for transferring employees and apply for Income tax authorities o make suitable announcements to employees • Agreed Calculation method and assumptions for the transfer amount and also adjustments to make for timing of payments • Arrangements for the transition period in terms of contributions, benefit payments, adjustment for interest and asset values between Seller and buyer • Whether the transfer will be in cash or asset transfer • Dispute resolution procedure • How any shortfall in transfer payment amount will be made good	

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Are these the only benefits?

Other long term benefits like retention plans
These would result in needing additional provisions in the balance sheet and would result in an adjustment in the purchase price
In respect of mandatory PF, whether entity contributes to RPFC or manages as an Exempted Trust. If managed by Company, then additional provision may be needed for any future shortfall interest rate

Leave benefits not valued, this needs to be conducted as part of the due diligence. An actuarial valuation should be conducted.
As there is no funds, an adjustment against the purchase price will need to be negotiated
Change of control clauses in employment contracts that may trigger additional payments to be made
The change of control needs to be especially considered as the BPO division itself was acquired 4 years ago. One should check for any grandfathered schemes and benefits
The impact of the transferring employees liabilities for each of the schemes, on the opening balance sheet of the buyer should be established
It should also be estimated what the next year's expense would be
To do this we would want to conduct an AS15 (revised) valuation for just the BPO employees. Separate member data for the BPO division would be required
If the gratuity funding is to be transferred across, assumptions will need to be agreed for that transfer calculation
Using the current AS15(revised) basis will not be appropriate and the BPO division will have a very different demographic profile.
The attrition assumption would typically be higher than in a manufacturing business.
The buyer should request for past data for attrition from the seller and conduct an analysis to set an assumption
Gratuity is highly sensitive to withdrawal rate as in case of withdrawal before 5 years gratuity is not payable and after 5 years it is payable immediately. It would be better to do discontinuance valuation of Gratuity Scheme of BPO Division
The discount rate under AS15 (revised) would be different as the term of the liabilities would be different due to the attrition assumption and the average age of the employees being different
The gratuity is in deficit as per the AS15 (revised) calculations and the buyer will need to be aware that the Trustees may not pass the full transfer value amount across which may mean an adjustment to the purchase price is required
One should ask for the Trust Deed for the schemes and check what clauses there are in respect of transfer values and in particular adjustments in respect of the deficit and any surplus.
For the DB pension scheme one should check the actuarial basis used to determine the 30% surplus. The main assumption here will be the assumed cost of the annuity and the discount rate.
The assumptions agreed for the gratuity should also be considered for the leave valuation to determine the purchase price adjustment
Both the gratuity and DB pension valuations are a year old and an up to date position needs to be determined.

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Gratuity

buyer needs to consider whether it will want to set up a trust or

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simply book reserve
  - need to consider what will happen to non-vested employees and whether they will be given continuity of service
  - usually eligibility for gratuity with the buyer will include service with the seller
  - the buyer could try to negotiate for employees to be paid out their entitlement under the seller service
  - this is so the buyer may not pick up for the future salary growth on all past service
  - the buyer can then start from afresh. It needs decide a benefit level. As a retention tool it may decide to provide higher benefits for future service, for example uncapped gratuity benefit or a higher accrual. It could target this to those it wants to retain like more senior employees or longer serving employees.
- **Leave scheme**
  - Buyer will need to decide whether to provide such a benefit
  - will it reduce or increase the maximum limit
  - the current benefit is based on basic salary, the buyer could increase this to cost to company if it felt they want to increase the benefit
  - As there is no trust for the leave scheme, there will be transfer of funds
  - If the accumulated leave balances are going to be transferred then the company may want to grandfather those and even possibly freeze the salary.
  - This will limit the liability by de-linking future salary for those previous leave balances
  - One way to potentially reduce the liability on the balance sheet is to allow employees to introduce availment during service.
  - If the actuarial valuation has a salary growth assumption more than discount rate then there may be a favourable impact on the balance sheet for people to avail the benefit during service earlier, than just having the benefit encashed on exit
- **DB Pension**
  - As the pension is frozen with no further salary or service there may be an argument not to transfer any liability for this pension
  - This would mean that the executives concerned would have to then reach out to the seller when due for retirement
  - If the buyer sets up another pension scheme, an equitable interest value of the frozen pension may be transferred to that scheme
  - If any new scheme is defined contribution then the transfer value would be an opening balance for each employee
  - If deferred annuities were available then these could be secured so there is no residual investment risk or annuity rate risk for the buyer for securing the frozen pensions
  - The buyer would want to make sure that the vesting criteria is waived for the BPO division executives if they do end up remaining in the seller scheme
- **General**
  - Whilst considering the future options and level of benefits to offer the employees in the buyer, the buyer will need to bear in mind its total rewards philosophy and cost
  - It will need to decide what level of rewards it wants to provide compared to the market
  - PF being a DC Scheme, each member’s A/C will be transferred if it is an exempted scheme

Q. 2 f	• AS15 (Revised) applies to all employee benefits except share-based payment plans • A leave accumulation plan as described in the question would be considered an other long term employee benefit • It is a long term benefit because the accumulated leave may not be paid or availed wholly within twelve months following the end of the period. As per the formula of the scheme the encashment at the time of exit would be paid on last salary. • Leave days accumulate if an employee does not fully utilize their annual leave entitlement. • It is assumed that a LIFO approach is used and the current annual entitlement is used first • The availed leave taken in the year of entitlement would be treated as a short term benefit • An assumption will be needed on the probability of availment from the accumulated pot and annual entitlement. This can be based on the company's past experience and other similar companies' experience. • The actuary could consider immediate past three years history of the company's leave experience as a base to setting the asumption • The availment probability should also take into account the timing of such availment e.g. people accumulating more leave just before they leave the company or retire • The project unit credit method must be used as per AS15 (Revised) and therefore salary must be projected to the time of availment and exit. • For this, a salary growth rate assumption must be made • A pre retirement mortality assumption is required • An attrition assumption will be required to dictate the timing of payments on exit before retirement • The discount rate must be in line with paragraph 78 of AS15 (Revised), which says that the discount rate must be with reference to the bond yield on Central Government Bonds as on the balance sheet date. The currency and term of the government bond should be consistent with the currency and term of the benefit obligation • The service cost will be the incremental actuarial value of the additional leave days added to the accumulated balance. • There are no prescribed level of disclosure AS15 (revised) • It should be confirmed what components of leave can be accumulated (privilege, sick) • A value should be calculated for the obligation whether or not there is a vesting criteria and whether employees have met that criteria as on the valuation date	
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