

"QUESTION PAPER MUST BE ATTACHED ALONGWITH THE ANSWER BOOK."

CFG-84/A-2

November, 2016

**FOUNDATION OF CASUALTY ACTUARIAL
SCIENCE PART-II**

Reg. No.

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[Time : 3 Hours]

[Total Marks: 100]

(All questions are compulsory.)

Multiple –Choice Question (All Multiple-Choice Questions carries Two Marks Each)

- Q.1. A clash treaty may be only exposed by all the following except 2
- a) Extra-contractual- obligations
 - b) Excess-of -policy limit damages
 - c) Catastrophic workers compensation accidents
 - d) The claim arising from single event involving single coverage
- Q.2. In a simple linear regression to variable have the following relationship: 2
- $$y_1 = b_0 + b_1x_1$$
- The term b_1 denotes
- a) The observation of the independent variable at time t
 - b) The observation of dependent variable at time t
 - c) The intercept of the relationship between variables x and y
 - d) The slope of the relationship between variable x and y
- Q.3. Immunization is the strategy that eliminates. 2
- a) Price risk and coupon reinvestment risk on a fixed income portfolio
 - b) Operation risk
 - c) Jurisdictional Risk
 - d) Currency Risk
- Q.4. The observed claim frequency is 125. The credibility given to this data is 20%. The complement of the credibility is given to prior estimate of 200. What is new estimate of the claim frequency? 2
- a) 185
 - b) 180
 - c) 200
 - d) 125
- Q.5. Under facultative certificate Pricing the Actuaries role will be useful in all the following areas except. 2
- a) Design and maintain good pricing methodologies and good portfolio monitoring systems

- b) To evaluate the lines to business to concentrate upon based on market conditions change
 - c) To be sure that underwriters know how to use various rating factors
 - d) Evaluation of the Potential Cedant's management philosophy, ability, honesty and fair- dealingness.
- Q.6. The basic data elements in the Exposure Data Requirements of Catastrophe models are: 2
- a) Total insured value for each coverage type for each location
 - b) Deductible and Limit information
 - c) Structural Information of risks
 - d) All of the above
- Q.7. The " β " in the basic formula for capital asset pricing model represents 2
- a) Specific risk associated with the asset
 - b) Liquidity risk associated with asset
 - c) Systematic risk of asset
 - d) None of the above.
- Q.8. Which investment is best suited for short term liabilities? 2
- a) Derivates
 - b) Government Bonds
 - c) Corporate Bonds
 - d) Equity
- Q.9. Which of the following is not commonly used to model frequency? 2
- a) Poisson distribution
 - b) Negative binomial distribution
 - c) Binomial distribution
 - d) Gamma distribution
- Q.10. Bond has a face value of 5000 with coupon at 10% pa and has 2 years to maturity. Yield to maturity is 8%. Macaulay duration of bond is: 2
- a) 1.00
 - b) 2.00
 - c) 1.48
 - d) 1.52
- Q.11. 6 months old insurer is likely to use the following for its reinsurance: 2
- a) Quota share
 - b) Stop Loss
 - c) Finite covers

d) All of the above

Q.12. In a negative binomial distribution, the pdf is given by:

2

- a) $\binom{n+k}{n} p^n (1-p)^{1-n}$
- b) $\binom{n+k}{n} p^k (1-p)^n$
- c) $\binom{n+k-1}{n} p^k (1-p)^n$
- d) $\binom{n+k-1}{n} p^n (1-p)^k$

Q.13. Which of the following is not a form of finite reinsurance?

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- a) Financial proportional cover
- b) Loss portfolio transfer
- c) Funded aggregate excess cover
- d) Working layer excess of loss treaty

Q.14. Most appropriate ratio to measure profitability is:

2

- a) Leverage Ratio
- b) Quick Ratio
- c) Return on equity
- d) Interest coverage ratio

Q.15. Correct form of IBNER is:

2

- a) Incurred but not either reported
- b) Incurred but not expected reported
- c) Incurred but not enough reported
- d) Implied but not enough reported

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

Q.16. The aggregate loss distribution for two risks for one exposure period is:

| Aggregate losses | | | | |
|------------------|------|------|--------|--|
| Risk | \$0 | \$50 | \$1000 | |
| A | 0.80 | 0.16 | 0.04 | |
| B | 0.60 | 0.24 | 0.16 | |

A risk is selected at random and observed to have 0 losses in the first two exposure periods.

- a) Determine the Bayesian analysis estimate (Bayesian premium) of the

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| | expected value of the aggregate losses for the same risk's third exposure period. | |
| b) | Determine the credibility premium (Buhlmann's credibility estimate of the expected value of the aggregate losses for the same risk's third exposure period). | 5 |
| Q.17. | Describe clearly the various functions of the Reinsurance | 10 |
| Q.18. | Write notes on the following: | |
| a) | Catastrophe bonds | 5 |
| b) | Risk Exchanges | 5 |
| Q.19. | Discuss on Generally Accepted Accounting Principles and their relevance on Economic and Market Value. | 10 |
| Q.20. | What kind of events are modeled using catastrophe modes? Outline briefly its major components. | 10 |
| Q.21. | Describe the steps involved in a business planning process and what are the key assumptions made in the process. | 10 |
| Q.22. | Write a short note on: | |
| a) | Economic value of an insurance company | 5 |
| b) | Discounted cash flow analysis | 5 |

End