

**“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 t 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?

2

- 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

5

	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**