BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI SECOND SEMESTER 2022-23

COURSE NO.: ECON F417/FIN F413 COURSE TITLE: RISK MANAGEMENT AND INSURANCE

DATE: 13 Mar 2023 Max. Marks: 30

MID SEMESTER EXAMINATION (REGULAR) (CLOSED BOOK)

Note: Attempt all questions. Answer to the point. The question paper consists of Three PARTS - A, B and C. Closed Book examination.

PART –A: For the following multiple choice questions, choose the correct best answer and put a tick ($\sqrt{}$) against that letter (A/B/C/D). Write the corresponding answer A/B/C/D in the space provided. Corrections/overwriting/illegible answers are strictly invalid and carries no weightage.

 $(20 \times \frac{1}{2} = 10.0 \text{ Marks})$

- 1) Uncertain events are broadly classified as
- A. Predictable and Unpredictable
- B. Possible and Impossible
- C. Natural and Artificial
- D. Rare and Continuous
- 2) Risk evaluation breaks down into two parts. They are:
- A. Probability of loss occurring and its severity
- B. Risk calculation and risk analysis
- C. Loss calculation and avoidance
- D. None of the above
- 3) Relative variation of actual loss from expected loss is called ___
- A. Subjective risk
- B. Objective risk
- C. Actual loss
- D. Expected loss
- 4) An insurance company estimates its objective risk for 10,000 exposures at 10 Per cent. Assuming the probability of loss remains the same, what would happen to the objective risk if the number of exposures were to increase to 1 million?
- A. It would decrease to 1 percent
- B. It would decrease to 5 percent
- C. It would remain the same
- D. It would increase to 20 percent
- 5) Diversification is one way in which insurance companies can protect themselves against
- A. The law of large numbers
- B. Random fluctuation
- C. Positively correlated risks
- D. Parameter change
- 6) An oil company, in order to protect itself from future price risk, enters into a future agreement with another party. It is a case of
- A. Speculation
- **B.** Price Protection
- C. Hedging
- D. Gambling

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	The result cannot be predicted	, Baiii	
	The result can be a gain or loss The result can be only a gain or no	gain	
	The result can only be a loss or no The result can be a gain or loss	1055	
-	A pure risk is one where:	loce	
4 4 1			
	moral hazard		
	physical hazard		
	speculative risk		
-	morale hazard	and the state of t	
13)	Poor or faulty wiring that may lead	d to fire is an example of a:	
υ.	the money	and mounds agreed to pay the mounds on	i, ii die liisureu reque
	· · · · · · · · · · · · · · · · · · ·	the insurer agrees to pay the insured on	ly if the incured reque
_	A socialist plot to destroy the free	_	
۵.	in order to be indemnified against		icht caneu the preffill
		tect you in the event of a rainy day an individual pays a small certain paym	ant called the promi-
	Which of the following is a definiti		
		ion of incurance?	
	low, low		
	high, high		
	low, high		
Α.	high, low		
+ +)	is	Them tool when the charice of loss is	and the 1055 Sevel
11\	Incurance is the hest risk manager	ment tool when the chance of loss is	and the loss sever
D.	Subrogation		
C.	The unilateral adhesion clause		
В.	Proof of loss		
	Utmost good faith		
	for loss, the insurer has the right t	o recovery from a negligent third party?)
10)	Which clause or concept in insura	ince law provides that when an insurer	indemnifies the insur
υ.	Catastrophic risk		
	Speculative risk Neutral risk		
	Pure risk.		
	the nature of a		
9)	•	ociated with uncertain events. To be ins	urable, a risk must be
D.	Risk		
C.	Uncertainty		
В.	Peril		
A.	Hazard		
8)	A's car is damaged in a collision wi	ith B's car, such collision is	
υ.	Adverse selection		
	Adverse selection		
	Evil Mind Moral Hazard		
	Morale Hazard		
^	undue profits, it is case of		
		sarea godown stocked with inventory, w	
7)	THE SUFFICIOUS IS SELLING THE LU GH HIS		
7)	If somebody is setting fire to an ins	sured godown stocked with inventory w	ith an intention to m

- 15) One example of the use of risk assumption in insurance is:
 - A. the use of subrogation
 - B. the use of a deductible by the insured
 - C. the use of actual cash value when settling a claim
 - D. the use of contingent claim analysis in determining the amount of coverage available for claim settlement.
- 16) ___ is the process of reducing frequency and severity of losses.
 - A. Loss prevention
 - B. Loss Control
 - C. Avoidance of risk
 - D. None of the above
- 17) Speculative risk is a situation in which __ is possible
 - A. Loss
 - B. Profit
 - C. Either a profit or loss
 - D. None of the above
 - 18) In the context of insurance, moral hazards arise from the
 - A. attitudes and behaviours of policyholders.
 - B. characteristics of the physical risk.
 - C. influence of external circumstances.
 - D. security measures used to protect property.
- 19) Following a risk evaluation exercise a manufacturing company decided to double the size of the deductible under its insurance policy. How is this best explained in terms of the company's risk position?
 - A. Risk retention has increased.
 - B. Risk retention has reduced.
 - C. The risk of an insured event occurring has increased.
 - D. The risk of an insured event occurring has reduced.
- 20) A large company addresses some of its risks by adopting a formal self-insurance approach. This is most likely to involve
 - A. establishing a captive arrangement.
 - B. establishing a hold harmless agreement.
 - C. purchasing a catastrophe bond.
 - D. reducing its policy deductibles.

Question	1	2	3	4	5	6	7	8	9	10
Answer										

Question	11	12	13	15	15	16	17	18	19	20
Answer										

- B1 (a) Write the ideal requirements of an insurable risk.
 - (b) Earthquake risk is difficult to insure privately because not all of the ideal requirements of an insurable risk are met. Which of the requirements mentioned by you for insurable risk are met? Which are not met? Why not?

B2 Write one important reason why do we do not transfer all risks by using insurance.

B3 For the sentences, fill the blanks using the appropriate word given below and complete the sentence.

Words:	W	o	rd	s	:
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Negligence, hedging, Underwriting, Estoppel, Insured, Loss control, underwriter, Moral, Speculative risk, Tort, general average loss, Utmost good faith, Rate Making, Group Insurance, Proposer, Interest rate risk, Insured

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viii.	riii. A loss may be either a sacrifice or expenditure, extra reasonably incurred at the time of general peril for the commo	
vii.	vii. The burden of proof of loss within the scope of policy is upon t	:he
vi.	vi is the process of reducing frequencies and severely of lo	osses.
V.	v hazards refer to the defects that exist in a per the frequency or the severity of loss	erson's character that may increase
iv.	ivis the heart of insurance operations?	
iii.	iii. A is the person who sends the proposal form for taking	g an insurance policy
ii.	ii means those risks which involve a situation where there	re is a possibility of gain.
	right due to its previous acts, which were in such a way as to right.	
i.	iis a stipulation, which prevents the insurance cor	mnany from enforcing or claiming a

,	what are the important basic rea	tures of all misurance contract: List the	
. ,	What are the important hasic fea	tures of an insurance contract? List the	em

В6	(a) What are the steps in the risk management process?
	(b) For each of the following combinations of risk frequency and risk severity, list the appropriate
	risk management strategy:
	(i) low frequency, low severity
	(ii) high frequency, low severity
	(iii) low frequency, high severity
	(iv) high frequency, high severity

PART -C:

For the following questions explain clearly the answer. Each question carries equal marks and No partial credit. Unnecessary explanation and not relevant answers will be penalised. Write to the point. Please write legibly. (8.0 Marks)

- C1 RAMKI Company insured its building for \$1,400,000 under a replacement cost policy that included an 80 percent coinsurance clause. The policy includes an earthquake endorsement with a 15 percent deductible. The building had a replacement cost of \$2 million when it sustained \$540,000 in damage from a windstorm.
 - a) Assuming there is no deductible, how much will RAMKI Group recover from its insurance Group? Explain why.
 - b) Suppose that the damage was due to a sinkhole (earth movement) rather than wind. How much will RAMKI Group recover from its insurance Group? Explain why.



C2 RP CABLE Manufacturing (RPCM) owns a high-rise office building with glass cladding (a protective covering) and adjacent factory premises, and it operates from these factory premises. RPCM refurbishes and sells electric motors. Its processes include stripping down old motors, sandblasting motor casings, armature winding, varnishing, spray-painting and assembly. In order to write a risk management statement, the risk manager will carry out a physical inspection to familiarise himself or herself with the factory layout and processes. The risk management process of identification will consist of listing all manufacturing processes using a checklist to ensure that he or she asks all the relevant questions. The checklist will also include questions such as what flammable liquids are used, in what quantities, and where are they stored?

During the identification step of the risk management process for RPCM, the risk manager identifies the following insurable risks:

Risk	Office building	Factory premises	
Fire	Low probability	High probability	
Explosions	Low probability	High probability	
Storm	High probability of hail damage	Medium probability	
	to glass cladding		
Riot and strike	Low to medium probability	Low to medium probability	
	related to possible labour	related to possible labour	
	disputes	disputes	
Theft	Medium probability	Low probability	
Personal	Low probability	High probability	
liability			

The next step in the risk management process is to measure the potential risks, or place a value on the impact of the risk.

The measurement process for RPCM reveals the following information:

- <u>Fire damage to the office building:</u> The low potential for fire in the office building is further improved by the construction specification that includes fire resistant doors on stairways and the installation of a sprinkler system. In the event of fire, estimates suggest that the damage would be limited to 60% of the building. However, this exercise identified the possibility of damage through accidental activation of the sprinkler system. This risk must be added to the list.
- <u>Sprinkler leakage:</u> In the case of leakage, estimates suggest that the damage would be 15% of the insured contents value of the office building.
- <u>Fire damage to factory premises:</u> The factory premises contain potential sources of ignition and inflammable material that could feed a fire. Open flames are used to strip old motors. Therefore, the potential for fire damage is high and likely to be 80% of the total value of the contents and building. Fire would also damage the combustible components of the stock of refurbished and new motors.
- <u>Storm damage:</u> The potential loss from storm damage is estimated at 25% of the value of the factory premises, and 20% of the value of the office building. The potential damage to the glass cladding must be separately evaluated. The impact of hail damage could be 25% of the total cost of glass replacement, representing one total side of the building. Statistics also show that, on average, five panes of glass break accidentally every year. This equates to R4 000 in total, at a cost of R800 per pane.
- Riot and strike damage: The potential loss from riot and strike damage is estimated at 10% of the total value of the factory premises.
- <u>Theft:</u> In the case of theft the estimate loss, per event, is R50 000 for the factory and R10 000 for the office.
- <u>Product liability:</u> The refurbished products could attract product liability claims against RPCM if RPCM's negligence caused damage to property where the motors are installed. The estimated loss is R2 million, inclusive of legal fees.

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• <u>Business interruption:</u> A fire could seriously impact on the ability of the business to continue. In this event, competitors would move into RPCM's market if the company could not provide its services for an extended period. It is estimated that DMG could be affected for at least six months after a serious fire.

As an expert you are hired to make a draft of risk management plan to deal with the following risk that have been identified:

- fire and explosion;
- business interruption; and
- product liability.

