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Revision Part 2

Exam process

- Exam weight: 40%
- Answer THREE questions from FOUR
- Each question is worth a total of 20 marks

Type of questions

- Knowledge-based
  - Target basic information
- Comprehension
  - Target the understanding of what information means
- Application
  - Target the knowledge to problem solving

Topics Part 2

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- Fundamental topics and key terms of cybersecurity risk management
- Cyber threat intelligence
- Economics of security
- Statistics and probability theory
- Some numerical methods

\+ All topics covered in labs

Introduction to cybersecurity risk management

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- Key principles: confidentiality, integrity, availability, non-repudiation
- Key ingredients of cyber attack: threat, threat agent, attack, vulnerability, exploit, payload, action
- Risk
  - Sources of uncertainty
  - Risk management, risk assessment, risk treatment
  - Planning types: strategic, tactic and operational
  - Cyclical process: plan do check act cycle
  - Residual risk and incident management

Cyber threat intelligence

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- Threat assessment
- Background of CTI
- Features of cyber attacks
- CTI models
  - Intelligence cycle
  - Funnel model
  - F3EAD model
- Further considerations
  - Data sources
  - Maturity

Economics of security

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- Public goods
- Information economics
  - Price of information
  - Value of lock-in
  - Asymmetric information
  - Adverse selection and moral hazard
- Economics of security and dependability
  - Total effort, weakest link, best shot
  - Why Windows is so insecure
  - Economics of DRM

Statistics and probability theory

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- Descriptive statistics
  - Central tendency: arithmetic mean, median, mode
  - Spread: variance, standard deviation, interquartile range
- Set theory
  - Set membership and relationship
  - Venn diagrams, algebra of sets, De Morgan laws
- Probability theory
  - Sample space, events, axioms of probability
  - Conditional probability
  - Independence
  - Bayesian theory
  - Random variable: discrete, continuous, independent, joint
  - Probability distributions

Some numerical methods

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- Random sampling
- Linear programming
- Linear regression

Example questions

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