5.4 Crisis management, research and development, and information systems

Name: _____ Class: _____ Date: _____ **Total: 30 marks**

KEY WORDS crisis management • contingency planning • research and development • intellectual property • big data • cybersecurity

Objective

Build the skills to answer exam questions on **crisis management** and contingency planning, **research and development** and innovation, and **management information systems** .

You must be able to:

- distinguish crisis management and contingency planning, and explain transparency, communication, speed and control in a crisis
- explain the importance of R&D, types of innovation, and adaptive and innovative creativity
- explain intellectual property protection: patents, copyrights and trademarks
- explain data analytics, databases, cybersecurity, artificial intelligence, big data and the internet of things in business
- evaluate the ethical issues of collecting and using data

1 Key knowledge and worked examples

■ Crisis management and contingency planning

A **crisis** is a sudden, unexpected event that threatens the firm (a product recall, a fire, a data breach). **Crisis management** is how the firm responds as the crisis happens. **Contingency planning** prepares in advance for possible crises (what to do, who is responsible). Effective crisis management needs **transparency** (honest information), **communication** (clear, fast messages to all stakeholders), **speed** and **control** (a clear leader and plan). Contingency plans cost time and money and may not fit the actual crisis, but they speed up the response and protect reputation.

Research and development (R&D)

R&D creates new products and processes. **Types of innovation: product** (a new or improved good), **process** (a better way of making it), **positioning** (presenting an existing product in a new way), **paradigm** (a change in a whole industry, e.g. streaming). **Adaptive creativity** improves what exists; **innovative creativity** creates something new. R&D is costly and risky but gives a competitive advantage. **Intellectual property** is protected by **patents** (inventions), **copyrights** (creative work such as music, software) and **trademarks** (brand names and logos).

Management information systems

tool	use in business
data analytics, big data	find patterns in sales and customer behaviour
databases, customer loyalty programmes	store customer details and purchases; target offers
artificial intelligence, machine learning	forecast demand, set prices, answer customers (chatbots)
internet of things	sensors track machines, stock and deliveries
virtual reality	training, product design, showing products
cybersecurity	protect data and systems from attack

Critical infrastructure (power, networks, cloud services) must be protected. **Digital Taylorism** uses data to monitor and control workers closely. **Ethics:** privacy, consent, data protection laws, bias in algorithms, surveillance of staff.

Answer shapes: identify the issue → stakeholders affected → method or tool → benefit and risk → judgement.

2 Practice

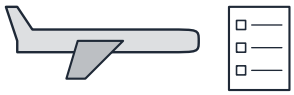
2.1 Distinguish between crisis management and contingency planning. [2]



2.2 State **two** ways a firm can protect its intellectual property. [2]



2.3 Explain **one** benefit and **one** cost of contingency planning for an airline. [4]



2.4 Distinguish between product innovation and process innovation, with an example of each from a car maker. [4]

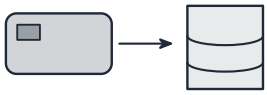


new model



robot

2.5 A supermarket collects data through its loyalty card. Explain **two** ethical issues this raises. [4]

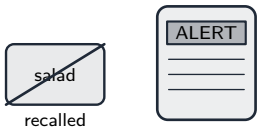


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3 Exam-style questions

3.1 FreshFarm sells packaged salads to supermarkets. A food-safety test finds bacteria in salads from one of its factories, and several customers become ill. News spreads quickly on social media. FreshFarm has no contingency plan.

(a) Explain **two** factors that make crisis management effective. [4]



(b) Discuss how FreshFarm should manage this crisis. [10]

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Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

contingency planning: preparing in advance for possible crises; crisis management: responding to a crisis while it happens to limit the damage

2.2

any two: patent; copyright; trademark

2.3

benefit: staff know what to do in an emergency (e.g. a cancelled flight or a safety incident), so passengers are protected and reputation is kept; cost: plans take time and money to prepare, test and update, and may not match the actual crisis

2.4

product innovation: a new or improved product; e.g. a new electric model; process innovation: a new or better way of making or delivering the product; e.g. robots on the assembly line

2.5

any two, explained: privacy: detailed shopping data can reveal personal information (health, religion); consent: customers may not understand how their data are used or sold; security: a data breach could expose customers; manipulation: targeted offers may push vulnerable customers to overspend

3.1

(a) any two, explained: transparency: honest information builds trust; communication: fast, clear messages to all stakeholders; speed: acting quickly limits harm; control: a clear leader and plan avoid confusion

(b) award up to [10]: recall all products from the factory at once to protect customers; short-term cost and lost sales, but limits harm and legal claims; transparency: publish what is known and what is being done; communication with customers, supermarkets, regulators and staff, including on social media; speed and control: one leader and a crisis team; investigate the cause and fix it before reopening; support affected customers; possible compensation; long term: create a contingency plan and better quality assurance; judgement: reputation depends on an honest, fast response