Multiple-Choice Question (All Multiple-Choice Questions carry Two Marks Each)

Q.1. Pure risk is said to exist when:
   (a) There is a chance of loss and gain both
   (b) There is a chance of loss but not of gain
   (c) Probability distribution for risk is assumed to be correct
   (d) Risk is same for all entities

Q.2. Actuarial science involves setting of:
   (a) Appropriate technical rating system
   (b) Reserves to cover up future costs
   (c) Expense charge for the risk underwritten
   (d) All of the above

Q.3. When reserving for a particular book of business, actuaries do not consider:
   (a) Social factors
   (b) Legislative changes
   (c) Competitive pressures
   (d) Economic factors

Q.4. A manufacturer produces goods in bulk. Goods are found to be defective at a mean rate of 1.28. Probability that 2 goods are defective in the next lot is:
   (a) 0.28
   (b) 0.23
   (c) 0.32
   (d) 0.55
   (Given e^{-1.28} = 0.2780)

Q.5. Which of the following statement is false?
   (a) Health is not insurable as the claims cannot be controlled by the insurer
   (b) Death by suicide is usually included in insurance cover
   (c) Health claims are not definite in time
   (d) Public policy may dictate if insurance is available or not

Q.6. Dynamic financial analysis can be explained as:
   (a) It is the ongoing valuation of business keeping all values constant
   (b) It is a model with fixed parameters
   (c) Model type changes as the values remain fixed
   (d) It is a perspective and not a statistical tool

Q.7. An insurer can avoid an exposure by:
   (a) Not paying the claim without survey
   (b) Charging adequate premium for the exposure underwritten
   (c) Rejecting the risk on company’s book
   (d) Carrying out PML underwriting
Q.8. Loss ratio method cannot be used for:
(a) Existing fire class of business
(b) New line of business
(c) Commercial lines of business
(d) Household lines of business

Q.9. Which of the following is true for pure premium method:
(a) It is based on premiums
(b) Produces indicated rates
(c) Requires existing rates
(d) Uses on-level premium

Q.10. Credibility of overall rate indication 7.28% is 0.85 and external source indication is 4.50%. The credibility weighted indication is:
(a) 6.12%
(b) 6.80%
(c) 6.86%
(d) 6.94%

Q.11. Carried loss reserves in the book of insurer are:
(a) Amount of paid claims liabilities
(b) Amount of unpaid claims liabilities
(c) Ultimate claims to be settled
(d) Result of actuarial analysis of a reserve inventory

Q.12. Basic premium, which is a function of standard premium provides for costs such as:
(a) Acquisition expenses
(b) Premium audit
(c) Allowance for profit
(d) All of the above

Q.13. Which of the following equations is incorrect for a non-life insurance company:
(a) Incurred losses = paid losses + change in outstanding claims
(b) Owner’s equity = contributed capital + retained earnings
(c) Income = Change in earnings + dividends
(d) Retained earnings = Assets – Liabilities – Contributed capital

Q.14. Risk theory is developed to deal with:
(a) Speculative risk such as large scale gambling
(b) Quantification of objective risk using mathematical models
(c) Stochastic processes as applied to sciences and finances
(d) All of the above

Q.15. The impact of severity increase on any given layer U excess L can be expressed as:

<table>
<thead>
<tr>
<th>Loss Size (X)</th>
<th>Rate of increase in Layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) X&lt;=L</td>
<td>Undefined</td>
</tr>
<tr>
<td>(ii) L&lt;X&lt;=</td>
<td>TX/(X-L)</td>
</tr>
<tr>
<td>(iii) U&lt;X</td>
<td>0</td>
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</tbody>
</table>
T: Severity increase rate  
Which of the above is true?  
(a) Only (i)  
(b) Only (ii)  
(c) (i) and (iii)  
(d) (i), (ii) and (iii)

(Essay type questions: All essay type question carry Ten marks each)

Q.16. (a) Define the term liability explaining the three essential characteristics an obligation has to satisfy for being considered as a liability.  
(b) Explain Accrual accounting? State briefly the purpose of balance sheet and income statement for an insurer.

Q.17. (a) Discuss the various trends that can possibly be observed in a five year old Motor book of business in terms of its claims data.  
(b) What are the factors considered in arriving at the final premium from risk premium?

Q.18. (a) Explain the retrospective and prospective systems of individual ratemaking.  
(b) What is meant by ‘credibility’ in ratemaking and what are three criteria of credibility?

Q.19. What are the steps involved in implementing the risk management process in a non-life company? Hence outline the ways in which an insurer controls its risk as part of risk management process.

Q.20. Briefly discuss four phases of approach to a reserve valuation problem.

Q.21. Write down the steps that need to be taken to design an Individual risk rating system.

Q.22. The following table of cumulative claims incurred is derived from a small property account. It gives the amounts for each of the last nine accident years, and the related earned premium. The cumulative paid claims for all accident years since, and including 2001 in Rs. 20,485.

<table>
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<tr>
<th>Accident Year</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Ultimate</th>
<th>Earned Premium</th>
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Estimate the reserve required at the end of 2005 using the Bornhuetter-Ferguson method, stating the assumptions you make.